NISTIR 4533

ENERGY RELATED INVENTIONS PROGRAM A JOINT PROGRAM OF THE DEPARTMENT OF ENERGY AND THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY STATUS REPORT FOR RECOMMENDATIONS 1 THROUGH 250

U.S. DEPARTMENT OF COMMERCE
National Institute of Standards
and Technology
Office of Energy-Related Inventions
Gaithersburg, MD 20899

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Robert A. Mosbacher, Secretary
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March 1991

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PREFACE

The Energy-Related Inventions Program was established in 1975. Since its inception over 27,000 inventions have been evaluated. As of the printing of this report 523 have been recommended to the Department of Energy. This report supercedes NISTIR 4319 and summarizes the status of Inventions 1 through 250. A companion report summarizes the remainder of the recommended inventions.

Section 1 Introduction

1.0 BACKGROUND

The Office of Energy-Related Inventions (OERI) was established within the National Bureau of Standards (now known as the National Institute of Standards and Technology (NIST)) under the terms of Section 14 of the Federal Nonnuclear Energy Research and Development Act of 1974. OERI is an integral part of the NIST Office of Technology Evaluation and Assessment. Section 14 directs NIST to "give particular attention to the evaluation of all promising energy-related inventions particularly those submitted by individual inventors and small companies for the purpose of obtaining direct grants" from the Department of Energy (DOE).

A separate office was established within DOE to coordinate financial and other DOE support to be provided for inventions recommended by NIST. The NIST and DOE offices together constitute the Energy-Related Inventions Program.

1.1 OVERVIEW OF PROGRAM OPERATION

The Energy-Related Inventions Program is jointly operated by NIST and the DOE. Funding is provided through the DOE budget (Conservation and Renewable Energy, Conservation, Energy Conversion and Utilization Technology).

Under the law NIST (OERI) is responsible for evaluation of inventions, whether submitted directly to OERI or submitted to DOE or other agencies and forwarded to OERI. OERI is also responsible for outreach activities aimed at bringing the Program to the attention of inventors and small businesses.

OERI reviews and processes all evaluation requests. Evaluation is based on three general criteria: technical feasibility, potential energy-conservation or energy-supply impact, and commercial feasibility. All inventors are informed of the results of the evaluation of their invention. An invention which meets the NIST criteria for recommendation is forwarded to DOE for possible support action.

Inventions forwarded by the OERI to DOE are recommended as "technically valid and worthy of consideration for Government support" under the NIST/DOE Inventions Program. An OERI report is furnished with the recommendation to explain in detail the advantages of the technology as well as any qualifications of the recommendations, such as required testing. It also provides guidance to DOE and the inventor for deciding on the nature and extent of support to be given.

Inventions may be recommended by OERI at any stage of their development; some may be conceptual, others at the laboratory testing stage, while others may be in production or in the process of being marketed. How much support will be furnished will depend largely on what is required to move invention development forward or to resolve the question of whether development should continue; the latter question is of particular interest if the NIST evaluation is based on data furnished by the inventor and the recommendation is qualified by an expressed need for data validation under controlled testing conditions.

In general, DOE accepts the NIST recommendation and provides the appropriate support. However, there have been and will continue to be cases in which DOE cannot or will not provide support. DOE attempts to reach agreement with the inventor on the nature and extent of support within constraints. Constraints include the capabilities of the inventor and/or the company involved, possible duplication of prior or on-going DOE-funded efforts, availability of private sector support, and DOE fund limitations.

It should be noted that DOE performs no technical evaluation beyond that done by NIST. DOE does reserve the right to question and reject the NIST recommendation and to restrict support because of policy and/or funding considerations.

Each case is decided on the basis of its own merit and need. If DOE decides to support the invention, support can include: a grant, a contract, or direct assistance of a technical or business nature. DOE's objective is that, at the completion of this support, the inventor will be in a position to do one or more of the following:

- Compete effectively in obtaining contracts from other sources (including existing government programs) to permit further development of the invention.

- Assemble, with confidence of success, the people and capital necessary to produce and market products derived from the invention through a business enterprise in which the inventor is a major participant.

- Negotiate arrangements with an existing company that will develop the inventor's product for commercialization.

1.2 EVALUATION PROCEDURES (NIST)

There are three principal steps in the evaluation process used by the NIST Office of Energy-Related Inventions. In the first step, Disclosure Review and Analysis, invention disclosures are either accepted or rejected for evaluation, depending upon whether or not the invention is within program scope and the disclosure is sufficiently well-prepared to enable evaluation. If accepted, a formal evaluation is initiated.

First-Stage Evaluation is a technical screening in which brief opinions are obtained from OERI staff evaluators, other government scientists or engineers, or consultants or contractors. If the invention is rated as "promising" in this First-Stage, Second-Stage Evaluation is initiated. ("Promising" means the invention seems to be technically feasible, has significant energy conservation or supply potential, and is deemed to be economically and commercially practical.)

In Second-Stage Evaluation an analysis is conducted in greater depth, resulting in a formal report. If Second-Stage Evaluation confirms the finding of "promising," the disclosure and evaluation results are forwarded to DOE with a recommendation for Government support.

Throughout the process, the inventor is kept informed of the status of the evaluation. The inventor is sent a letter notifying him of the results of First- or Second-Stage evaluations as they are completed. If Second-Stage Evaluation has been conducted, a copy of the Second-Stage invention review is also sent to the inventor.

1.3 SUPPORT PROCEDURES (DOE)

Upon receipt of a recommendation from NIST, DOE contacts the inventor, provides details of the support procedures, and requests a statement as to the nature and extent of support desired, generally in the form of a proposal or grant application. The DOE invention coordinator works with the inventor in proposal preparation to ensure effective review of support options and to develop a satisfactory statement of work and support plan. DOE then decides whether or not to provide support as well as the nature and extent of support.

If financial support is to be provided, DOE initiates procurement action, monitors progress of the procurement action, and helps to expedite processing of the paperwork until the award is made. During the period that financial or other support is provided, the DOE invention coordinator monitors and assists the inventor's efforts, maintaining a status report for use by both DOE and NIST.

1.4 SUPPLEMENTARY ACTIVITIES

1.4.1 National Innovation Workshops (NIW)

This project was initiated in early 1980 as a means of informing inventors about the Program and increasing the percentage of higher-quality inventions submitted to OERI. Another objective of the Workshop series is to assist inventors (thus to stimulate innovation in general) by putting them in touch with their community resources and by providing practical instruction in the various elements of the innovation process.

Workshops are conducted in a standard format as two day seminars. On each day a plenary session and a luncheon session feature national-level speakers on invention and innovation. Three 1-1/2 hour periods each day then are designated for the conduct of 8 to 10 concurrent Workshop sessions.

The Workshops are organized as regional activities by a committee composed of representatives from such regional organizations as universities, venture or other financing groups, private sector institutions concerned with technological innovation, state and local government agencies, patent law associations, etc. Federal involvement is restricted to providing guidance and financial support. The federal role is catalytic in nature in that Workshop feasibility is demonstrated with the expectation that the regional committee will continue Workshops and similar activities in the future without federal involvement.

1.4.2 Commercialization Planning Workshops (CPW)

This series of workshops, managed entirely by DOE, was initiated in June 1984 as a mechanism for providing direct and immediate assistance to inventors whose inventions have been recommended by NIST. Each workshop brings together a group of 10-14 such inventors for a three day meeting with a "faculty" of six workshop leaders who are selected by DOE on the basis of their expertise in at least one aspect of innovation (business planning, marketing, finance, licensing, etc.). Workshop attendance is limited to inventors invited by DOE and the faculty.

The three-day meeting is devised to provide a concentrated educational/informative experience for each recommended inventor; travel and other meeting expenses are paid for by the Government. The objective in each case is for the recommended inventor to develop, with the aid of the faculty, a detailed plan for commercialization of his invention. The plan then serves as the principal basis for the DOE office to conduct their initial review of the recommendation (Analysis).

1.5 NATURE OF THIS REPORT

This report comprises an introductory section (Section 1), a report sections (Sections 2), and a cross reference listings section (Section 3).

Section 2 is the main body of the report and contains brief descriptions of each of the inventions recommended, a summary of its status, the identity of the DOE staff coordinator for that invention, the date the invention was submitted to NIST and the date recommended to DOE. The name and address of the person to contact regarding the invention are also included whenever they are available, as are the patent numbers and DOE grant numbers. The inventions are presented in chronological order of their recommendation by NIST.

Section 3 of the report contains four cross reference listings for use in finding specific recommended inventions. The first listing is ordered by inventor name, the second listing is ordered by contact name, the third listing is ordered by home state of the inventor, and the fourth by invention classification.

SECTION 2

STATUS OF RECOMMENDED INVENTIONS

2.0 Introduction

This section contains an index and brief descriptions of those inventions recommended by the Office of Energy Related Inventions at NIST to the Energy Related Inventions Program office at DOE. Each description includes a brief description of the invention, a summary of the invention status, significant dates, status, and summary of development. The name of the inventor, primary contact for information, and DOE staff coordinator are also provided. The address of the contact is provided if an award has been made. At the time of receipt, DOE assigns a number (DOE No.) to each recommended invention. These numbers are used for tracking purposes and are also the key for sequencing the descriptions presented in this section. Section 3 presents four cross reference lists for locating specific invention descriptions. These lists provide cross reference between DOE No. and Inventor name, Contact name, invention classification, and inventor state.

2.1 Index to Recommended Inventions

The following is an index to the recommended inventions showing invention DOE No., invention status and title. Status is described in terms of the following steps in the DOE support process.

Analysis	DOE review of recommendation. Inventor has submitted description of proposed work. Options for support are investigated.
Decision Phase	Final Statement of Work derived from above options. Inventor requested to submit supporting documents for procurement action. Prepare purchase request.
Other Assistance	Federal Laboratory testing, or business planning assistance, often leading to a grant award outside of ERIP.
Procurement	Request for grant or contract in the procurement process.
Award	Inventor awarded grant or contract. Work commences. Final report due at end of work period.
No Basis For Support	Sources of support within DOE have been investigated, but recommendation will not be supported, e.g., inventor not interested, no area of DOE support could be identified, conflict with other DOE awardees being supported.
Complete	Inventor has complied with all the requirements of the Statement of Work or ERIP assistance is terminated.

INDEX TO RECOMMENDED INVENTIONS

DOE No.	STATUS	TITLE
0001	No DOE Support	Demand Metering System for Electric Energy
0002	Other Assistance	Fuel Miser
0003	Complete	Hydrogen Generation from Producer Gas by Oxidation-Reduction of Tin
0004	Complete	Power Conversion of Energy Fluctuations
0005	Complete	Diesel Engine Conversion System for Gasoline Engines
0006	Complete	Micro-Carburetor
0007	Complete	Hydraulically Powered Waste Disposal Device
0008	Complete	Inertial Storage Transmission
0009	Complete	Heat/Electric Power Conversion via Charged Aerosols
0010	Complete	Scrap Metal Preheating Method and Apparatus
0011	Complete	Solar Collector
0012	Complete	High Frequency Energy Saving Device
0013	Complete	Anti-Pollution System
0014	Complete	Aerodynamic Lift Translator
0015	Complete	Estacron
0016	Complete	Method and Apparatus for Vacuum Drying of Commodities
0017	Complete	Osmotic-Hydro Power Generation
0018	Complete	The Control of the Analysis of Low Carbon Aluminum Steels Using Oxygen Sensors and Iron-Aluminum Alloy
0019	Complete	Phenol Methylene Foam Rigid Board Insulation
0020	Complete	Thermal Shade
0021	Complete	Waste Oil Utilization System
0022	No DOE Support	Fuel Burner Attachment
0023	No DOE Support	Microgas Dispersions
0024	Complete	Can and Bottle Crushing Apparatus
0025	Complete	Sulfur Removal from Producer Gas-High Temperature
0026	Complete	Compact Energy Reservoir
0027	Complete	Waste Heat Utilization for Commercial Cooking Equipment
0028	Other Assistance	Ultraflo
0029	Complete	Tuned Sphere Stable Ocean Platforms
0030	Complete	Method of Removing Sulfur Dioxide from Flue Gases
0031	Complete	Ceramic Rotors and Vanes
0032	Complete	Wood Gas Reactor
0033	Complete	Temperature Indicating Device
0034	Complete	Delphic Thermogenic Paint (Heat Film)
0035	No DOE Support	Utilization of Solar Energy by Solar Pond System
0036	Complete	Computerstat
0037	No DOE Support	Hotwater Engine
0038	Complete	Reduction Volatilizations
0039	No DOE Support	Lawler Steam Generator and Lawler System of Thermal Oil Recovery
0040	No DOE Support	Improved Equipment and Process for Production of Blue Water Gas
0041	No DOE Support	Fabrication of Photovoltaic Devices by Solid Phase Growth of Semi-conductors from Metal Layers
0042	Complete	Flue Baffle Assembly
0043	Complete	Thermal Gradient Utilization Cycle
0044	Complete	New Working Fluids for Increasing the Cycle Efficiencies of Thermal
0045	Complete	Bulk Cure Tobacco Barn with Improvements
0046	Complete	Thexon Dehydration
0047	Complete	Wastewater Aeration Power Control Device
0048	No DOE Support	Howald Combustor
0049	No DOE Support	Automatic Control System for Water Heaters
0050	Complete	Scotsman Fuel Energizer
0051	No DOE Support	Thermal Efficiency Construction
0052	No DOE Support	Air Wedge

INDEX TO RECOMMENDED INVENTIONS(cont.)

DOE No.	STATUS	TITLE
0053	Complete	High Efficiency Water Heater
0054	Complete	Optimizer
0055	No DOE Support	Electrically Heated Sucker-Rod
0056	Complete	Flexaflo-The Wet Fuel Dryer
0057	Complete	X-5 Smoke Eliminator
0058	Complete	A Multiple Spark System Using Inductive Storage
0059	No DOE Support	The Volumetric Gas Turbine
0060	Complete	Electric Transport Refrigerator
0061	Complete	Fuel Preparation Process
0062	Complete	Tapered Plate Annular Matrix
0063	Complete	Fluorobulb
0064	Complete	The Mahalla Process--A Hydrometallurgical Method for Extracting Copper
0065	Complete	WattVendor
0066	Complete	Heat Extractor
0067	Complete	Windmill Using Hydraulic System for Energy Transfer and Speed Control
0068	Other Assistance	Under Compressioon and Over Compression Free Helical Screw Rotary Compressor
0069	Complete	Ionic Fuel Control System for the Internal Combustion Engine
0070	Complete	Air Cooled Compressor Heat Recovery and Heat Circulation System plus Ambient Air Filter and Air Cleaner
0071	No DOE Support	Knight Guard
0072	No DOE Support	Utilization of Waste Gas for Boilers and Furnaces in Refineries and Petrochemical Plants
0073	Complete	INTECH
0074	Complete	A Solid Electrolyte Galvanic Solar Energy Conversion Cell
0075	Complete	Coke Quenching Steam Generator
0076	Complete	The Ross Furnace
0077	Complete	Variable Heat Refrigeration System
0078	No DOE Support	System for High Efficiency Power Generation from Low Temperature Sources
0079	Complete	Oil Well Bit Insert (Tooth), Cutting Article, Ablative
0080	No DOE Support	Improved Unfired Refractory Brick
0081	Complete	Flash Polymerization
0082	Complete	Cool Air Induction
0083	Complete	Vertical Solar Louvers
0084	No DOE Support	Kinetic Energy Type Pumping System
0085	Complete	Dielectric Windowshade
0086	Complete	Coke Desulfurization
0087	Complete	Recovering Uranium From Coal in Situ
0088	Complete	System-100
0089	Complete	Continuous Casting Process and Apparatus
0090	No DOE Support	Grain Dryer
0091	Complete	Mine Brattice
0092	No DOE Support	Tri-Water, A Combination Air Conditioning and Fire Protection System for a Building.
0093	Complete	Shelander-Burrows Process for Recovery of Metallic Values from Smelter Emissions
0094	Complete	Lantz Converter
0095	No DOE Support	Omni-Horizontal Axis-Wind Turbine
0096	Complete	Leavell, Vibrationless, Low Noise, High Efficiency, Pneumatic Percussion Tools and Air Compressor Systems
0097	Complete	Water Drying System
0098	Complete	Process Development to Conserve Energy and Material---(in the manufacture of)---Bearings
0099	Complete	Light Weight Composite Trailer Tubes
0100	Complete	Solaroll

INDEX TO RECOMMENDED INVENTIONS(cont.)

DOE No.	STATUS	TITLE
0101	Complete	Controlled Combustion Engine
0102	Complete	Method of Burning Residual Fuel Oil in Distillate Fuel Oil Burners
0103	Complete	Low Voltage Ionic Fluorescent Light Bulb
0104	Complete	Low Continuous Energy Mass Separation System
0105	Complete	High Frequency Furnace
0106	No DOE Support	Deep Shaft Hydro-Electric Power
0107	Complete	Waste Products Reclamation Process
0108	Complete	Processing Recovery of Aluminum
0109	Complete	Hydrostatic Meat Tenderizer
0110	Complete	Improved Windpower Generating System
0111	Complete	Haspert Mining System
0112	Complete	Pump
0113	Complete	Wallace Mold Additive System
0114	No DOE Support	New Energy-Saving Tire for Motor Vehicles
0115	Complete	Refrigeration System
0116	No DOE Support	Model 5000 ASEPAK System
0117	Complete	"Solarspan" Prism Trap
0118	Complete	Energy Adaptive Control of Precision Grinding
0119	No DOE Support	Air Ratio Controller (AERTROL)
0120	Complete	Vapor Heat Transfer Commercial Griddle
0121	No DOE Support	Solar Space Heating for both Retrofit and New Construction
0122	Complete	Lean Limit Controller
0123	Complete	Comminution of Ores by a Low-Energy Process
0124	No DOE Support	Solar Collector
0125	Complete	The Turbulator Burner System
0126	Complete	Vaclaim
0127	Complete	Process and Apparatus to Produce Crude Oil from Tar Sands
0128	Complete	Continuous Distillation Apparatus and Method
0129	Complete	Super U System - Snap Strap
0130	No DOE Support	Furnace Input Capacity Trimming Switch
0131	Complete	Valve Deactuator for Internal Combustion Engines
0132	No DOE Support	Process for Reclaiming and Upgrading Thin-Walled Malleable Waste Material
0133	Complete	AUTOTHERM Car Comfort System
0134	Complete	Expanded Polystyrene Bead Insulation System
0135	Complete	Point Focus Parabolic Solar Collector
0136	Complete	Windamper
0137	Complete	A Portable Pollution Free Automobile Incinerator
0138	No DOE Support	Phantom Tube
0139	No DOE Support	Transformer With Heat Dissipator
0140	Complete	Counter Flow Dual Tube Heat Exchanger
0141	Complete	New Hydrostatic Transmission
0142	Complete	Process for Heatless Production of Hollow Items
0143	Complete	Oil Well Pump Jack
0144	No DOE Support	SpaCirc Space Circulation Fan
0145	Complete	Solar Conversion by Concentration Cells with Hydrides
0146	Complete	Line Integral Method of Magneto-Electric Exploration
0147	No DOE Support	Railroad Switch Heater
0148	Complete	Reclaimation of Oil and High-Grade Iron Concentrates from Steel Mill Wastes
0149	Complete	SCOTCH - (Simple, Cost-Effective, Optimum Temperature Control for Housing)
0150	Complete	The Use of Solid Waste Material from a Lubricating Oil and/or Vegetable Oil Refining Operation.
0151	No DOE Support	Film Type Storm Window
0152	Complete	Vehicle Exhaust Gas Warm-up System
0153	No DOE Support	A New Equipment Design Concept for Storage of Hot Foods

INDEX TO RECOMMENDED INVENTIONS(cont.)

DOE No.	STATUS	TITLE
0154	No DOE Support	Rotating Horsehead for Pumping Units
0155	Complete	Slip Mining
0156	Complete	Direct-Current Electrical Heat-Treatment of Continuous Metal Sheets in a Protective Atmosphere.
0157	Complete	Magnaseal Method and Means for Sealing Steel Ingot Casting Molds to Stools.
0158	Complete	Energy Conservative Electric Cable System
0159	Complete	Non-Tubing Type Lift Device, Described as the NTT Rabbit
0160	Complete	High Efficiency Absorption Refrigeration Cycle
0161	Complete	duPont Connell Energy Coal Gasification Process
0162	Complete	Tubular Pneumatic Conveyor Pipeline
0163	Complete	Thermotropic Plastic Films
0164	Complete	Elastomer Energy Recovery Elements and Vehicle Component Applications
0165	Complete	Process for Recovering Hydrogen and Elemental Sulfur from Hydrogen Sulfide and/or Mercaptans-Containing Hydrogen
0166	Complete	Borehole Angle Control
0167	Complete	Vaned Pipe for Pipeline Transport of Solids
0168	Complete	The Hot Water Saver
0169	No DOE Support	MIRAFOUNT
0170	No DOE Support	Fog System - Low Energy Freeze Protection for Agriculture
0171	Complete	A Method of Preserving Fruits and Vegetables without Refrigeration
0172	Complete	GEM Electrostatic Filtration System
0173	Complete	Thermal Ice Cap
0174	No DOE Support	Skate on Plastic Ice Skating System
0175	Complete	A Low-Energy Carpet Backing System
0176	No DOE Support	Self-Contained, Water Proof, Stoker Fired, Fully Automatic, Portable Solid Fuel Furnaces
0177	Complete	The Solar I Option
0178	Complete	Process and Apparatus for Producing Cellulated Vitreous Refractory Material
0179	Complete	Development and Commercialization of Low Cost, Non-Metallic, Solar Systems
0180	Complete	Adjustable Solar Concentrator (ASC)
0181	Complete	The Karlson Ozone Sterilizer
0182	Complete	Improved Seal for Geothermal Drill Bit
0183	Complete	Increased Vapor Generator Feature. Reheat Vapor Generator
0184	No DOE Support	Coasting Fuel Shutoff
0185	No DOE Support	Insulated Garage Door
0186	No DOE Support	Oil Recovery by In-Situ Exfoliation Drive
0187	No DOE Support	Variable Field Induction Motor
0188	Complete	Remote Controlled Underground Mining System for Horizontal or Pitching Seams
0189	Complete	Pump Jack
0190	Complete	Oxygen-Conducting Material and Oxygen-Sensing Method
0191	Complete	Rotary Heat Pump Air Conditioner, Heater and Ventilator for Automotive, Mobile and Stationary Use.
0192	Complete	Closed Cycle Dehumidification Clothes Dryer
0193	Complete	Engine Heating Device
0194	Complete	Radiant Energy Power Source for Jet Aircraft
0195	Complete	Proportional Current Battery
0196	Complete	Manufacturing and Using Nitrogen Fertilizer Solutions on a Farm
0197	Complete	Frequency Regulator and Protective Devices for Synchronous Generators
0198	No DOE Support	The Thermatreat System
0199	Complete	Rotary Coal Combustor and Heat Exchangers

INDEX TO RECOMMENDED INVENTIONS(cont.)

DOE No.	STATUS	TITLE
0200	Complete	Removal of Sulfur Dioxide from the Stack Gas of Combusters Burning High Sulfur Fuel
0201	Complete	Hydraulic, Variable, Engine Valve Actuation System
0202	Complete	Wobbling Type Distillation Apparatus
0203	Complete	Microwave Methods and Apparatus for Paving and Paving Maintenance
0204	No DOE Support	The Induction Propeller
0205	No DOE Support	Energy Efficient Solid State Multiple Operator Metallic Arc Welding System
0206	Complete	Method and Apparatus for High Efficiency Operation of Electromechanical Energy Conversion
0207	Complete	Glass Sheet Manufacturing Method and Apparatus
0208	Complete	CNG Automotive Fuel Cylinders/Gas Transport Modules
0209	Complete	Reclaiming Process for Resin Treated Fiberglass
0210	Complete	Ultra High Speed Drilling Device for Use in Hard Rock Formations
0211	Complete	Shock Mounted Stratapax Bit
0212	Other Assistance	Water Warden
0213	Complete	The Kaunitz Process for Welding Pipe
0214	Complete	Convertible Flat/Drop Trailer
0215	Complete	Slag Waste Heat Boiler
0216	Complete	Method and Assembly for Mounting a Semiconductor Element
0217	Complete	Jointless Advanced Composite Material Tape for Operating Lift Pumps in Oil Wells
0218	Other Assistance	Behemoth
0219	Complete	Method for Making Acelaldehyde from Ethanol
0220	Complete	Deep Throat Resistance Welder
0221	Other Assistance	Strainercycle
0222	Other Assistance	Louver Trombe Solar Storage Unit
0223	Complete	Minimizing Subsidence Effects during Production of Coal In Situ
0224	Complete	Haile Alternate Fuel Grain Dryer
0225	Complete	ROVAC High Efficiency Low Pressure Air Conditioning System
0226	No DOE Support	An Electronic Anemometer System for Locating Air-Infiltration Heat Leaks in Buildings
0227	Complete	CRM Pipe
0228	Complete	EGD Fog Dispersal System
0229	No DOE Support	Contoured Finger Follower Variable Valve-Timing Mechanism for Internal Combustion Engines
0230	Complete	Absorption Heat Pump Augmented Separation Process
0231	Complete	Natural Gas from Deep-Brine Solutions
0232	Complete	Method of Separating Lignin and Making Epoxide-Lignin
0233	No DOE Support	Mounted Steerable Ripper for Deep Soil Ripping and Subsoil Operations
0234	Complete	Geodesic Solar Paraboloid
0235	Complete	Single Stage Anaerobic Digestion Process
0236	Complete	Steam Turbine Packing Ring
0237	Complete	Hicks Alter-Brake System/Electric Charging Apparatus for Ground Vehicles
0238	Complete	Industrial and Residential Clothes Dryer Automatic Shut-Off at Dryness
0239	Complete	Electrochemical Separation and Concentration of Sulfur-Containing Gases from Gas Mixtures
0240	No DOE Support	All Steam Heated Sadiron for Commercial Use
0241	Complete	Polysulfide Oil Field Corrosion Control System
0242	Complete	New Petersburg Beam Trawl
0243	Complete	An Electronic/Pneumatic Ejector System for Producing an Aluminum Rich Concentrate from Municipal Waste
0244	Complete	CHARLIE - Trademark - Federally Registered 1123957
0245	Complete	Improved Oil Well Pumping Unit
0246	No DOE Support	Maximum Cruise Performance

INDEX TO RECOMMENDED INVENTIONS(cont.)

DOE No.	STATUS	TITLE
0247	Complete	Energy Conservation by Improved Control of Bulk Power Transfers on Interconnected Systems
0248	Complete	Dyna-Bite Traction Intensifier, Model Agri, for Agricultural Tractors or the Like
0249	Complete	Subsurface Flow Control (Gas Wells) and High Gas-Oil-Ratio Oil Wells
0250	Complete	A System to Adapt Diesel Engines to the Use of Crude Oils

2.2 Brief Descriptions of Recommended Inventions

The following presents brief descriptions of each of the inventions recommended by the Office of Energy Related Inventions at NIST to the Energy Related Inventions Program office at DOE. Each description includes a brief description of the invention, a summary of the invention status, significant dates, status, and summary of development. The name of the inventor, primary contact for information, and DOE staff coordinator are also provided. The address of the contact is provided if an award has been made. The descriptions are presented in DOE number sequence. Section 3 presents four cross reference lists for locating specific invention descriptions. These lists provide cross reference between DOE No. and Inventor name, DOE No. and Contact name, DOE No. and Inventor state, and Doe No. and invention classification.

DOE No: 0001 DOE Coord: G. K. Ellis

Title: Demand Metering System for Electric Energy

Description: The invention provides a means whereby a consumer's electric meter can be adjusted by the electric company to run at a faster rate at times of greater loads upon the utility system -- load leveling.

Inventor: Willard Graves
State : MD

Contact:
Murray G Lowenthal

Status: No DOE Support Status Date: 07/07/77 OERI No.: 000019

Patent Status : Patent # - 3683343
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv. by NIST : 05/23/75
Recom. by NIST : 02/12/76

Summary: No area of appropriate DOE support could be identified.

****

DOE No: 0002 DOE Coord: G. K. Ellis

Title: Fuel Miser

Description: The device is an attachment which can be used to retrofit a room thermostat with a synchronous motor- driven clock timer and an auxiliary heating element to enable it to have a temperature set-back cycle.

Inventor: Rita Paleschuck
State : NY

Contact:
Rita Paleschuck

Status: Other Assistance Status Date: 07/15/76 OERI No.: 000100

Patent Status : Not Applied For
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 07/14/75
Recom. by NIST : 02/19/76

Summary: No research and development required, since the device is on the market. A generic brochure was written and published on the "need for automatic temperature setback." Extensive distribution was accomplished through DOE's Office of Public Affair's "supermarket handout" program and General Services Administration's Consumer Information Center.

DOE No: 0003 DOE Coord: J.Aellen

Title: Hydrogen Generation from Producer Gas by Oxidation- Reduction of Tin

Description: A new approach to the generation of tonnage hydrogen from carbonaceous fuels. Two reactions:/ steam with tin, whereby hydrogen is produced, and the reduction of the tin oxide produced in the first reaction back to tin.

Inventor: Donald C Erickson
State : MD

Contact:
Donald C Erickson
Director of Research
Energy Concepts Co.
1704 South Harbor Lane
Annapolis MD 21401
301-266-6521

Status: Complete Status Date: 03/18/81 OERI No.: 000003

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Other Natural Sources

Recv. by NIST : 05/07/75
Recom. by NIST : 05/21/76
Award Date : 07/12/78 Award Amount: $ 80,820 Grant No: FG01-78IR10103
Contract Period: 07/12/78 - 03/18/81

Summary: A grant was awarded and completed for the grantee to identify the optimum operating conditions, and to do an economic study. Results showed efficiency less than predicted - which in turn, leads to marginal economics. There is a possibility for improvement with more R & D. Inventor seeking licensee.

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DOE No: 0004 DOE Coord: G.K.Ellis

Title: Power Conversion of Energy Fluctuations

Description: A solid state device is claimed that can transfer thermal energy into usable electrical power with high efficiency, by cascading large numbers of such circuits.

Inventor: Joseph C Yater
State : MA

Contact:
Joseph C Yater
Autumn Lane
Lincoln MA 01773
617-259-8544

Status: Complete Status Date: 06/15/77 OERI No.: 000230

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Direct Solar

Recv. by NIST : 09/18/75
Recom. by NIST : 06/04/76
Award Date : 06/04/76 Award Amount: $ 40,400 Grant No:
Contract Period: 06/04/76 - 06/15/77

Summary: A grant was awarded to define an adequate development plan. The plan was received and reviewed. Subsequent review indicated the scheme to be incompatible with present state-of-art of micro- device manufacturing.

DOE No: 0005 DOE Coord: G. K. Ellis

Title: Diesel Engine Conversion System for Gasoline Engines

Description: The system is proposed for converting a standard gasoline auto engine into a diesel engine

Inventor: George C Austin
State : CA

Contact:
George C Austin
Austin Tool Company
2239 North Loma Ave.
South El Monte CA 91605
213-442-7338

Status: Complete Status Date: 11/20/78 OERI No.: 000088

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Combustion Engines & Components

Recv. by NIST : 06/30/75
Recom. by NIST : 08/12/76
Award Date : 11/20/77 Award Amount: $ 18,000 Grant No: EM78-G-01-4263
Contract Period: 11/20/77 - 11/20/78

Summary: A grant was awarded for a marketing study was awarded, and completed. Significant interest by those surveyed was expressed in the Austin diesel conversion, if they were having their engine rebuilt.

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DOE No: 0006 DOE Coord: D. G. Mello

Title: Micro-Carburetor

Description: A new kind of carburetor which is claimed to be fuel-saving and pollution-reducing.

Inventor: Albert B Csonka
State : NY

Contact:
Albert B Csonka
FERRO Technical Co.
109 Larchmont Road
Buffalo NY 14214
716-833-3122

Status: Complete Status Date: 02/13/80 OERI No.: 000225

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Combustion Engines & Components

Recv. by NIST : 09/15/75
Recom. by NIST : 08/17/76
Award Date : 09/15/77 Award Amount: $193,500 Grant No:
Contract Period: 09/15/77 - 12/17/80

Summary: A fixed price development contract of $193,500 was awarded to build a working micro-carburetor, sized to fit a late model, standard 350 cubic inch V-8 engine. Contract is being administered by Office of Transportation Programs, DOE. Carburetor was tested by NASA's Jet Propulsion Lab and report #JPL 81-75, August, 1981 shows improvements ranging from 9 to 18% over standard carburetor.

DOE No: 0007 DOE Coord: G. K. Ellis

Title: Hydraulically Powered Waste Disposal Device

Description: The device is to replace conventional food waste disposal units which are powered by electric motors.

Inventor: David Virley
State : CA

Contact:
Len Spelber
Wastemate Corporation
4830 Viewridge Avenue
San Diego CA 92123
619-292-3122

Status: Complete Status Date: 08/20/79 OERI No.: 000387

Patent Status : Patent # - 3700178
Development Stage : Production & Marketing
Technical Category: Miscellaneous

Recv. by NIST : 11/10/75
Recom. by NIST : 08/26/76
Award Date : 08/20/78 Award Amount: $ 28,000 Grant No: EM78-G-01-5034
Contract Period: 08/20/78 - 08/20/79

Summary: A grant of $28,000 was awarded and completed for the grantee to prepare a qualified business plan to assist in acquiring the necessary capital funding. The company went public and raised $1.5 million which was used mainly to buy production tools. The company is now in production. Follow-on financing desired by grantee.

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DOE No: 0008 DOE Coord: D.G.Mello

Title: Inertial Storage Transmission

Description: The device is a system for improving the efficiency and reducing the fuel consumption of a motor vehicle, utilizing a regenerative hydraulic system to store the kinetic energy from deceleration for use in accelerating the vehicle.

Inventor: Vincent E Carman
State : OR

Contact:
Fred Tunmore
Advanced Energy Systems
Unit #3, 595 Taylor Way
Belmont CA 94002
503-256-1111

Status: Complete Status Date: 08/31/82 OERI No.: 000423

Patent Status : Patent # - 3903696
Development Stage : Prototype Test
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 11/12/75
Recom. by NIST : 09/03/76
Award Date : 07/21/81 Award Amount: $ 49,541 Grant No: FG01-81CS15069
Contract Period: 07/21/81 - 08/31/82

Summary: A grant of $49,541 was awarded for final preparation of vehicle to present to EPA for testing. Olsen Corporation has tested the device. Ownership changed recently and financing is at a reputed level of $3.2 million with 7 employees. Product is available for distribution. Engineering details available from company.

DOE No: 0009 DOE Coord: D. G. Mello

Title: Heat/Electric Power Conversion via Charged Aerosols

Description: This device is to convert thermal energy to electric energy without the use of moving parts.

Inventor: Alvin M Marks
State : NY

Contact:
Alvin M Marks
Marks Polarized Corp.
153-16 Tenth Avenue
Whitestone NY 11358
212-767-9600

Status: Complete Status Date: 05/09/79 OERI No.: 000151

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Miscellaneous

Recv. by NIST : 08/04/75
Recom. by NIST : 09/13/76
Award Date : 03/01/78 Award Amount: $ 50,000 Grant No: EU78-G016225
Contract Period: 03/01/78 - 08/31/78

Summary: A grant of $50,000 was awarded to construct and test an Electro Gas Dynamics Generator, and then use this device to investigate the condensation charging of a steam jet. This project was followed by a three year project funded by another DOE program, to build and test a 10kw laboratory model of the device, of which the first year funding was $199,077. (The company's work force averages 25 people.)

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DOE No: 0010 DOE Coord: G. K. Ellis

Title: Scrap Metal Preheating Method and Apparatus

Description: The device provides a means of extracting waste heat from hot ingots and billets and utilizing this waste heat to preheat scrap steel prior to placing it in an electric-arc furnace.

Inventor: Harrison Robert Woolworth
State : WA

Contact:
Harrison Robert Woolworth
International Preheater
P.O. Box #88218
Tukwila Branch
Seattle WA 98188
206-852-1992

Status: Complete Status Date: 10/23/78 OERI No.: 000421

Patent Status : Not Applied For
Development Stage : Production Engineering
Technical Category: Industrial Processes

Recv. by NIST : 11/11/75
Recom. by NIST : 09/29/76
Award Date : 12/23/77 Award Amount: $170,000 Grant No: EM78-G-01-1797
Contract Period: 12/23/77 - 12/23/78

Summary: A grant of $170,000 was awarded to design and fabricate hardware; and to operate a system, utilizing waste heat for preheating scrap steel, in a working specialty steel mill. A 20% or more energy saving was demonstrated. Steel company interest has developed. Inventor obtained a $360,000 SBA guaranteed loan, has built an operating unit costing $500,000 at a steel pant in Knoxville, Tennessee, and has several additional $500,000 units on order. The company employs three people.

DOE No: 0011 DOE Coord: D. G. Mello

Title: Solar Collector

Description: This is a composite extruded aluminum section -- incorporating a cylindrical absorption tube that carries the working fluid. The collector surface is in the form of an Archimedes Spiral and a parabolic curve to maximize the collection angle and eliminate the need to reposition the collector.

Inventor: Ronald H Smith
State : CA

Contact:
Ronald H Smith
150 Green Street
San Francisco CA 94111
415-398-6813

Status: Complete Status Date: 11/19/80 OERI No.: 000233

Patent Status : Not Applied For
Development Stage : Production Engineering
Technical Category: Direct Solar

Recv. by NIST : 09/09/75
Recom. by NIST : 09/29/76
Award Date : 05/17/78 Award Amount: $ 46,884 Grant No: EM78-G019214
Contract Period: 05/17/78 - 11/19/80

Summary: A grant of $46,884 was awarded to Solergy, Inc., to initiate a series of marketing studies to determine the attitudes of Western U.S. manufacturers, distributors and designers, regarding prospects for successful installation of passive solar systems in new buildings. Survey results were used by Solergy to aid their marketing and manufacturing plans. Company is now out of business.

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DOE No: 0012 DOE Coord: G.K.Ellis

Title: High Frequency Energy Saving Device

Description: This invention consists of a high-frequency generator, to excite one of several fluorescent lights, replacing the normal ballast transformer, and allowing the system to operate at substantially higher efficiency.

Inventor: Frank R Summa
State : NY

Contact:
Thomas J Russo
100 Forest Avenue
Staten Island NY 10310
212-273-0248

Status: Complete Status Date: 12/31/82 OERI No.: 000448

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv. by NIST : 10/28/75
Recom. by NIST : 09/30/76
Award Date : 12/31/80 Award Amount: $ 30,000 Grant No:
Contract Period: 12/31/80 - 12/31/82

Summary: A grant of $30,000 was awarded to engage the services of Niesi-Fitzmaurice and Associates, Inc., to conduct a marketing study and prepare a preliminary business plan for the purpose of commercializing the technology.

DOE No: 0013 DOE Coord: P.M.Hayes

Title: Anti-Pollution System

Description: This device utilizes a high speed turbine to refine exhaust gases and recirculate the unburned portions of that gas to the engine.

Inventor: Ranendra K Bose
State : VA

Contact:
Ranendra K Bose
14346 Jacob Lane
Centreville VA 22020
703-266-2379

Status: Complete Status Date: 01/03/79 OERI No.: 000053

Patent Status : Patent # - 3861142
Development Stage : Limited Production/Marketing
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 06/03/75
Recom. by NIST : 09/30/76
Award Date : 04/04/78 Award Amount: $ 40,000 Grant No: EM77-G014222
Contract Period: 04/04/78 - 01/03/79

Summary: A grant of $40,000 was awarded, and a prototype was built and tested. Project goals were met. Final Report was accepted. Inventor plans to seek private assistance for commercialization.

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DOE No: 0014 DOE Coord: G K Ellis

Title: Aerodynamic Lift Translator

Description: This device is a wind-activated power generating system intended to provide large power outputs in regions where the prevailing wind direction does not vary appreciably during the year. The device also has application in low-head hydro.

Inventor: Daniel J Schneider
State : TX

Contact:
Daniel J Schneider
Route #1, Box #81
Justin TX 76247
817-430-0174

Status: Complete Status Date: 01/11/79 OERI No.: 000146

Patent Status : Not Applied For
Development Stage : Production Engineering
Technical Category: Other Natural Sources

Recv. by NIST : 08/15/75
Recom. by NIST : 09/30/76
Award Date : 01/11/78 Award Amount: $ 50,000 Grant No: EG-77-G01-7114
Contract Period: 01/11/78 - 01/11/79

Summary: A grant of $50,000 was awarded to develop performance and cost data for the "Schneider Aerodynamic Power Generator". The inventor is currently pursuing the hydro application, and asked for program assistance in obtaining venture capital. The translator still requires technical development.

DOE No: 0015 DOE Coord: D.Mello

Title: Estacron

Description: Estacron consists of an aggregate of Portland cement, fly ash, stack dust, and polyethylene. It has significant potential as a light-weight and energy-conservative construction material.

Inventor: Dante A Raponi
State : NC

Contact:
James L Bullock
Suite #403, Minges Building
P. O. Box #7151
Greenville NC 27834
919-752-1138

Status: Complete Status Date: 09/28/79 OERI No.: 000393

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Buildings, Structures & Components

Recv. by NIST : 10/28/75
Recom. by NIST : 09/30/76
Award Date : 09/28/79 Award Amount: $101,388 Grant No: FG01-79IR10221
Contract Period: 09/28/79 - 01/31/82

Summary: A grant of $101,388 was awarded to conduct an application engineering and economic analysis of the material, Estacron, in order to assess its material characteristics and to recommend product applications. Results appear indeterminate. Inventor seeks funding for pilot plant design.

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DOE No: 0016 DOE Coord: G. K. Ellis

Title: Method and Apparatus for Vacuum Drying of Commodities

Description: This invention describes a new method of drying commodities, primarily applicable to such grains as corn, rice, and soybeans, by alternately exposing the commodities to dry heated air and to a vacuum.

Inventor: John W Bruce
State : SD

Contact:
John W Bruce
West Highway, #16
Mitchell SD 57301
605-996-8335

Status: Complete Status Date: 03/30/81 OERI No.: 000486

Patent Status : Patent # - 3914874
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv. by NIST : 10/10/75
Recom. by NIST : 11/30/76
Award Date : 03/30/80 Award Amount: $ 52,917 Grant No: FG01-78IR04211
Contract Period: 03/30/80 - 03/30/81

Summary: A grant of $52,917 was awarded to design, fabricate, and demonstrate a device for efficiently drying agriculture commodities. The Montana Energy and MHD Development Institute is managing the technical aspects of the program. In addition, the inventor received $32,000 to dry whey from a private sector source. Results from all tests appear indeterminate. Inventor is interested in selling or licensing patent rights and has ceased work on the technology.

DOE No: 0017 DOE Coord: D. G. Mello

Title: Osmotic-Hydro Power Generation

Description: The invention uses a reverse osmosis to produce high pressure liquid that can subsequently be passed through a hydraulic turbine to produce e ctric power.

Inventor: David W Doyle
State : VA

Contact:
David W. Doyle, V.P.
Intertechnology Corp.
100 Main Street
Warrenton VA 22186

Status: Complete Status Date: 05/01/78 OERI No.: 000619

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Other Natural Sources

Recv. by NIST : 01/21/76
Recom. by NIST : 01/14/77
Award Date : 08/11/77 Award Amount: $ 48,950 Grant No: EG77-G014066
Contract Period: 08/11/77 - 05/01/78

Summary: A grant of $48,950 was given for research and development of membranes suitable for use in a "Osmo-Hydro Power" system. Studies included membrane long-term effects, polarization dilution, and concentration. The research was judged as high quality by the cognizant DOE program office.

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DOE No: 0018 DOE Coord: G.K.Ellis

Title: The Control of the Analysis of Low Carbon Aluminum Steels Using Oxygen Sensors and Iron-Aluminum Alloy

Description: The production of Al "killed" steel is intended to be controlled by the use of Fe-Al alloys instead of Al and by the use of oxygen probes to control the amounts of Al or oxygen in the melt.

Inventor: G R Fitterer
State : PA

Contact:
G R Fitterer
P.O. Box #206
Oakmont PA 15139
412-828-0233

Status: Complete Status Date: 09/14/78 OERI No.: 000177

Patent Status : Patent # - 3773641 and others
Development Stage : Production & Marketing
Technical Category: Industrial Processes

Recv. by NIST : 08/01/75
Recom. by NIST : 01/31/77
Award Date : 09/14/77 Award Amount: $ 99,600 Grant No: EC77-G-01-5034
Contract Period: 09/14/77 - 09/14/78

Summary: A grant of $99,600 was awarded for a system to conserve energy by monitoring and controlling the amount of oxygen in a low carbon aluminum killed steel melt. The system was highly successful. On basis of the success, the steel company involved has initiated a research effort to apply the technology to other ferro melts. The technology is reported to have saved a steel company, doing $18 million/yr business from bankruptcy.

DOE No: 0019 DOE Coord: P.M.Hayes

Title: Phenol Methylene Foam Rigid Board Insulation

Description: This invention is a urea-formaldehyde phenol methylene modified form of insulating board material. Properties are similar to others on the market except for its fire retardancy and the low toxicity of its combustion products.

Inventor: Walter J Hasselman, Jr
State : NY

Contact:
Clair H Reinbergen, Pres.
C. P. Chemical Co., Inc.
25 Home Street
White Plains NY 10606
914-428-2517

Status: Complete Status Date: 09/12/79 OERI No.: 000205

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 08/18/75
Recom. by NIST : 02/04/77
Award Date : 09/13/78 Award Amount: $ 29,900 Grant No: EU78-G-01-6603
Contract Period: 09/13/78 - 09/12/79

Summary: A one-year grant of $29,900 was awarded to study physical properties of proprietary insulating material, and to determine the optimum ratios of base chemicals. The result was a product which maximizes insulating properties while minimizing costs. EPA temporary ban of formaldehyde led to a new product that eliminates formaldehyde without sacrificing performance. Additional testing on fire properties revealed a double five-hour rating over competitive products. The products are available for sale.

****

DOE No: 0020 DOE Coord: D. G. Mello

Title: Thermal Shade

Description: The device is a multi-layer window shade to be fitted to conventional windows and to retract into a small space -- uses reflective surface coatings and with dead air spaces between the layers to reduce heat transfer.

Inventor: Thomas P Hopper
State : NH

Contact:
Thomas P Hopper
103 Old Loudon Road
Concord NH 03301
603-225-7554

Status: Complete Status Date: 01/06/79 OERI No.: 000839

Patent Status : Patent Applied For
Development Stage : Production Engineering
Technical Category: Buildings, Structures & Components

Recv. by NIST : 03/26/76
Recom. by NIST : 02/28/77
Award Date : 05/17/78 Award Amount: $ 50,707 Grant No: EM78-G014268
Contract Period: 05/17/78 - 01/06/79

Summary: A grant of $50,707 was awarded for the investigations and research of sheet material, seal configurations, and assemblies with third party testing. In addition, marketing assistance was supplied by MIT Innovation Center. Product is now being market tested. It is available for licensing. Last reported sales of $20,000 per month with 40 people working 2 shifts. Similar devices are being sold by other companies.

DOE No: 0021 DOE Coord: G. K. Ellis

Title: Waste Oil Utilization System

Description: This invention would utilize existing emulsification machinery to add a mixture of used lubricating oil and water to fuel oil used in large power plant boilers. Key point is the use of existing additives in fuel oil to prevent boiler tube deposits.

Inventor: Robert S Norris
State : MA

Contact:
Robert S Norris
Energy Conservation Systems
Ten Starboard Way
Box #472
West Dennis MA 02670
617-398-3430

Status: Complete Status Date: 03/30/81 OERI No.: 000613

Patent Status : Patent # - 3002826 and others
Development Stage : Production & Marketing
Technical Category: Industrial Processes

Recv. by NIST : 08/25/75
Recom. by NIST : 02/28/77
Award Date : 03/30/80 Award Amount: $ 50,000 Grant No: EM78-G-01-4261
Contract Period: 03/30/80 - 03/30/81

Summary: A grant of $50,000 was awarded for the purpose of a market survey for use of waste automotive crankcase lubricating oil as a fuel additive to prevent boiler tube deposits, augment energy availability, and minimize environmental pollution. Utility plants, the prime potential user, were found to have little incentive to purchase the cheaper additive. Product available for licensing.

****

DOE No: 0022 DOE Coord: D. G. Mello

Title: Fuel Burner Attachment

Description: Device to reduce oil consumption by introducing air to oil stream of the burner.

Inventor: Herbert G Lehmann
State : CT

Contact:
Herbert G Lehmann

Status: No DOE Support Status Date: 09/19/77 OERI No.: 000537

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Buildings, Structures & Components

Recv. by NIST : 12/29/75
Recom. by NIST : 02/28/77

Summary: The inventor had his device tested without DOE funding by a private contractor and advised DOE that these tests demonstrated his device to be unsuccessful and that he is withdrawing his device from DOE consideration.

DOE No: 0023 DOE Coord: D. G. Mello

Title: Microgas Dispersions

Description: Device consists of a motor, pump, bubble machine, and valves, uses #2 fuel oil, compressed air, surfactant, to maintain bubbles. Resulting mixture burns like natural gas, which burner can use interchangeably, thereby allowing industrial burners to switch fuels. Can also use small amounts of coal dust in the mixture.

Inventor: International MGD Companies
State : MI
Contact:
James E Luber

Status: No DOE Support Status Date: 10/24/78 OERI No.: 000951

Patent Status : Patent # - 3900420
Development Stage : Laboratory Test
Technical Category: Other Natural Sources

Recv. by NIST : 12/22/75
Recom. by NIST : 03/28/77

Summary: Brookhaven National Laboratory agreed to test the burner but advised on June 17, 1977, that they were unable to contact the inventor. An attorney representing the company stated in a letter dated November 10, 1977, that he wished to delay all actions until January 1978 pending resolution of patent related negotiations. On October 24, 1978, DOE advised inventor that support was terminated due to lack of response to repeated inquiries.

****

DOE No: 0024 DOE Coord: G. K. Ellis

Title: Can and Bottle Crushing Apparatus

Description: The invention consists of a portable trailer-mounted device for crushing cans and bottles thereby increasing the density of the scrap, making handling more efficient.

Inventor: Drew W Morris
Country :
Contact:
Drew W Morris

Status: Complete Status Date: 05/07/81 OERI No.: 000819

Patent Status : Patent Applied For
Development Stage : Production Engineering
Technical Category: Industrial Processes

Recv. by NIST : 03/22/76
Recom. by NIST : 03/30/77
Award Date : 05/07/80 Award Amount: $ 35,000 Grant No: EC77-G-01-5090
Contract Period: 05/07/80 - 05/07/81

Summary: A grant of $35,000 was awarded to construct and operate five mobile can-and-bottle crushers, and assemble data on the machine's efficiency and reliability. No final report has been received. DOE unable to locate the inventor.

DOE No: 0025 DOE Coord: J.Aellen

Title: Sulfur Removal from Producer Gas-High Temperature

Description: The concept envisions the removal of hydrogen sulfide from a high temperature "reducing gas" stream using two scrubbing stages in series, a molten carbonate salt bath and a molten copper bath, each complete with a continuous regeneration cycle.

Inventor: Donald C Erickson
State : MD

Contact:
Donald C Erickson
Energy Concepts Co.
1704 South Harbor Lane
Annapolis MD 21401
301-266-6521

Status: Complete Status Date: 07/09/83 OERI No.: 000002

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv. by NIST : 05/07/75
Recom. by NIST : 04/06/77
Award Date : 07/09/81 Award Amount: $ 91,032 Grant No: FG01-81CS15059
Contract Period: 07/09/81 - 07/09/83

Summary: An award of $91,032 was given to conduct a research program to establish the technical and economic feasibility of a hot fuel gas desulfurization. Inventor has been successful in generating $4 million follow-on financing on this and DOE #3. This project has been completed.

****

DOE No: 0026 DOE Coord: D. G. Mello

Title: Compact Energy Reservoir

Description: A room-heating convector which stores energy in eutectic salts and radiates the heat to the room under thermostatic control.

Inventor: Seymour Jarmul
State : NY

Contact:
Seymour Jarmul
96 Windsor Gate
North Hills NY 11040
516-365-9886

Status: Complete Status Date: 10/26/79 OERI No.: 000782

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Miscellaneous

Recv. by NIST : 03/17/76
Recom. by NIST : 04/12/77
Award Date : 08/02/78 Award Amount: $ 20,740 Grant No: EU78-G016499
Contract Period: 08/02/78 - 05/02/79

Summary: A grant of $20,740 was awarded for a 9 month project. Inventor designed, constructed and functionally tested a prototype CER suitable for heating a 375 sq.ft. room in a well-insulated house similar to Solar One at the University of Delaware. DOE decided it was not necessary to subsequently subject the device to quantitative tests. A qualitative assessment was given to the inventor for his consideration.

DOE No: 0027 DOE Coord: D. G. Mello

Title: Waste Heat Utilization for Commercial Cooking Equipment

Description: Waste heat utilization for commercial cooking equipment to recover some of the energy in such a way as to avoid interaction with grease vapors.

Inventor: R J Jones
State : CA

Contact:
R J Jones
2772 Salmon Drive
Los Alamitos CA 90720
213-721-2641

Status: Complete Status Date: 03/25/80 OERI No.: 001205

Patent Status : Patent # - 4084745
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 08/13/76
Recom. by NIST : 04/14/77
Award Date : 02/01/78 Award Amount: $ 65,000 Grant No: EM78-G031852
Contract Period: 02/01/78 - 03/25/80

Summary: A grant of $65,000 for a 9 month project was awarded. Inventor fabricated two production-ready Hydrocoils: one for water, one for air. Calspan Corporation conducted a series of tests. Research facility of American Gas Association evaluated and provided a comprehensive engineering report. Results of Fall '78 AGA tests proved that unit operates as expected. At last report, inventor had sold three products. Technology is available for licensing.

****

DOE No: 0028 DOE Coord: D. G. Mello

Title: Ultraflo

Description: Ultraflo, a hot water energy-saving system for buildings, is a water delivery system controlling temperature and flow by switches, low voltage current, and solenoid valves.

Inventor: Gilbert W Didion
State : OH

Contact:
Gilbert W Didion

Status: Other Assistance Status Date: 10/24/78 OERI No.: 000161

Patent Status : Patent # - 3668884
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 06/30/75
Recom. by NIST : 04/27/77

Summary: The invention was tested in California under DOE mission program auspices. The same program provided the inventor with an opportunity for publicizing the technology in a marketing project in Denver in 1977. Inventor has obtained $160,000 in private financing and an additional $200,000 from Federal contracts. Product is now being marketed with limited success.

DOE No: 0029 DOE Coord: D. G. Mello

Title: Tuned Sphere Stable Ocean Platforms

Description: This invention presents a unique design approach for an ocean platform, by which the body's natural tendency to roll with wave excitation is diminished or offset.

Inventor: Kenneth E Mayo
State : NH

Contact:
Kenneth E Mayo
Tuned Sphere Intl., Inc
111 Lock Street
Nashua NH 03060

Status: Complete Status Date: 02/06/79 OERI No.: 000800

Patent Status : Patent # - 3837308 and others
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv. by NIST : 12/18/75
Recom. by NIST : 05/10/77
Award Date : 09/30/77 Award Amount: $ 90,000 Grant No: EF77-G-01-6175
Contract Period: 09/30/77 - 06/30/78

Summary: An award of $90,000 was granted for a nine (9) month study program to test vessel models, list pertinent parametric data, produce motion picture evidence of vessel stability, and provide reduced graphical data. Completion date was extended to August 1978, at no cost to allow for extension of tank tests and subsequent data reduction. Final report has been received and accepted. Company obtained an additional $200,000 from R & D sales.

****

DOE No: 0030 DOE Coord: G. K. Ellis

Title: Method of Removing Sulfur Dioxide from Flue Gases

Description: Embodies the scrubbing of flue gases with an aqueous solution of metal salt.

Inventor: Leopold Pessel
State : PA

Contact:
Ken Walmer
AEL-EMTEC Corp.
P.O. Box #507
Lansdale PA 19446
215-822-2929

Status: Complete Status Date: 03/01/83 OERI No.: 000482

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv. by NIST : 12/08/75
Recom. by NIST : 05/17/77
Award Date : 03/01/82 Award Amount: $ 94,150 Grant No:
Contract Period: 03/01/82 - 03/01/83

Summary: A grant of $94,150 was awarded to 1) conduct a laboratory-scale testing program to further clarify the basic chemical reactions of the process in controlled but realistic environments, and 2) to provide background material for an economic analysis of the process. The results appear promising. Now, with the death of the inventor, technology is available for licensing or outright sale.

DOE No: 0031 DOE Coord: G.K.Ellis

Title: Ceramic Rotors and Vanes

Description: Technique for fabricating turbine rotors that will operate at high temperatures, thereby making it possible to operate at higher efficiencies.

Inventor: James C Withers
State : VA

Contact:
Richard E Engdahl
Deposits and Composites, Inc.
318 Victory Drive
Herndon VA 22070
703-471-9310

Status: Complete Status Date: 02/01/85 OERI No.: 000275

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Combustion Engines & Components

Recv. by NIST : 09/19/75
Recom. by NIST : 05/24/77
Award Date : 05/24/78 Award Amount: $131,250 Grant No: FG01-85CE15214
Contract Period: 05/24/78 - 02/01/85

Summary: A grant ($62,500 for each of two years) was awarded for the grantee to conduct a research program designed to improve the material properties of his Chemical Vapor Deposition (CVD) material for use in energy-related applications. A variety of Chemical Vapor Deposition products are resulting. Entrepreneur is interested in licensing and/or forming and financing R & D limited partnerships. DOE inventions program is assisting by identifying financial resources. An additional $6,250 was awarded on April 15, 1985.

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DOE No: 0032 DOE Coord: D.G.Mello

Title: Wood Gas Reactor

Description: The device produces a fuel gas from wood suitable for use in existing gas or oil-fired combustion equipment.

Inventor: Robert A Caughey
State : NH

Contact:
John C Calhoun, President
Forest Fuels, Inc.
P.O. Box #207
Antrim NH 03440
603-876-3353

Status: Complete Status Date: 03/16/81 OERI No.: 001174

Patent Status : Patent Applied For
Development Stage : Prototype Development
Technical Category: Fossil Fuels

Recv. by NIST : 08/09/76
Recom. by NIST : 05/26/77
Award Date : 05/24/79 Award Amount: $ 49,405 Grant No: FG01-79IR10171
Contract Period: 05/24/79 - 03/16/81

Summary: A grant of $49,405 was awarded and completed, to design and build a gasifier system to produce gaseous fuel from biomass. The unit is being used to demonstrate the practical use of alternate fuels in existing industrial boiler installations, and is in demonstration service at Forest Fuel Technical Center in Antrim, NH. About 30 units sold at $100,000 to $200,000 each as of Nov, 1982. The business is reported to be successful and employs twenty-five.

DOE No: 0033 DOE Coord: D. G. Mello

Title: Temperature Indicating Device

Description: Device to identify malfunction of steam trap.

Inventor: Joseph B Vogt
State : MI

Contact:
Joseph B Vogt
5391 Ostrum Road
Attica MI 48412
313-724-0106

Status: Complete Status Date: 08/23/80 OERI No.: 000905

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv. by NIST : 04/19/76
Recom. by NIST : 05/31/77
Award Date : 08/24/79 Award Amount: $ 10,135 Grant No: FG01-79IR10272
Contract Period: 08/24/79 - 08/23/80

Summary: A one year grant of $10,135 was awarded to conduct an engineering development project to test and improve the operation of the inventor's temperature monitoring device. Inventor determined that there is no market for his product.

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DOE No: 0034 DOE Coord: P.M.Hayes

Title: Delphic Thermogenic Paint (Heat Film)

Description: A thin conductive paint containing crystalline graphite and pigments bonded to a surface such as Mylar with parallel bussbar connections to 120/220v AC to be used as radiant heating.

Inventor: Hal Ellis
State : FL

Contact:
Alex DeFonso
Jerry Woolman
4261 Howard Avenue
Kensington MD 20795
301-595-5252

Status: Complete Status Date: 03/31/83 OERI No.: 001588

Patent Status : Patent # - 3923697 and others
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 11/11/76
Recom. by NIST : 06/16/77
Award Date : 09/30/82 Award Amount: $ 25,000 Grant No: FG01-82CE15147
Contract Period: 09/30/82 - 03/31/83

Summary: A grant of $25,000 was awarded to verify the claim that radiant heating allows air temperature to be significantly lower than by convection heating, thus reducing building heat consumption with no loss in occupant comfort. The company developed new applications for the technology including thermal targets and decoys for the U S Air Force. Total product sales were $4.1 million in 1986.

DOE No: 0035 DOE Coord: D. G. Mello

Title: Utilization of Solar Energy by Solar Pond System

Description: The proposal is for a solar pond demonstration plant.

Inventor: Gulab Chand Jain
Country : India

Contact:
Gulab Chand Jain

Status: No DOE Support Status Date: 12/12/77 OERI No.: 000336

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Direct Solar

Recv. by NIST : 10/23/75
Recom. by NIST : 06/23/77

Summary: Program has declined support of this invention because the inventor's proposal does not respond to several significant problems which are inherent in the system.

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DOE No: 0036 DOE Coord: D. G. Mello

Title: Computerstat

Description: Computerstat is a computerized thermostat set-back device that appears to be more energy-conserving than a conventional clock-thermostat.

Inventor: Richard P Gingras
State : CT

Contact:
Richard P Gingras
41 Kenoria Avenue
Danbury CT 06810
203-792-8877

Status: Complete Status Date: 09/01/79 OERI No.: 001283

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv. by NIST : 08/04/76
Recom. by NIST : 06/24/77
Award Date : 02/24/78 Award Amount: $ 65,000 Grant No: EM78-G014208
Contract Period: 02/24/78 - 09/01/79

Summary: Program office awarded a grant of $65,000 to build, test, and demonstrate the energy saving potential of a microprocessor controlled thermostat designed for use in residential and small commercial buildings. Grant also included the design of a computer program to simulate operation in a small commercial building. Company subsequently has gone bankrupt. Concept is now advertised by several companies.

DOE No: 0037 DOE Coord: G.K.Ellis

Title: Hotwater Engine

Description: The proposal is for the production of mechanical power from low grade heat.

Inventor: Lawrence E Bissell
State : CA

Contact:
Lawrence E Bissell

Status: No DOE Support Status Date: 10/31/77 OERI No.: 000565

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv. by NIST : 01/02/76
Recom. by NIST : 08/05/77

Summary: The DOE program office recommended that the inventor be assisted by providing a specialized, highly sophisticated computer analysis of his device. ERIP requested a proposal to this effect, in October, 1977. To date there has been no response from the inventor indicating the type of device he would like tested, nor giving any specification or goals for the development.

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DOE No: 0038 DOE Coord: D. G. Mello

Title: Reduction Volatilizations

Description: The purpose of this invention is to produce volatile gases, liquids, and combustible coke, by passing pulverized coal through a eutectic molten metal bath of lead and sodium.

Inventor: John McCallum
State : OH

Contact:
John McCallum
5926 Beechview Drive
Worthington OH 43085
614-885-8416

Status: Complete Status Date: 07/01/79 OERI No.: 000558

Patent Status : Not Applied For
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv. by NIST : 01/02/76
Recom. by NIST : 08/11/77
Award Date : 08/28/78 Award Amount: $ 49,740 Grant No: EU78-G016594
Contract Period: 08/28/78 - 04/20/79

Summary: A grant of $49,740 was awarded and completed for a 5 month experiment program to study chemical reactions of the process, measure all variables, outline plan for design of prototype plant and examine economic feasibility or large scale production. Ohio State University was the sub-contractor. Final report suggests that process is not economically feasible at this time.

DOE No: 0039 DOE Coord: G. K. Ellis

Title: Lawler Steam Generator and Lawler System of Thermal Oil Recovery

Description: A small, high pressure, high temperature, mobile steam generator which can be economically operated at an oil well installation.

Inventor: James H Lawler
State : CA

Contact:
James H Lawler

Status: No DOE Support Status Date: 02/01/79 OERI No.: 000219

Patent Status : Patent # - 3543732
Development Stage : Engineering Design
Technical Category: Fossil Fuels

Recv. by NIST : 08/29/75
Recom. by NIST : 08/18/77

Summary: On Feb. 1, 1979, the inventor was advised that DOE would not support his invention as it represented no advance in the state-of-the-art, and because having sold his equipment, he no longer had it available for test.

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DOE No: 0040 DOE Coord: G. K. Ellis

Title: Improved Equipment and Process for Production of Blue Water Gas

Description: The main features of the invention are to use automatic valves for controlling the blue gas process, a square reactor bed with a rotating grate which will give positive ash removal -- all of which permits a faster cycling between the "run" and the "blow" of the process.

Inventor: Roland P Soule
State : NY

Contact:
Roland P Soule

Status: No DOE Support Status Date: 06/12/81 OERI No.: 000734

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Other Natural Sources

Recv. by NIST : 03/08/76
Recom. by NIST : 08/18/77

Summary: No feasible method of DOE support could be identified. Various options were considered, and several tentative expressions of interest from others were made known to the inventor. He declined each of them. In his mid-eighties, he was not interested in personally pursuing the development. Nor was he interested in dealing with a small company. Also, he disagreed upon the need for establishing economic and technical feasibility.

DOE No: 0041 DOE Coord: D. G. Mello

Title: Fabrication of Photovoltaic Devices by Solid Phase Growth of Semi-conductors from Metal Layers

Description: The purpose of the invention is to provide a more efficient and economical process for fabricating solar cells.

Inventor: William F Armitage, Jr.
State : MA

Contact:
William F Armitage Jr

Status: No DOE Support Status Date: 11/07/78 OERI No.: 000580

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Direct Solar

Recv. by NIST : 01/12/76
Recom. by NIST : 08/30/77

Summary: Inventor failed to respond to repeated requests for a proposal.

****

DOE No: 0042 DOE Coord: P.M.Hayes

Title: Flue Baffle Assembly

Description: The invention is a baffle device to be inserted in hot air passage of old, solid fuel-burning furnaces that have been converted to oil. The device increases heat transfer and reduces fuel gas temperature, thereby saving fuel.

Inventor: Everett Millard
State : IL

Contact:
Everett Millard
4030 Irving Park Road
Chicago IL 60641
312-777-4030

Status: Complete Status Date: 09/08/80 OERI No.: 000347

Patent Status : Not Applied For
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 09/03/75
Recom. by NIST : 09/23/77
Award Date : 06/29/79 Award Amount: $ 30,000 Grant No: FG01-79IR10277
Contract Period: 06/29/79 - 09/08/80

Summary: A grant of $30,000 was awarded and completed, to perform a six-task study and survey of existing coal fired heating systems that have been converted to oil and which may be modified profitably to accept the inventor's energy-saving flue baffle device. The survey failed to show a sufficient number of heating systems to warrant commercialization of the baffle. However, a secondary business developed as a result of the survey, in which the inventor measures flue gases that form the basis for optimizing air/fuel ratio to save energy.

DOE No: 0043 DOE Coord: J. Aellen

Title: Thermal Gradient Utilization Cycle

Description: The invention describes a new kind of power plant cycle using low grade, low temperature energy which does not need copious amounts of water for its operation.

Inventor: Sidney A Parker
State : TX

Contact:
Sidney A Parker
5820 Diamond Oaks Dr., S
Fort Worth TX 76117
817-834-5081

Status: Complete Status Date: 08/04/80 OERI No.: 001263

Patent Status : Patent # - 3953971
Development Stage : Limited Production/Marketing
Technical Category: Other Natural Sources

Recv. by NIST : 07/23/76
Recom. by NIST : 09/30/77
Award Date : 09/16/78 Award Amount: $ 40,000 Grant No: EU78-C-01-6604
Contract Period: 09/16/78 - 01/15/80

Summary: A grant of $40,000 for one year was given to Mr. Parker, with support from Texas A&M, assessing the technical and economic feasibility of the thermal gradient utilization cycle when applied to selected energy conversion systems. Final report has been received. Inventor will make final report available to others in the trade and DOE.

****

DOE No: 0044 DOE Coord: D.G.Mello

Title: New Working Fluids for Increasing the Cycle Efficiencies of Thermal

Description: The invention is a new type of absorption refrigerator.

Inventor: Leon Lazare
State : CT

Contact:
Leon Lazare
81 Willow Street
New Haven CT 06511
203-776-0256

Status: Complete Status Date: 05/01/79 OERI No.: 001357

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Miscellaneous

Recv. by NIST : 08/24/76
Recom. by NIST : 09/30/77
Award Date : 05/16/78 Award Amount: $ 75,000 Grant No: EU78-G-01-6317
Contract Period: 05/16/78 - 05/01/79

Summary: A grant of $75,000 was awarded to research a dual- solvent system for heat pump application, and to determine phase relationships and thermodynamic properties of certain specific three-component systems. Grant complete. Equipment failed to confirm theoretical predictions but yielded results which led to another invention which was subsequently funded by DOE.

DOE No: 0045 DOE Coord: D. G. Mello

Title: Bulk Cure Tobacco Barn with Improvements

Description: The tobacco curing barn is a trailer-like structure that is fitted with a roof-top solar collector, a recouperator formed by the double roof structure, and the entire structure well insulated on all external walls and floor.

Inventor: Joe W Fowler
State : NC

Contact:
Joe W Fowler
Carolina Thermal Company
Iron Works Road
Route #2, Box #39
Reidsville NC 27320
919-342-0352

Status: Complete Status Date: 06/01/79 OERI No.: 001739

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv. by NIST : 01/19/77
Recom. by NIST : 09/20/77
Award Date : 05/31/78 Award Amount: $ 54,980 Grant No: EM78-G014254
Contract Period: 05/31/78 - 06/01/79

Summary: A grant of $54,980 was awarded to manufacture, install on-site, and demonstrate a new type tobacco curing barn. Test data confirm this type barn yields significant energy savings compared to earlier designs and present industry standards. Final report has been received and accepted as meeting all the requirements of the grant. The business was not successful because, the inventor claims, of institutional barriers.

****

DOE No: 0046 DOE Coord: G. K. Ellis

Title: Thexon Dehydration

Description: The process uses mechanical methods to reduce a liquid, containing the product to be dried, to a very fine spray of droplets, which are then carried to an air stream at ambient temperature, pressure and humidity so that some unidentified phenomenon, possibly surface evaporation, can cause crystallization.

Inventor: David J Secunda
State : NJ

Contact:
David J Secunda
90 Prospect Hill Avenue
Summit NJ 07901
201-277-4475

Status: Complete Status Date: 08/01/80 OERI No.: 000679

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv. by NIST : 02/04/76
Recom. by NIST : 09/23/77
Award Date : 08/01/79 Award Amount: $ 47,660 Grant No: FG01-79IR10023
Contract Period: 08/01/79 - 08/01/80

Summary: A grant of $47,660 was awarded for the grantee to contract with TRW to make exploratory holograms and do some limited analysis, in order to assess the nature of the phenomena. The work has been completed, and the phenomenon found to be evaporation, but which occurs at room temperature without the deliberate addition of any external heat. Inventor is not presently pursuing the development of this technology and would be interested in considering licensing opportunities.

DOE No: 0047 DOE Coord: G.K.Ellis

Title: Wastewater Aeration Power Control Device

Description: An on-line respirometer to measure the oxygen demand of microorganisms in waste water, and to regulate the power required for supplying the oxygen needed to keep the organisms alive.

Inventor: Robert M Arthur
State : WI

Contact:
Robert M Arthur
548 Prairie Road
Fond du Lac WI 54935
414-922-6970

Status: Complete Status Date: 06/26/81 OERI No.: 001773

Patent Status : Patent # - 3740320 and others
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv. by NIST : 02/07/77
Recom. by NIST : 10/25/77
Award Date : 06/26/80 Award Amount: $ 58,200 Grant No: EU78-G-01-6418
Contract Period: 06/26/80 - 06/26/81

Summary: A grant of $58,200 was awarded and inventor was successful in developing a low-cost, less sophisticated model of an energy-saving on-line respirometer for use in wastewater treatment plants. Grantee has about $2.5M out in proposals. Response has been slow from municipalities but good from industry. At last account, inventor was doing $0.5 million/yr business; in 5-7 years, inventor estimates $25 million.

****

DOE No: 0048 DOE Coord: D. G. Mello

Title: Howald Combustor

Description: A fuel nozzle and chamber that pre-mixes air and fuel for more efficient, and less polluting combustion in aviation and automotive gas turbines.

Inventor: Werner E Howald
State : OH

Contact:
Werner E Howald

Status: No DOE Support Status Date: 02/08/79 OERI No.: 000197

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Combustion Engines & Components

Recv. by NIST : 07/10/75
Recom. by NIST : 11/09/77

Summary: MIT Innovation Center provided inventor with technical review and analysis of support possibilities. MIT determined that the combustor designs were engineering improvement, not patentable. The scale of laboratory testing required to develop jet-engine combustors is beyond the scope of this program and is not being pursued in any DOE laboratory. Inventor was referred to private consulting firm which specializes in combustor design.

DOE No: 0049 DOE Coord: D. G. Mello

Title: Automatic Control System for Water Heaters

Description: Invention is a valve to shut off water heater energy source, and to shut off cold water input in the event of a burst tank. It may also be applicable to solar systems.

Inventor: Wayne S Boals
State : CA

Contact:
Wayne S Boals

Status: No DOE Support Status Date: 09/01/78 OERI No.: 001192

Patent Status : Not Applied For
Development Stage : Production Engineering
Technical Category: Buildings, Structures & Components

Recv. by NIST : 07/22/76
Recom. by NIST : 10/31/77

Summary: DOE determined that the device offered little or no direct energy saving potential. A manufacturer of valves declined an offer of the technology citing marketing studies indicating poor sales potential. Program office stated that solar heating system application was ineffective as conservation device. Development of similar devices is now being pursued by others.

****

DOE No: 0050 DOE Coord: P.M.Hayes

Title: Scotsman Fuel Energizer

Description: An accessory screen to atomize fuel in carbureted internal combustion engines.

Inventor: John T Benton
State : IL

Contact:
Robert Cameron
Scotsman Automotive Corp.
855 Sterling Avenue, Suite #8
Palatine IL 60067
312-991-5770

Status: Complete Status Date: 01/10/79 OERI No.: 000094

Patent Status : Patent # - 3934569
Development Stage : Production & Marketing
Technical Category: Combustion Engines & Components

Recv. by NIST : 07/02/75
Recom. by NIST : 11/23/77
Award Date : 07/11/78 Award Amount: $ 74,579 Grant No: FG01-78IR10102
Contract Period: 07/11/78 - 01/10/79

Summary: A grant of $74,579 was awarded to the grantee to determine the principles of operation and to measure overall fuel saving performance of the device. DOE determined, based upon the findings and conclusions of the Inspector General, the grant to be fraudulently obtained and that all funds must be returned to DOE. Grantee has been notified.

DOE No: 0051 DOE Coord: J.Aellen

Title: Thermal Efficiency Construction

Description: A method for building on energy-efficient residence, incorporating a counterflow heat exchanger, double- wall insulation, and other unique features. Copyright plans sold under license.

Inventor: Richard B Bentley
State : NY

Contact:
Richard B Bentley

Status: No DOE Support Status Date: 07/31/78 OERI No.: 001116

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 03/19/76
Recom. by NIST : 12/20/77

Summary: In July '78 inventor advised DOE of his intention to prepare a proposal. Nothing has been received to date. Inventor reported he had applied for a grant under the Appropriate Technology Program. DOE support cannot be considered without a proposal from the inventor, or his or her agent.

****

DOE No: 0052 DOE Coord: G. K. Ellis

Title: Air Wedge

Description: The device is an aerodynamic drag device for use with trucks, mounted on the front face of the trailer or the cargo box.

Inventor: Robert G Landry
State : ME

Contact:
Sherman R Jenney

Status: No DOE Support Status Date: 11/28/79 OERI No.: 000172

Patent Status : Patent # - 3740320
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 08/13/75
Recom. by NIST : 12/21/77

Summary: On November 28, 1979, the inventor was advised that there is no basis for DOE support because there are devices already installed on trucks on the highway, which accomplish the same purpose.

DOE No: 0053 DOE Coord: G.K.Ellis

Title: High Efficiency Water Heater

Description: A direct contact, gas-fired hot water heater that can extract the latent heat of the water vapor formed during combustion.

Inventor: Harry E Wood
State : LA

Contact:
Harry E Wood
6465 Oakland Drive
New Orleans LA 70118
504-488-7853

Status: Complete Status Date: 03/01/79 OERI No.: 002070

Patent Status : Patent Applied For
Development Stage : Prototype Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 04/15/77
Recom. by NIST : 12/23/77
Award Date : 03/01/78 Award Amount: $ 72,600 Grant No: EM78-G-01-4255
Contract Period: 03/01/78 - 03/01/79

Summary: A grant of $72,600 was awarded to install a direct contact gas fired hot water heater in a new 210-unit apartment building, and measure the system characteristics, efficiency and reliability. The results of this DOE support, and some free publicity on a national CBS program shortly thereafter, have materially assisted the inventor in marketing the technology. At last account, Kemco Co., Milwaukee, exclusive licensee, had sold 67 units (altogether saving 0.5 billion cu-ft gas/year), 48 in the last year, at $30,000 each, with 30 more on order.

****

DOE No: 0054 DOE Coord: D. G. Mello

Title: Optimizer

Description: A closed-loop electronic ignition for automobile engines. Spark advance is optimized for maximum power output, and minimum fuel consumption.

Inventor: Paul H Schweitzer
State : PA

Contact:
Edward Perry Sikes, Jr.
Optimizer Control Corp.
Suite #104, 201 Burnside Pkwy
Burnsville MN 55337
612-894-3610

Status: Complete Status Date: 06/15/81 OERI No.: 001355

Patent Status : Patent # - 3974412 and others
Development Stage : Working Model
Technical Category: Combustion Engines & Components

Recv. by NIST : 08/25/76
Recom. by NIST : 01/11/78
Award Date : 09/01/78 Award Amount: $ 88,895 Grant No: EU78-G016602
Contract Period: 09/01/78 - 06/18/81

Summary: A grant of $88,895 for one-year program was awarded and completed to design, develop, fabricate and test a pilot model of the Optimizer. Pennsylvania State University sub-contracted electronic design tasks and analytical evaluation. First progress report indicated that prototype performed as predicted. Penn. State Univ. has been assigned greater role in development of instrumentation and additional test units. Final results showed insufficient improvement to warrant further development.

DOE No: 0055 DOE Coord: J.Aellen

Title: Electrically Heated Sucker-Rod

Description: An electric heater is the sucker rod used to drive a pump at the bottom of an oil well, intended to prevent paraffin from congealing and restricting flow, thus avoiding consequent costly maintenance cleanout.

Inventor: Richard D & Chester Palone
State : AR

Contact:
Richard D Palone

Status: No DOE Support Status Date: 12/29/80 OERI No.: 002523

Patent Status : Patent # - 3859503
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv. by NIST : 07/22/77
Recom. by NIST : 01/30/78

Summary: This invention received a favorable review within DOE. During the last contact with the inventor, he said he had located an interested subcontractor and would soon be submitting a proposal requesting a DOE grant. Then, on December 29th, 1980 he advised that he no longer needed a grant.

****

DOE No: 0056 DOE Coord: G.K.Ellis

Title: Flexaflo-The Wet Fuel Dryer

Description: A dryer/boiler using sugar cane waste (bagasse) for fuel; exhaust gases from process are used to "pre- dry" fuel prior to entering boiler.

Inventor: William P Boulet
State : LA

Contact:
Jay Dornier
Quality Industries
P. O. Box #406
Thibodoux LA 70301
504-447-4021

Status: Complete Status Date: 12/29/80 OERI No.: 002238

Patent Status : Patent # - 3976018
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 05/24/77
Recom. by NIST : 03/31/78
Award Date : 12/29/79 Award Amount: $111,220 Grant No: EU78-G-01-6593
Contract Period: 12/29/79 - 12/29/80

Summary: A grant of $111,220 was awarded to Quality Industries to modify design of existing bagasse dryer in sugar cane refinery to control airborne bagacillio to enable bagasse to replace oil-gas as alternate fuel for dryer. Results indeterminate due to poor industry economic conditions which tended to interfere with fair appraisal. Further testing needed to prove concept. Quality is interested in forming and financing R & D limited partnership in another industry with the same technology.

DOE No: 0057 DOE Coord: G.K.Ellis

Title: X-5 Smoke Eliminator

Description: A two-stage combustion chamber suitable for adapting existing incinerators to meet current EPA pollution requirement.

Inventor: Robert H Wieken
State : MN

Contact:
Robert H Wieken
411 Betty Lane, West
Saint Paul MN 55118
612-457-8227

Status: Complete Status Date: 04/01/81 OERI No.: 000274

Patent Status : Patent # - 3812297
Development Stage : Prototype Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 07/23/75
Recom. by NIST : 03/31/78
Award Date : 04/01/79 Award Amount: $ 55,000 Grant No: FG01-79IR10097
Contract Period: 04/01/79 - 04/01/81

Summary: A grant of $55,000 was awarded for the grantee to convert the X-5 Smoke Eliminator from its existing use as a gas burner to the burning of all grades of fuel oil.

****

DOE No: 0058 DOE Coord: D. G. Mello

Title: A Multiple Spark System Using Inductive Storage

Description: Multiple spark system using a gated series of spark discharges on a single plug, to improve the fuel economy of a spark-ignition engine, by reducing the misfire rate.

Inventor: Charles M Kirk
State : FL

Contact:
Charles M Kirk
1965 Arrowhead Lane, NE
Saint Petersburg FL 33703
813-525-7878

Status: Complete Status Date: 02/26/79 OERI No.: 001922

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 03/10/77
Recom. by NIST : 03/31/78
Award Date : 02/26/78 Award Amount: $ 59,079 Grant No: FG01-78IR10025
Contract Period: 02/26/78 - 02/26/79

Summary: A grant of $59,079 was awarded to manufacture ten (10) prototype "MSS" units. Three units were installed on selected vehicles and dynamometer tested at University of Florida. ERIP assistance completed.

DOE No: 0059 DOE Coord: G.K.Ellis

Title: The Volumetric Gas Turbine

Description: A positive displacement, modified Brayton cycle engine, for use primarily in automobiles.

Inventor: Bernard Zimmern
Country : France

Contact:
Bernard Zimmern

Status: No DOE Support Status Date: 09/24/82 OERI No.: 001680

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

Recv. by NIST : 11/15/76
Recom. by NIST : 04/12/78

Summary: The inventor was interested in a large grant in the vicinity of $1 million, an amount greater than the program could justify or provide. The inventor was advised that no support would be forthcoming.

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DOE No: 0060 DOE Coord: D. G. Mello

Title: Electric Transport Refrigerator

Description: Prime mover engine of Refrigerated Truck is modified to function as an A.C. Generator as well as being an engine. Electricity produced, powers sealed refrigerator on trailer, replacing present diesel- powered refrigeration unit.

Inventor: William H Cone
State : IA

Contact:
William H Cone
Coneco, Inc.
1151 Meadow Lane, A3
Waterloo IA 50701
319-233-8224

Status: Complete Status Date: 04/09/80 OERI No.: 001654

Patent Status : Patent # - 3778651 and others
Development Stage : Prototype Test
Technical Category: Miscellaneous

Recv. by NIST : 12/13/76
Recom. by NIST : 04/28/78
Award Date : 09/25/78 Award Amount: $ 50,000 Grant No: EU78-G016601
Contract Period: 09/25/78 - 04/09/80

Summary: A grant of $50,000 was awarded for one-year design, development, and testing of invention. Iowa State University was sub-contractor for electronic design tasks. Inventor procured a diesel engine for test and modification. Grantee completed all tasks except in-service demonstration. Technical problems with invention design prevented performance of last task. Inventor plans to seek private funds for continuation of project.

DOE No: 0061 DOE Coord: D.G.Mello

Title: Fuel Preparation Process

Description: A method for separating mineral matter from coal using a flotation process.

Inventor: Willing B Foulke
State : DE

Contact:
Murry S. Laskey
2401 Pennsylvania Avenue
Suite #1010
Wilmington DE 19806
302-652-0115

Status: Complete Status Date: 06/17/83 OERI No.: 001088

Patent Status : Patent # - 3932145
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv. by NIST : 06/14/76
Recom. by NIST : 04/26/78
Award Date : 06/17/81 Award Amount: $ 96,421 Grant No: FG01-81CS15041
Contract Period: 06/17/81 - 06/14/82

Summary: A grant of $96,421 was awarded for an experimental program on a laboratory scale basis with Research Triangle Institute as the contractor for the purpose of assessing the technical feasibility of the Foulke process. Grant complete, and the results appear promising. Inventor seeks licensing or other opportunities with industry.

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DOE No: 0062 DOE Coord: G.K.Ellis

Title: Tapered Plate Annular Matrix

Description: A compact heat tank exchanger that offers significant improvement over conventional shell-and- tank exchangers, especially for very high pressure applications.

Inventor: Thaddeus Papis
State : CA

Contact:
Thaddeus Papis
10115 Victoria Avenue
Riverside CA 92503
714-687-0408

Status: Complete Status Date: 10/01/81 OERI No.: 001029

Patent Status : Not Applied For
Development Stage : Production Engineering
Technical Category: Miscellaneous

Recv. by NIST : 05/28/76
Recom. by NIST : 04/28/78
Award Date : 07/22/79 Award Amount: $ 79,800 Grant No: FG01-79IR10172
Contract Period: 07/22/79 - 10/01/81

Summary: A grant of $79,800 was awarded and completed for the inventor to analyze the potential uses, energy- related benefits, production techniques, and comparative economics of the heat exchanger. The study culminated in the definition of, and a plan for, a hardware demonstration program. The final report is being circulated among potential sources of private sector support for the hardware phase.

DOE No: 0063 DOE Coord: J.Aellen

Title: Fluorobulb

Description: Fluorescent bulb designed to directly replace an incandescent bulb. 20 watt bulb and ballast can be easily separated. Built on Edison screwbase.

Inventor: Thomas LoGiudice
State : NY

Contact:
Thomas LoGiudice
520 East 72d Street
New York NY 10021
212-737-6703

Status: Complete Status Date: 08/18/81 OERI No.: 001330

Patent Status : Patent # - 3953761
Development Stage : Prototype Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 08/13/76
Recom. by NIST : 05/03/78
Award Date : 04/11/79 Award Amount: $ 49,500 Grant No: FG01-79IR10093
Contract Period: 04/11/79 - 08/01/81

Summary: A grant of $49,500 was awarded and completed for research and product development. Grantee produced ten prototype bulbs, investigated problems of uniform coating, and produced certified data regarding lamp efficiency, luminous efficiency and accurate cost data for predicting production quantity costs. Data suggests that lamp is not likely to be manufactured at a competitive price.

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DOE No: 0064 DOE Coord: G. K. Ellis

Title: The Mahalla Process--A Hydrometallurgical Method for Extracting Copper

Description: A hydrometallurgical process for refining copper that eliminates the electrofining step.

Inventor: Shalom Mahalla
State : AZ

Contact:
Lester Hendrickson
Arizona State U.
School of Engineering
Tempe AZ 85281
602-965-3764

Status: Complete Status Date: 09/01/79 OERI No.: 002543

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv. by NIST : 08/01/77
Recom. by NIST : 05/08/78
Award Date : 09/01/78 Award Amount: $ 88,933 Grant No:
Contract Period: 09/01/78 - 09/01/79

Summary: A grant of $88,933 was awarded and the work completed, to develop and optimize the process variables on a laboratory scale. With the copper industry depressed, the technology is being adapted for industrial toxic waste recovery. At last account, Hendrickson sought $500,000 to build a pilot plant having enough flexibility to be adaptable to the processing of feed sources from various industrial plant wastes.

DOE No: 0065 DOE Coord: J.Aellen

Title: WattVendor

Description: A coin operated device for dispensing electricity.

Inventor: Lee A Henningsen
State : PA

Contact:
Lee A Henningsen
Firetrol, Inc.
1617 Cascade Street
Erie PA 16502
814-459-1770

Status: Complete Status Date: 09/10/79 OERI No.: 000741

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Miscellaneous

Recv. by NIST : 02/18/76
Recom. by NIST : 05/12/78
Award Date : 09/14/79 Award Amount: $ 55,800 Grant No: FG01-79IR10266
Contract Period: 09/14/79 - 12/31/80

Summary: A grant of $55,800 was awarded and completed, to manufacture and install sufficient units to completely convert Hillman Ferry Campground (TVA operated) from free to metered electric service. TVA will record user reactions, electric usage before and after, and operate units in one year demonstration program.

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DOE No: 0066 DOE Coord: D.G.Mello

Title: Heat Extractor

Description: A system for recovering "Waste Heat" from industrial combustion processes by using water in direct contact with combustion products and an auxiliary heat exchanger.

Inventor: Philip Zacuto
State : NY

Contact:
Daniel Ben-Shmuel
Heat Extractor Corporation
P.O. Box #455
Johnstown NY 12095
518-568-2288

Status: Complete Status Date: 09/29/78 OERI No.: 002277

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 06/20/77
Recom. by NIST : 05/26/78
Award Date : 09/29/78 Award Amount: $125,000 Grant No: EU78-G016677
Contract Period: 09/29/78 - 09/29/79

Summary: A grant of $125,000 was awarded and completed to install, operate and test, a heat extractor in an operating paper mill with Mohawk Paper Mills, Inc. Included were funds to adapt the heat extractor for coal-fired boilers. The work is complete. Results confirm significant fuel savings. As of January, 1985, inventor had sold the industrial unit to a Pittsburgh firm and the residential one to Armitron. The unit is re-engineered and being marketed through Heat Extractor, Inc., Melrose, MA (800-633-3324)

DOE No: 0067 DOE Coord: G. K. Ellis

Title: Windmill Using Hydraulic System for Energy Transfer and Speed Control

Description: A windmill design based on a hydraulic system for wind energy, particularly suited for low to medium speed winds.

Inventor: James A Browning
State : NH

Contact:
James A Browning
Browning Engineering Corp.
P.O. Box #863
Hanover NH 03755
603-298-8400

Status: Complete Status Date: 12/01/84 OERI No.: 000799

Patent Status : Patent Applied For
Development Stage : Prototype Development
Technical Category: Other Natural Sources

Recv. by NIST : 02/05/76
Recom. by NIST : 06/20/78
Award Date : 12/07/79 Award Amount: $ 39,000 Grant No: FG01-80IR10320
Contract Period: 12/07/79 - 12/01/84

Summary: A grant of $39,000 was awarded to complete the construction of the grantee's 70-ft diameter hydraulic windmill, and then to test it. Accidents and delays in receipt of materials have delayed the project.

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DOE No: 0068 DOE Coord: D.G.Mello

Title: Under Compression and Over Compression Free Helical Screw Rotary Compressor

Description: A compressor for use in medium-to-large sized heat pump-air conditioning systems.

Inventor: Leroy M Bissett
State : VA

Contact:
Charlie Baziel

Status: Other Assistance Status Date: 10/01/79 OERI No.: 000631

Patent Status : Patent # - 3936239
Development Stage : Prototype Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 01/22/76
Recom. by NIST : 06/28/78

Summary: As a result of the NBS recommendation and in consideration of an unsolicited proposal from the grantee, the CE program within DOE funded a $300,000 two-year contract, which has now been completed. Results show good energy savings, but further work is required to develop a commercial prototype of a marketable size.

DOE No: 0069 DOE Coord: G. K. Ellis

Title: Ionic Fuel Control System for the Internal Combustion Engine

Description: A system for controlling the air-fuel ratio of a gasoline internal combustion engine to maintain lean operation, improved fuel economy, and good performance.

Inventor: Enoch J Durbin
State : NJ

Contact:
Enoch J Durbin
Instrumentation & Control Lab.
Aero Lab., Forrestal Campus
Princeton University
Princeton NJ 08540
609-452-5154

Status: Complete Status Date: 07/01/80 OERI No.: 000844

Patent Status : Patent # - 3470741
Development Stage : Prototype Development
Technical Category: Combustion Engines & Components

Recv. by NIST : 03/25/76
Recom. by NIST : 06/29/78
Award Date : 07/01/79 Award Amount: $ 87,051 Grant No: FG01-79IR10022
Contract Period: 07/01/79 - 07/01/80

Summary: A grant of $87,051 was awarded to develop the Ionic Fuel Control System and to assess its commercial feasibility. A successful prototype was developed. Despite much work, the inventor's only success with an automotive company was Chrysler's successful bid on a military contract which incorporated the technology. Adaptation of the device gives wind action in three directions, which could also be critical in determining velocities of STOL aircraft, where there have been a number of landing crashes for lack of this information.

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DOE No: 0070 DOE Coord: J. Aellen

Title: Air Cooled Compressor Heat Recovery and Heat Circulation System plus Ambient Air Filter and Air Cleaner

Description: A heat recovery system for large compressors.

Inventor: Kenneth A Stofen
State : WI

Contact:
Kenneth A Stofen
3642 Country Lane
Racine WI 53405
414-554-7987

Status: Complete Status Date: 08/08/80 OERI No.: 002847

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv. by NIST : 10/21/77
Recom. by NIST : 06/28/78
Award Date : / / Award Amount: $ 53,000 Grant No: FG01-79IR10026
Contract Period: / / - / /

Summary: A grant of $53,000 was awarded to design and build ecology cabinets; and then assemble, operate, and test air cooled compressor systems in environments with particulate-laden and high temperature air. Sold 31 units to various size companies. Expanding his product to include 5 through 2000 HP compressors. Secured GSA contract two years in a row. A new company named Air Systems Inc at 937 Hays Ave., Racine, WI 53405 has been formed to build the units. Trying to expand market through more distributors.

DOE No: 0071 DOE Coord: D. G. Mello

Title: Knight Guard

Description: A system for remote controlling the lighting in a building by means of low frequency radio signals.

Inventor: Arleigh Wangler
State : CA

Contact:
Arleigh Wangler

Status: No DOE Support Status Date: 09/01/78 OERI No.: 002538

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 08/10/77
Recom. by NIST : 06/29/78

Summary: Inventor is investigating law enforcement agencies' interest.

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DOE No: 0072 DOE Coord: G. K. Ellis

Title: Utilization of Waste Gas for Boilers and Furnaces in Refineries and Petrochemical Plants

Description: System exploits the relationship between specific gravity of the flare gas and its BTU content, to compute BTU per hour and subsequently control the fuel-air ratio of boilers.

Inventor: Joe Agar
State : TX

Contact:
Basil W Balls

Status: No DOE Support Status Date: 08/08/80 OERI No.: 000733

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv. by NIST : 03/08/76
Recom. by NIST : 06/28/78

Summary: A procurement request for a grant was initiated on April 20, 1979. Shortly thereafter, Mr. Agar sold the company and the new manager indicated that the earlier proposal was not in accord with the company's new goals. Then, on Dec 28 1979, the company advised by telephone that they were not interested in pursuing the development at all, since it did not coincide with their company's new goals. Formal notification was received in an August 5, 1980 letter.

DOE No: 0073 DOE Coord: G. K. Ellis

Title: INTECH

Description: A system which uses light-weight aggregate insulation to provide the form-work for the concrete structural members of a building, with pre-finished exterior and interior surfaces.

Inventor: Melvin H Sachs
State : MI

Contact:
Melvin H Sachs
ISTECH, INC
29200 Vassar Ave., Suite #700
Livonia MI 48152
313-478-0606

Status: Complete Status Date: 06/22/79 OERI No.: 001323

Patent Status : Patent # - 3800015 and others
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 08/09/76
Recom. by NIST : 08/10/78
Award Date : 06/22/78 Award Amount: $ 87,230 Grant No:
Contract Period: 06/22/78 - 06/22/79

Summary: A grant of $87,230 was awarded for the purpose of contracting with Underwriters Laboratories, Inc. to perform fire tests, and to contract with Lev Zetlin Consultants for structural testing and analysis. This invention won the "outstanding individual inventor" award from the Dvorkovitz Technology Show of 1980. At last account, Sachs was looking for $2 million private sector money to design machinery for mass production. Some designs have been sold and built.

****

DOE No: 0074 DOE Coord: D. G. Mello

Title: A Solid Electrolyte Galvanic Solar Energy Conversion Cell

Description: A high-temperature, high voltage (1.51V) fuel cell utilizing a unique calcium stabilized zirconia solid electrolyte. Device promises high efficiency, minimum environmental problems and wide application. It can also simultaneously produce chemical feedstock.

Inventor: G R Fitterer
State : PA

Contact:
G. R. Fitterer, President
Scientific Applications, Inc.
825 Twelfth Street
Oakmont PA 15139
412-828-0233

Status: Complete Status Date: 10/30/80 OERI No.: 002560

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Direct Solar

Recv. by NIST : 09/19/77
Recom. by NIST : 08/29/78
Award Date : 08/24/79 Award Amount: $ 50,000 Grant No: FG01-79IR10264
Contract Period: 08/24/79 - 10/30/80

Summary: A grant of $50,000 was awarded to conduct a two-part research project to investigate the characteristics of his Fuel Cell. Part one is a study of the primary cell and its voltage characteristics. Part two is research leading to selection of the best electrolyte. Results indicate that although workable, advantages over existing fuel cells are not significant.

DOE No: 0075 DOE Coord: G.K. Ellis

Title: Coke Quenching Steam Generator

Description: The steam generator is a direct contact heat exchanger for generation of process steam from hot coke. Objective: to build new coke ovens.

Inventor: Richard Jablin
State : NC

Contact:
Richard Jablin
2511 Woodrow Street
Durham NC 27705
919-286-4693

Status: Complete Status Date: 06/03/82 OERI No.: 002265

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv. by NIST : 06/06/77
Recom. by NIST : 08/29/78
Award Date : 05/14/79 Award Amount: $119,400 Grant No: FG01-79IR10212
Contract Period: 05/14/79 - 06/03/82

Summary: A grant of $119,400 was awarded to complete a program of laboratory and pilot plant scale development. The work was successful, with steam quality adequate for process steam, and coke quality superior to the only competing process. Inventor seeks limited partnership arrangement, and anticipates a $10 million/year business.

****

DOE No: 0076 DOE Coord: G.K.Ellis

Title: The Ross Furnace

Description: A new gas burner design for use in high temperature industrial process furnace.

Inventor: Donald R Ross
State : TX

Contact:
Donald R Ross
3344 South Grove
Fort Worth TX 76110
817-921-9671

Status: Complete Status Date: 05/05/81 OERI No.: 002075

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 04/18/77
Recom. by NIST : 09/18/78
Award Date : 05/05/80 Award Amount: $ 82,000 Grant No:
Contract Period: 05/05/80 - 05/05/81

Summary: A grant of $82,000 was awarded to build, assemble, operate and test two systems; one for a tilted furnace and one for a rotary furnace. The work was completed satisfactorily.

DOE No: 0077 DOE Coord: J. Aellen

Title: Variable Heat Refrigeration System

Description: An improved vapor degreasing system incorporating a heat pump to conserve energy, retain solvents, and reduce hazards associated with solvent vapors.

Inventor: James W McCord
State : KY

Contact:
James W McCord
Corpane Industries, Inc.
250 Production Court
Bluegrass Industrial Park
Louisville KY 40299
502-491-4433

Status: Complete Status Date: 09/23/80 OERI No.: 001173

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Miscellaneous

Recv. by NIST : 08/09/76
Recom. by NIST : 09/25/78
Award Date : 09/23/80 Award Amount: $ 97,400 Grant No: FG01-80CS15026
Contract Period: 09/23/80 - 06/01/82

Summary: An award of $97,400 was granted to design and construct demonstration models of the variable heat refrigeration system.

****

DOE No: 0078 DOE Coord: G. K. Ellis

Title: System for High Efficiency Power Generation from Low Temperature Sources

Description: Concept for reducing the heat sink temperature in power plant operation and other applications; ice would be generated during cold weather and used to reduce the heat sink temperature during warmer weather.

Inventor: Robert McNeill
State : CA

Contact:
Robert McNeill

Status: No DOE Support Status Date: 03/11/81 OERI No.: 001154

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Other Natural Sources

Recv. by NIST : 06/30/76
Recom. by NIST : 09/28/78

Summary: Inventor advised DOE that he is no longer interested in pursuing the invention because of other interests.

DOE No: 0079 DOE Coord: G. K. Ellis

Title: Oil Well Bit Insert (Tooth), Cutting Article, Ablative

Description: A new composite bit insert to replace the tungsten carbide inserts now commonly used in the rotary cone cutter bits for oil and gas well drillings. It is claimed to have sharper edges, more resistant to wear, and to be stronger.

Inventor: Marvin L Wahrman
State : CA

Contact:
Marvin L Wahrman
47 Red Rock
Irvine CA 92714
714-979-1280

Status: Complete Status Date: 01/29/81 OERI No.: 001732

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv. by NIST : 01/21/77
Recom. by NIST : 08/25/78
Award Date : 01/29/80 Award Amount: $ 57,150 Grant No: FG01-79IR10288
Contract Period: 01/29/80 - 01/29/81

Summary: A grant of $57,150 was awarded to prove the technical feasibility and to address the repeatability and controllability of the manufacturing process for these bits. A bit was developed which cuts 3-4 times faster and lasts longer than conventional ones. At last account, company had 4 employees and had expanded to produce saw blades.

****

DOE No: 0080 DOE Coord: J.Aellen

Title: Improved Unfired Refractory Brick

Description: Chemically bonded, unfired brick for ladles handling molten steel, consisting of 90% silica and containing 10% clay with minor amounts of hardening agent and Gulac.

Inventor: Patsie C Campana
State : OH

Contact:
Patsie C Campana

Status: No DOE Support Status Date: 03/23/82 OERI No.: 001964

Patent Status : Not Applied For
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv. by NIST : 03/18/77
Recom. by NIST : 09/28/78

Summary: A proposal has been received from the inventor for several million dollars to build a production facility. The inventor was advised the program was unable to fund capital equipment, and potential alternatives of business plan and marketing study were described. The inventor has indicated no interest except on the basis of a large grant for capital equipment.

DOE No: 0081 DOE Coord: D. G. Mello

Title: Flash Polymerization

Description: A process utilizing pulsed xenon arc discharge lamps for polymerizing thermosetting resins.

Inventor: C Richard Panico
State : MA

Contact:
C Richard Panico
Xenon Corporation
66 Industrial Way
Wilmington MA 01887
617-658-8940

Status: Complete Status Date: 02/03/81 OERI No.: 002526

Patent Status : Patent # - 3782889
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 07/26/77
Recom. by NIST : 09/29/78
Award Date : 09/29/79 Award Amount: $ 99,990 Grant No: FG01-79IR1030
Contract Period: 09/29/79 - 02/02/81

Summary: A grant of $99,990 was awarded and completed, to conduct a 3-part investigation of the energy-saving and market penetration potential for this curing machine. A $500,000 contract for automotive parts curing was captured as a result of DOE- supported Development work. Several venture capitalists have expressed considerable interest. Sale of the company has been discussed.

****

DOE No: 0082 DOE Coord: D. G. Mello

Title: Cool Air Induction

Description: Modification kit for engines used for powering irrigation pumps. Uses cool well water in air cooler placed between commercial supercharger and the engine.

Inventor: Robert L Ullrich
State : NM

Contact:
Robert L Ullrich
Ullrich Eng. & Mfg., Inc.
1717 East Second Street
Roswell NM 88201
505-662-1821

Status: Complete Status Date: 09/24/79 OERI No.: 003061

Patent Status : Not Applied For
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv. by NIST : 11/23/77
Recom. by NIST : 10/27/78
Award Date : 09/24/79 Award Amount: $ 68,402 Grant No: FG01-79IR10284
Contract Period: 09/24/79 - 04/30/80

Summary: A two-phase grant in the amount of $99,282 was requested. The first phase was awarded ($68,402) and provided for analysis of existing operating data, a survey of the potential market, development and comparison of alternate strategies and a preparation of a formal business plan. Product is available for licensing.

DOE No: 0083 DOE Coord: P.M.Hayes

Title: Vertical Solar Louvers

Description: Massive rectangular columns oriented in NE-SW direction, located indoors behind a glazed southern exposure. Aesthetic improvement over conventional TROMBE wall should lead to increased acceptance of passive solar heating.

Inventor: Charles James Bier
State : VA

Contact:
Charles James Bier
Route #2, Box #35
Ferrum VA 24088

Status: Complete Status Date: 02/28/84 OERI No.: 002821

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 10/17/77
Recom. by NIST : 10/27/78
Award Date : 08/31/82 Award Amount: $ 26,510 Grant No: FG01-82CE15135
Contract Period: 08/31/82 - 02/28/84

Summary: A grant of $26,510 was awarded for inventor to prepare test plan, instrumentation strategy, and computer design guide. Final report was delivered September 30th, 1984. Results will be published in several semi-technical journals to encourage the passive solar concept.

****

DOE No: 0084 DOE Coord: G.K.Ellis

Title: Kinetic Energy Type Pumping System

Description: Simplified pumping system utilizes the kinetic energy of a circulating fluid to reduce the bottom- hole pressure and to lift the down-hole fluid.

Inventor: Kenneth W Odil
State : TX

Contact:
Kenneth W Odil

Status: No DOE Support Status Date: 09/24/82 OERI No.: 002032

Patent Status : Patent # - 3123009
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 04/11/77
Recom. by NIST : 10/30/78

Summary: A proposal was received from the inventor which was unacceptable because it was considerably beyond the level of support funds that could be justified. The inventor then endeavored to find a cost sharing arrangement with an interested private industry. A 5/13/82 check with him indicated that due to other business interests, Mr. Odil temporarily at least, is not interested in pursuing his invention.

DOE No: 0085 DOE Coord: D.G.Mello

Title: Dielectric Windowshade

Description: A method by which an applied voltage causes a reflective aluminized mylar film to unroll and press flat against a window.

Inventor: Charles G Kalt
State : MA

Contact:
Charles G Kalt
29 Hawthorne Road
Williamstown MA 01267
413-664-6371

Status: Complete Status Date: 08/18/81 OERI No.: 003691

Patent Status : Patent # - 3989357
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 04/12/78
Recom. by NIST : 10/31/78
Award Date : 08/18/81 Award Amount: $ 99,500 Grant No: FG01-81CS15076
Contract Period: 08/18/81 - 11/18/82

Summary: A grant of $99,500 was awarded and completed, to design, build and test, a demonstration model of the Dielectric Windowshade. A unique product resulted. Test-marketing for commercial greenhouses has been completed.

****

DOE No: 0086 DOE Coord: G. K. Ellis

Title: Coke Desulfurization

Description: Method to remove sulfur from high sulfur coal during the coking process, which makes it possible to use high sulfur coals in the manufacture of metallurgical coke. Process can pay for itself with the sulfur by-product.

Inventor: Douglas MacGregor
State : UT

Contact:
Howard Bovars
Diamond Energy Corporation
1012 North Beck Street
Sale Lake City UT 84103
801-359-3718

Status: Complete Status Date: 03/23/81 OERI No.: 002726

Patent Status : Patent # - 4011303
Development Stage : Laboratory Test
Technical Category: Fossil Fuels

Recv. by NIST : 09/21/77
Recom. by NIST : 11/27/78
Award Date : 12/07/79 Award Amount: $ 82,500 Grant No: FG01-80IR10305
Contract Period: 12/07/79 - 09/30/81

Summary: A grant of $82,500 was awarded for Diamond West Corporation, exclusive licensee, to perform sufficient additional technical, engineering and application investigation, to ready the technology for the marketplace. Licensee, with the help of the inventor, unable to duplicate results of initial experiment. But, Diamond West took a new approach and developed a successful process. $1.5 million private monies invested to date, and doubling that is anticipated. At last account, Diamond West had tentative plans for joint venture to build a calciner for sale to coke industry.

DOE No: 0087 DOE Coord: J. Aellen

Title: Recovering Uranium From Coal in Situ

Description: A method for recovering uranium from the sites of depleted coal deposits that have been mined by in situ gasification.

Inventor: Ruel Carlton Terry
State : OK

Contact:
Ruel Carlton Terry
2235 Northwest 55th Street
Oklahoma City OK 73112
405-840-9586

Status: Complete Status Date: 02/06/80 OERI No.: 002224

Patent Status : Patent # - 4113313
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv. by NIST : 05/17/77
Recom. by NIST : 11/29/78
Award Date : 02/01/80 Award Amount: $ 85,240 Grant No: FG01-80IR10301
Contract Period: 02/01/80 - 08/01/81

Summary: A grant of $85,240 was awarded to reduce two of the uncertainties related to eventual commercialization of the process. The first uncertainty concerns potential sites and the second uncertainty relates to technical feasibility. DOE Livermore Lab believes this method has good commercial possibilities, but uranium price must rise to make it commercially feasible.

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DOE No: 0088 DOE Coord: D. G. Mello

Title: System-100

Description: A strategy (control system) for regulating centrifugal and reciprocating equipment used in natural gas compressor stations.

Inventor: Alex Rutshein, et al
State : IA

Contact:
Lawrence Ladin
c/o Compressor Controls Corp.
P. O. Box #1936
Des Moines IA 50306
515-244-1180

Status: Complete Status Date: 08/12/80 OERI No.: 001818

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv. by NIST : 02/10/77
Recom. by NIST : 11/30/78
Award Date : 08/26/80 Award Amount: $ 50,000 Grant No: FG01-80CS15012
Contract Period: 08/26/80 - 08/15/81

Summary: A grant of $50,000 was awarded to develop a microprocessor- based strategy control system for control of compressors in gas transmission pipelines. Two pipelines have purchased product. Potential is easily $1 million annual savings. Product has gone on to win industry award for significant invention.

DOE No: 0089 DOE Coord: D.G.Mello

Title: Continuous Casting Process and Apparatus

Description: A continuous horizontal casting process for steel billets, slabs, and tubing, which achieves a very high quality product at twice the speed of existing continuous casting processes.

Inventor: Henry E Allen
State : CT

Contact:
Henry E Allen
Techmet Corporation
Fifteen Valley Drive
Greenwich CT 06830
203-629-4633

Status: Complete Status Date: 07/31/84 OERI No.: 002648

Patent Status : Patent # - 3517725
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv. by NIST : 08/22/77
Recom. by NIST : 11/30/78
Award Date : 07/29/82 Award Amount: $115,000 Grant No: FG01-82CE15101
Contract Period: 07/29/82 - 07/31/84

Summary: A grant of $115,000 was awarded to build and test a device for continuous casting of 4-inch bars of steel. The work on this project is complete. The project was generally successful. Lack of interest due to unfavorable economic conditions in steel industry however, prevents its commercialization.

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DOE No: 0090 DOE Coord: J.Aellen

Title: Grain Dryer

Description: A device to be added to a grain combine, to utilize the exhaust energy from the combine engine for drying the grain in the combine hopper tank.

Inventor: Clinton Van Winkle
State : NE

Contact:
Clinton Van Winkle

Status: No DOE Support Status Date: / / OERI No.: 003790

Patent Status : Patent # - 4003139
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv. by NIST : 03/16/78
Recom. by NIST : 12/18/78

Summary: Inventor not responsive. No basis for consideration of DOE grant support.

DOE No: 0091 DOE Coord: D.G.Mello

Title: Mine Brattice

Description: A reusable brattice for use in coal mining. Quick, and inexpensive to install - seals better than present stoppings. Improved air seal saves power and improves safety.

Inventor: James Allen Bagby
State : KY

Contact:
Rees Kinney, Atty.
Bagby Brattices, Inc.
P.O. Box #569
Greenville KY 42345
502-338-5619

Status: Complete Status Date: 09/20/79 OERI No.: 003210

Patent Status : Patent # - 3972272
Development Stage : Prototype Development
Technical Category: Fossil Fuels

Recv. by NIST : 12/20/77
Recom. by NIST : 12/19/78
Award Date : 09/29/79 Award Amount: $ 62,664 Grant No: FG01-79IR10302
Contract Period: 09/29/79 - 05/25/83

Summary: A grant of $62,664 was awarded and completed to fabricate 25 prototype brattices and install them in Peabody Coal underground coal mine in Southern Illinois. Data were collected and possibly detrimental effects of natural subsidence on the performances of the brattices was measured and found to be minimal. Product advanced rapidly, with sales organization formed and 1982 sales of $150,000. Product is accepted in the mining industries and is available for distribution. Corporation has doubled sales.

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DOE No: 0092 DOE Coord: G.K.Ellis

Title: Tri-Water, A Combination Air Conditioning and Fire Protection System for a Building.

Description: Utilizes common plumbing system with water serving as heat source/sink for heat pumps as well as sprinkler system.

Inventor: John L Carroll
State : KY

Contact:
Roger Stamper

Status: No DOE Support Status Date: 07/15/86 OERI No.: 001160

Patent Status : Patent # - 3939914
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 03/22/76
Recom. by NIST : 12/28/78

Summary: Inventor has licensed the technology to American Air Filter Co Inc. A grant was declined on the belief that it would compromise the inventor's patent position. At last account, American Air had installed $22 million of the technology, including $2 million for equipment and $20 million for construction, representing 36 jobs. Another 30 were on the drawing board.

DOE No: 0093 DOE Coord: G.K.Ellis

Title: Shelander-Burrows Process for Recovery of Metallic Values from Smelter Emissions

Description: A solution/precipitation process for recovery of zinc, lead, and copper from the baghouse dust collected from smelter emissions.

Inventor: Edward H Shelander
State : GA

Contact:
Edward H Shelander
P.O. Box #603
Brunswick GA 31520
912-265-8464

Status: Complete Status Date: 06/01/81 OERI No.: 001300

Patent Status : Patent # - 3849121
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 08/09/76
Recom. by NIST : 01/24/79
Award Date : 03/28/80 Award Amount: $ 89,742 Grant No: FG01-80CS15004
Contract Period: 03/28/80 - 06/01/81

Summary: A grant of $89,742 was awarded, and has been completed to provide an engineering and economic analysis of the subject process. At last account, grantee was looking for several million dollars venture start-up capital.

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DOE No: 0094 DOE Coord: J. Aellen

Title: Lantz Converter

Description: Unit for pyrolyzing municipal refuse that uses natural gas to bring converter up to pyrolyzing temperature and then switches to pyrolytic gases to maintain the process.

Inventor: William M FioRito
State : CA

Contact:
William M FioRito
12650 Mantilla Road
San Diego CA 92128
914-591-5080

Status: Complete Status Date: 07/10/85 OERI No.: 003675

Patent Status : Patent # - 2886122
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv. by NIST : 03/02/78
Recom. by NIST : 01/30/79
Award Date : 09/20/82 Award Amount: $134,000 Grant No: FG01-82CE15126
Contract Period: 09/20/82 - 09/17/83

Summary: A one year grant of $134,000 was awarded to instrument the Lantz Converter under engineering- test conditions to determine significant operating and economic factors.

DOE No: 0095 DOE Coord: D. G. Mello

Title: Omni-Horizontal Axis-Wind Turbine

Description: A low cost, self starting, horizontal axis wind turbine with novel blade orientation. Operation is relatively insensitive to wind direction.

Inventor: Val O Bertoia
State : PA

Contact:
Val O Bertoia

Status: No DOE Support Status Date: 08/06/80 OERI No.: 003875

Patent Status : Disclosure Document Program
Development Stage : Concept Development
Technical Category: Other Natural Sources

Recv. by NIST : 04/10/78
Recom. by NIST : 01/30/79

Summary: Inventor requested project be terminated for his convenience. Preliminary DOE review suggested that project would not be economically justifiable.

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DOE No: 0096 DOE Coord: J. Aellen

Title: Leavell, Vibrationless, Low Noise, High Efficiency, Pneumatic Percussion Tools and Air Compressor Systems

Description: Pneumatic tools (paving breaker, etc.) reconfigured to obtain additional energy from high temperature compressed air. High temperature and low pressure requires larger displacement and therefore overall size to achieve same output power.

Inventor: Floyd R Anderson
State : AR

Contact:
Floyd R Anderson
Vast Research Company
Seven Tiffany Lane
Bella Vista AR 72712
501-855-9202

Status: Complete Status Date: 07/28/80 OERI No.: 001869

Patent Status : Patent # - 3266581 and others
Development Stage : Prototype Test
Technical Category: Combustion Engines & Components

Recv. by NIST : 02/28/77
Recom. by NIST : 02/28/79
Award Date : 09/12/79 Award Amount: $ 76,675 Grant No: FG01-80IR10305
Contract Period: 09/12/79 - 06/11/80

Summary: A grant of $76,675 was awarded to design, build, and test six pneumatic tools. Independent test evaluation by a third party did analyze energy input and output, rate of work, noise and vibration. Results have been compared with performance of conventional tools; all criteria show outstanding advantages of the Anderson system. Company has raised $3 million in private investments and 130 units have been put into demonstration service. Product is available for distributor sales.

DOE No: 0097 DOE Coord: J. Aellen

Title: Water Drying System

Description: A technique for removing wash water from manufactured parts by dipping parts into degreaser solvent and mechanically separating water by virtue of differences in liquid densities.

Inventor: James W McCord
State : KY

Contact:
James W McCord
Corpane Industries, Inc.
250 Production Court
Bluegrass Industrial Park
Louisville KY 40299
502-491-4433

Status: Complete Status Date: 09/10/80 OERI No.: 003679

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv. by NIST : 08/09/76
Recom. by NIST : 02/28/79
Award Date : 09/10/80 Award Amount: $ 93,800 Grant No: FG01-80CS15025
Contract Period: 09/10/80 - 06/10/82

Summary: A grant of $93,800 was awarded to design and construct demonstration models of a system to degrease and dry metal parts prior to painting. Product is available for custom installation in production lines. The inventor has been successful in marketing his product.

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DOE No: 0098 DOE Coord: D.G.Mello

Title: Process Development to Conserve Energy and Material- --(in the manufacture of)---Bearings

Description: A methodology for continuously casting a sheet of the desired bearing alloy, in the desired thickness, cutting it to the proper length, rolling it to the specified diameter, and welding it together.

Inventor: James L Chill
State : OH

Contact:
James L. Chill, President
Chillcast, Inc.
404 Executive Boulevard
Marion OH 43302
614-383-6337

Status: Complete Status Date: 06/30/83 OERI No.: 003547

Patent Status : Patent Applied For
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv. by NIST : 02/17/78
Recom. by NIST : 03/14/79
Award Date : 01/07/80 Award Amount: $123,994 Grant No: FG01-80IR10321
Contract Period: 01/07/80 - 06/30/83

Summary: A grant of $123,994 was awarded for the grantee to work with Battelle Memorial Institute to optimize the rolling-pass and heat treatment schedules, establish and compare the performance characteristics of the prototype bearings with those made by current methods, evaluate cylindrical bearings with and without a seam weld, and investigate performance of prototypes containing only 3% tin. An entrepreneur is needed to market this invention successfully.

DOE No: 0099 DOE Coord: D. G. Mello

Title: Light Weight Composite Trailer Tubes

Description: A design and manufacturing method for manufacture of composite pressure vessels employed in highway transport of gaseous fuel.

Inventor: Oscar Weingart
State : CA

Contact:
Ed Morris, President
Struct. Comp Ind., Inc.
325 Enterprise Avenue
Pamona CA 91768
714-594-7777

Status: Complete Status Date: 01/14/80 OERI No.: 004059

Patent Status : Disclosure Document Program
Development Stage : Engineering Design
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 06/05/78
Recom. by NIST : 03/30/79
Award Date : 01/14/80 Award Amount: $ 96,000 Grant No: FG01-80IR10319
Contract Period: 01/14/80 - 12/31/80

Summary: A grant of $96,000 was awarded to design, fabricate, and test a large scale section of a new light-weight composite trailer tube for highway transportation of compressed gases. Product requires sponsor for commercial introduction. Licensing is available. Prototype product sales total $50,000.

****

DOE No: 0100 DOE Coord: J. Aellen

Title: Solaroll

Description: A flexible rubber tubing solar collector for hot water and building heating systems. Collector is extrusion of ethylene-propylene-diamine rubber.

Inventor: Michael F Zinn
State : NY

Contact:
Michael F Zinn
Bio-Energy Systems, Inc.
Box #191
Ellenville NY 12428
914-647-6482

Status: Complete Status Date: 03/25/80 OERI No.: 003236

Patent Status : Not Applied For
Development Stage : Limited Production/Marketing
Technical Category: Direct Solar

Recv. by NIST : 12/05/77
Recom. by NIST : 03/30/79
Award Date : 05/24/80 Award Amount: $110,390 Grant No: FG01-80CS15002
Contract Period: 05/24/80 - 11/25/81

Summary: A grant of $110,390 was awarded to test the product's performance in a variety of applications; in limited production/marketing stage when recommended. Sales for 1981 exceeded $4 million through 400 distributors and dealers in the U.S and from licensees in five foreign countries. Company now publicly held, from $2.5 million stock issue and employs 100 in three divisions. New products are developed and on the market.

DOE No: 0101 DOE Coord: P.M.Hayes

Title: Controlled Combustion Engine

Description: A modified intake valve for spark ignition engines. Creates increased turbulence at low throttle settings to allow lean burning mixtures.

Inventor: Sharad M Dave
State : MI

Contact:
Sharad M Dave
27689 Doreen
Farmington Hills MI 48024
313-478-5976

Status: Complete Status Date: 11/30/82 OERI No.: 002114

Patent Status : Patent # - 3762381
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

Recv. by NIST : 02/28/77
Recom. by NIST : 04/20/79
Award Date : 05/05/81 Award Amount: $ 85,000 Grant No: FG01-81CS15040
Contract Period: 05/05/81 - 11/30/82

Summary: An award of $85,000 to modify a conventional engine was granted to provide variable valving in a variety of designs and test on an engine dynamometer both for efficiency and performance. The project is completed. Inventor is seeking licensing.

****

DOE No: 0102 DOE Coord: D.G.Mello

Title: Method of Burning Residual Fuel Oil in Distillate Fuel Oil Burners

Description: The invention is a method to convert standard distillate fuel oil burners to residual fuel oil, which is accomplished by heating that portion of the combustion air used to atomize the fuel oil.

Inventor: Frank C Bernhard
State : MO

Contact:
Frank C Bernhard
11936 Claychester Drive
St. Louis MO 63131
314-822-3484

Status: Complete Status Date: 02/21/80 OERI No.: 003205

Patent Status : Patent # - 3977823
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 12/19/77
Recom. by NIST : 04/24/79
Award Date : 02/21/80 Award Amount: $ 43,550 Grant No: FG01-80CS15003
Contract Period: 02/21/80 - 09/30/82

Summary: A grant of $43,550 was awarded to design and build a packaged, self-contained fuel oil burning test stand that can burn residual fuel oil in any low-pressure, atomizing fuel oil burner. Test showed technical viability. Market presently very poor.

DOE No: 0103 DOE Coord: P.M.Hayes

Title: Low Voltage Ionic Fluorescent Light Bulb

Description: Fluorescent light bulb built on Edison base. Excited by array of gas discharge tubes. Uniform output, high efficiency, and long life are claimed.

Inventor: Edwin E Eckberg
State : ID

Contact:
Edwin E Eckberg
Ecklux R & D Vacuum Lab Inc
5504 Currier Road
Boise ID 83705
208-343-7442

Status: Complete Status Date: 09/10/81 OERI No.: 001446

Patent Status : Patent # - 3447098 and others
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv. by NIST : 09/17/76
Recom. by NIST : 04/30/79
Award Date : 03/12/80 Award Amount: $ 73,554 Grant No: FG01-80CS15007
Contract Period: 03/12/80 - 09/10/81

Summary: A grant of $73,554 was awarded to design, develop, fabricate and test a series of one, two and four- bulb configuration low-voltage fluorescent ionic light bulbs. The one-bulb version will be developed to a point suitable for semi-automatic machine production. The grant was completed. The inventor is deceased. An entrepreneur is needed to develop further and market this invention.

****

DOE No: 0104 DOE Coord: G. K. Ellis

Title: Low Continuous Energy Mass Separation System

Description: The invention is a combination of any two or all three separation techniques involving chromatography, electrophoresis, and centrifugation (common in all combinations) to provide a low-energy continuous separation of chemical species, either in the gas phase or liquid phase.

Inventor: Eskil L Karlson
State : PA

Contact:
Eskil L Karlson
4634 State Street
Erie PA 16509
814-871-7000

Status: Complete Status Date: 04/26/81 OERI No.: 002186

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Miscellaneous

Recv. by NIST : 05/11/77
Recom. by NIST : 04/30/79
Award Date : 02/26/80 Award Amount: $ 83,015 Grant No: FG01-80CS15008
Contract Period: 02/26/80 - 04/26/81

Summary: A grant was awarded to build and test two laboratory models. More development needed but the results encouraging with 90 percent separation each pass at several gal/min throughput. Inventor needs funding for R & D, to build a production prototype, and alternate versions. Inventor seeking company interested in producing a unit to do genetic separations. Potential market at medical schools and labs, around 30,000 units at $2,000 to $10,000 per unit.

DOE No: 0105 DOE Coord: J. Aellen

Title: High Frequency Furnace

Description: A furnace for the melting of reactive metals and semi-conductors which must be obtained in high purity form. It employs high frequency heating in a manner that allows the metal being melted to form its own crucible.

Inventor: Allen D Zumbrunnen
State : UT

Contact:
Allen D Zumbrunnen
419 Sherman Avenue
Salt Lake City UT 84115
801-466-2663

Status: Complete Status Date: 07/10/85 OERI No.: 002467

Patent Status : Patent # - 4133969
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv. by NIST : 06/24/77
Recom. by NIST : 04/30/79
Award Date : 09/30/81 Award Amount: $121,554 Grant No: FG01-81CS15077
Contract Period: 09/30/81 - 12/31/83

Summary: A grant of $121,554 was awarded to build and test a prototype high frequency induction furnace for the production of silicon for solar cells.

****

DOE No: 0106 DOE Coord: D. G. Mello

Title: Deep Shaft Hydro-Electric Power

Description: A proposal to investigate the use of underground salt domes/caves as pumped storage of water for production of peak demand electricity.

Inventor: James L Ramer
State : MO

Contact:
James L Ramer

Status: No DOE Support Status Date: 07/18/79 OERI No.: 002753

Patent Status : Not Applied For
Development Stage : Concept Definition
Technical Category: Miscellaneous

Recv. by NIST : 09/30/77
Recom. by NIST : 05/10/79

Summary: Material submitted as proposal to DOE described a concept that related several known ideas and proposed to unite them into one large experiment. The work was not definitive or feasible enough to justify grant award by DOE.

DOE No: 0107 DOE Coord: J.Aellen

Title: Waste Products Reclamation Process

Description: This is a process for desulfurizing combustion gases, with a by-product "Linfans" which is claimed to have economic uses as a 1) construction material, 2) reagent for treating waste water, and 3) agent to react with sulphur dioxide in stack gas scrubbing processes.

Inventor: Ping-Wha Lin
State : IN

Contact:
Ping-Wha Lin
506 South Darling Street
Angola IN 46703
219-665-5425

Status: Complete Status Date: 09/30/82 OERI No.: 001416

Patent Status : Patent # - 3861930 and others
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv. by NIST : 09/09/76
Recom. by NIST : 05/31/79
Award Date : 09/30/82 Award Amount: $129,888 Grant No: FG01-81CS15143
Contract Period: 09/30/82 - 12/31/83

Summary: A grant of $129,888 was awarded to define the operating parameters and optimize the variables. Final report shows considerable uses for the invention. Inventor attempting to find customers and suppliers, etc.

****

DOE No: 0108 DOE Coord: G. K. Ellis

Title: Processing Recovery of Aluminum

Description: The invention is a mechanical process, operated at room temperature, (except for the reduction step) for separating aluminum metal from the dross.

Inventor: Paul J Cromwell
State : NY

Contact:
Robert J Cromwell
120 Huntington Street
Chardon OH 44024
216-285-9306

Status: Complete Status Date: 06/12/81 OERI No.: 004688

Patent Status : Patent # - 4126673
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 12/27/78
Recom. by NIST : 05/31/79
Award Date : 06/11/80 Award Amount: $158,029 Grant No: FG01-80CS15009
Contract Period: 06/11/80 - 06/12/81

Summary: A grant of $158,029 was used to develop a mechanical process for recovering aluminum from dross (i.e. waste). The inventor secured $1.5 million in financing and opened a plant in Buffalo. The plant was closed down however, due to the depressed nature of the aluminum industry. Subsequently, the inventor patented a new process for melting aluminum beverage cans.

DOE No: 0109 DOE Coord: D.G.Mello

Title: Hydrostatic Meat Tenderizer

Description: The invention is a method for tenderizing low-grade, grass fed beef by subjecting the boned meat to a hydrostatic pressure of over 15,000 psi for several minutes.

Inventor: H. W. Kennick
State : OR

Contact:
H. W. Kennick
Clark Meat Science Lab
Oregon State University
Corvallis OR 97331
503-754-3675

Status: Complete Status Date: 06/24/80 OERI No.: 003321

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Miscellaneous

Recv. by NIST : 01/11/78
Recom. by NIST : 06/19/79
Award Date : 06/24/80 Award Amount: $ 86,000 Grant No: FG01-80CS15013
Contract Period: 06/24/80 - 03/01/83

Summary: A grant of $86,000 was awarded to investigate and develop a feasible commercial process. The projects results show that the process is feasible and the product is at least as tender and tasty as traditionally processed grain-fed beef. Technical data are available for the cost of handling from the Oregon State University.

****

DOE No: 0110 DOE Coord: D.G.Mello

Title: Improved Windpower Generating System

Description: Self-regulating, two-part windmill rotor with inner part for low-speed wind and outer part for high- speed wind.

Inventor: Karl H. Bergey
State : OK

Contact:
Karl H. Bergey
Route #1, Box #151B
Norman OK 73069
405-364-3675

Status: Complete Status Date: 08/27/80 OERI No.: 003425

Patent Status : Patent Applied For
Development Stage : Prototype Development
Technical Category: Other Natural Sources

Recv. by NIST : 01/19/78
Recom. by NIST : 06/29/79
Award Date : 08/26/80 Award Amount: $ 74,875 Grant No: FG01-08CS15011
Contract Period: 08/26/80 - 09/30/82

Summary: A 13-month grant of $74,875 was awarded for the development of an analytical program to characterize the operation of the Bergey windmill, design and test the prototype, and perform an economic analysis of the benefits of the design. Invention is available for wholesale and retail distribution.

DOE No: 0111 DOE Coord: P.M.Hayes

Title: Haspert Mining System

Description: The invention is intended for developing rectangular openings for mineral development. It is a mechanical apparatus that cuts linear grooves in rock using drag bits and then breaks the rock between the grooves primarily in the tension mode. Potential applications are in oil shale, rock and possibly coal.

Inventor: John C Haspert
State : CA

Contact:
John C. Haspert
P.O. Box #1252
Arcadia CA 91006

Status: Complete Status Date: 09/11/81 OERI No.: 003688

Patent Status : Patent # - 4062594
Development Stage : Limited Production/Marketing
Technical Category: Fossil Fuels

Recv. by NIST : 03/27/78
Recom. by NIST : 06/29/79
Award Date : 03/27/80 Award Amount: $125,000 Grant No: FG01-80CS15006
Contract Period: 03/27/80 - 06/30/81

Summary: A grant of $125,000 was awarded to provide a complete set of preliminary design drawings for a prototype machine for "driving" a drift for the mining of oil shale and coal. The cutter produces uniformly sized material at lower costs than present methods. The work was completed and the inventor seeks licensing and/or venture capital.

****

DOE No: 0112 DOE Coord: D.G.Mello

Title: Pump

Description: A conventional steam injector to serve as both feedwater pump and direct contact feedwater heater in conventional steam power plants.

Inventor: Paul Zanoni
State : CT

Contact:
Paul Zanoni
Boulder Engineering, Inc.
Fifty-Five Highland Street
Weathersfield CT 06109
203-569-0446

Status: Complete Status Date: 11/07/85 OERI No.: 000548

Patent Status : Patent # - 3314236
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv. by NIST : 12/29/75
Recom. by NIST : 07/26/79
Award Date : 08/03/81 Award Amount: $ 99,870 Grant No: FG01-81CS15057
Contract Period: 08/03/81 - 11/07/85

Summary: A grant of $99,870 was awarded to design, build, and install system for field tests at Worchester Polytech in Massachusetts. System will operate in conjunction with existing steam power plant. The inventor complains that he is not getting proper cooperation from Worcester Polytech, making it impossible to complete the project. The project was closed unfinished.

DOE No: 0113 DOE Coord: P.M.Hayes

Title: Wallace Mold Additive System

Description: A device and method for feeding small pieces of metal scrap of known composition and at a fixed rate into a mold, while molten metal is being poured.

Inventor: Henry J Wallace
State : PA

Contact:
Henry J Wallace
570 Squaw Run Road
Pittsburgh PA 15238
412-963-0969

Status: Complete Status Date: 09/21/83 OERI No.: 003865

Patent Status : Patent # - 3871058 and others
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv. by NIST : 04/20/78
Recom. by NIST : 07/31/79
Award Date : 09/22/82 Award Amount: $ 89,000 Grant No: FG01-82CE15093
Contract Period: 09/22/82 - 09/21/83

Summary: A grant of $89,000 was awarded to build and test a feeding device to be installed on a mini-mill located in Florida. The grant work is completed. The Wallace injection system is patented in the U.S. and many other countries. The inventor is seeking licensing arrangement for his process through Blair- Knox Equipment Division of Blairnox, Pa. 412-781- 2700. Blair-Knox Equipment is licensed to supply apparatus for the Wallace Additive Injection System.

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DOE No: 0114 DOE Coord: P.M.Hayes

Title: New Energy-Saving Tire for Motor Vehicles

Description: An automobile tire of innovative design intended to reduce rolling friction below that of equivalent radial tires. Special rims are required.

Inventor: Renato Monzini
Country : Milan, Italy

Contact:
Mario Bruno

Status: No DOE Support Status Date: 06/19/80 OERI No.: 003863

Patent Status : Patent # -
Development Stage : Prototype Development
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 04/20/78
Recom. by NIST : 07/31/79

Summary: DOE could find no basis for support.

DOE No: 0115 DOE Coord: D. G. Mello

Title: Refrigeration System

Description: Device to be installed between the compressor and the air cooled condenser in a small refrigeration unit. It consists of a dryer-filter heat exchanger, a venturi-ejector, and connecting piping.

Inventor: Clyde G Phillips
State : DE

Contact:
Clyde G Phillips
Rural Route #2
Box #148-G, Angola Beach
Lewes DE 19971
302-945-9093

Status: Complete Status Date: 02/22/80 OERI No.: 001188

Patent Status : Patent # - 3783629
Development Stage : Laboratory Test
Technical Category: Miscellaneous

Recv. by NIST : 07/02/76
Recom. by NIST : 07/31/79
Award Date : 12/07/79 Award Amount: $ 6,910 Grant No: FG01-80IR10318
Contract Period: 12/07/79 - 12/01/80

Summary: The grantee installed his device in one large- capacity, and one small-capacity commercially available air conditioners and shipped them to an independent testing laboratory where the change in performance was documented. No energy savings were apparent.

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DOE No: 0116 DOE Coord: G. K. Ellis

Title: Model 5000 ASEPAK System

Description: The inventions are for new methods for fabricating and aseptically filling sterile plastic bags with certain classes of food materials that have been previously sterilized by ultra-high temperature processes for very short periods of time.

Inventor: Roy J Weikert
State : OH

Contact:
Roy J Weikert

Status: No DOE Support Status Date: 10/04/80 OERI No.: 002946

Patent Status : Patent # - 3813845 and others
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv. by NIST : 11/04/77
Recom. by NIST : 08/30/79

Summary: Unable to identify suitable scope of work which was both agreeable to the inventor and supportable by DOE.

DOE No: 0117 DOE Coord: J. Aellen

Title: "Solarspan" Prism Trap

Description: An all-plastic, black liquid, solar collector with provisions for freeze and overheat protection. Plastic can be molded to give good structural properties with thin sections.

Inventor: John Mattson
State : MA

Contact:
George E Mattson
361 Moraine Street
Brockton MA 02401
617-585-3598

Status: Complete Status Date: 09/30/80 OERI No.: 002189

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Direct Solar

Recv. by NIST : 03/28/77
Recom. by NIST : 09/20/79
Award Date : 09/30/80 Award Amount: $ 98,700 Grant No: FG01-80CS15024
Contract Period: 09/30/80 - 10/30/81

Summary: A grant of $98,700 was awarded to design, test and construct, low-cost plastic solar water heating panels. The project was successful. Evaluation by the Oak Ridge National Laboratory comments that this invention "will save the solar program by showing all concerned that low costs can be achieved." Product is available for wholesale distribution.

****

DOE No: 0118 DOE Coord: J.Aellen

Title: Energy Adaptive Control of Precision Grinding

Description: An otherwise conventional, universal, external cylindrical grinder retrofitted with a computer control to save energy in removing metal.

Inventor: Roderick L Smith
State : IL

Contact:
Roderick L Smith
Energy Adaptive Grinding, Inc.
2012 Greenfield Lane
Rockford IL 61107
815-399-5614

Status: Complete Status Date: 07/10/85 OERI No.: 003876

Patent Status : Patent # - 3653855
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 04/24/78
Recom. by NIST : 09/27/79
Award Date : 09/15/81 Award Amount: $ 99,328 Grant No: FG01-81CS15075
Contract Period: 09/15/81 - 09/15/82

Summary: A grant of $99,328 was awarded to perform a complete engineering design and test of the invention prototype equipment. The technology has been licensed to the Caterpillar Tractor Company.

DOE No: 0119 DOE Coord: G.K.Ellis

Title: Air Ratio Controller (AERTROL)

Description: A controller that controls the running time of a blower in proportion to the rate of flow of liquid in forced aeration type sewage plants; developed specifically to serve many small package treatment plants with liquid flow of less that 100,000 gallons per day.

Inventor: Eldon L Asher
State : FL

Contact:
Otis W Smith

Status: No DOE Support Status Date: 07/17/81 OERI No.: 004056

Patent Status : Disclosure Document Program
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv. by NIST : 06/05/78
Recom. by NIST : 09/28/79

Summary: Proposal for marketing was rejected by DOE.

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DOE No: 0120 DOE Coord: D.G.Mello

Title: Vapor Heat Transfer Commercial Griddle

Description: A griddle for restaurants with its surface heated by vapor condensation. This vapor is boiled with electric elements in a sump below the griddle surface. Vapor and condensed liquid are hermetically sealed.

Inventor: Robert Zartarian
State : NJ

Contact:
Robert Zartarian
Systech Industries
Six Hialeah Court
West Long Beach NJ 07764
201-449-3700

Status: Complete Status Date: 10/30/86 OERI No.: 004562

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv. by NIST : 11/02/78
Recom. by NIST : 10/17/79
Award Date : 09/02/82 Award Amount: $ 72,603 Grant No: FG01-82CE15124
Contract Period: 09/02/82 - 08/31/83

Summary: A 12-month grant of $72,603 was awarded for a two- phase, 7-task development project in which the grantee performed R & D tasks relating to product improvement and safety, as well as market development. Marketing plans depend on future financial assistance from the private sector.

DOE No: 0121 DOE Coord: J. Aellen

Title: Solar Space Heating for both Retrofit and New Construction

Description: Passive solar collector using air as the transfer fluid. Designed for vertical south wall of a structure.

Inventor: James B Whitmore
State : MI

Contact:
James B Whitmore

Status: No DOE Support Status Date: / / OERI No.: 004843

Patent Status : Not Applied For
Development Stage : Limited Production/Marketing
Technical Category: Direct Solar

Recv. by NIST : 02/08/79
Recom. by NIST : 10/25/79

Summary: Inventor is in commercial production. Over 6000 installations, costing $30 million, have been made.

****

DOE No: 0122 DOE Coord: J. Aellen

Title: Lean Limit Controller

Description: A device to apply adaptive control to air-fuel metering in internal combustion engines.

Inventor: Ervin Leshner
State : NJ

Contact:
Fuel Injection Development Cor
256 South Van Pelt
Philadelphia PA 19103
215-735-8704

Status: Complete Status Date: 09/24/80 OERI No.: 004035

Patent Status : Patent # - 4015572
Development Stage : Prototype Test
Technical Category: Combustion Engines & Components

Recv. by NIST : 01/12/78
Recom. by NIST : 11/23/79
Award Date : 09/24/80 Award Amount: $ 99,500 Grant No: FG01-80CS15022
Contract Period: 09/24/80 - 12/24/81

Summary: An grant of $99,500 was awarded to design and test a lean limit control device for an internal combustion engine. Device is workable but engineering estimates show it will not be cost effective.

DOE No: 0123 DOE Coord: G.K. Ellis

Title: Comminution of Ores by a Low-Energy Process

Description: Heating with microwaves to differentially expand and fracture the sulphur containing elements of ore and porphory rock, intended as a preliminary stage in the processing of ore before the grinding stage.

Inventor: J Paul Pemsler
State : MA

Contact:
J. Paul Pemsler, President
Castle Technology Corp.
P. O. Box #403
Lexington MA 02133
617-861-1274

Status: Complete Status Date: 11/25/81 OERI No.: 004573

Patent Status : Disclosure Document Program
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv. by NIST : 11/06/78
Recom. by NIST : 11/29/79
Award Date : 09/15/80 Award Amount: $ 90,394 Grant No: FG01-80CS15020
Contract Period: 09/15/80 - 11/25/81

Summary: A grant of $90,394 was awarded to explore the technical feasibility and determine the energy input for the process. The energy requirements to accomplish any practical degree of fracturing were found to be beyond the range of equipment that was available for this project.

****

DOE No: 0124 DOE Coord: J.Aellen

Title: Solar Collector

Description: This solar collector is a two foot square module constructed entirely of a non-porous ceramic which has been fired at high temperatures so that it is vitrified.

Inventor: Charlton Sadler
State : FL

Contact:
Charlton Sadler

Status: No DOE Support Status Date: 06/02/82 OERI No.: 004352

Patent Status : Patent # - 4170983 and others
Development Stage : Working Model
Technical Category: Direct Solar

Recv. by NIST : 08/30/78
Recom. by NIST : 11/30/79

Summary: Unable to agree with the inventor upon an acceptable statement of work.

DOE No: 0125 DOE Coord: G.K.Ellis

Title: The Turbulator Burner System

Description: Invention is a stirred heat exchanger (SHE) consisting of a heat exchanger with an annular cross section surrounding a region where the higher temperature fluid flows axially. Blades attached to an axial shaft stir the fluid at the surface of convective heat transfer. Offers possibility of enhanced heat transfer using dirty gases.

Inventor: Frank W Bailey
State : NJ

Contact:
Frank W Bailey
P.O. Box #94
Fourth Avenue
Haskell NJ 07420

Status: Complete Status Date: 09/30/81 OERI No.: 000707

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv. by NIST : 02/11/76
Recom. by NIST : 12/31/79
Award Date : 09/11/80 Award Amount: $ 75,000 Grant No: FG01-81CS15016
Contract Period: 09/11/80 - 09/14/81

Summary: A grant of $75,000 was awarded to design, build, test, and evaluate both an externally and an internally stirred heat exchanger.

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DOE No: 0126 DOE Coord: J. Aellen

Title: Vaclaim

Description: A system for use in metal casting foundries. Reclaims heat from metal castings and energy from the binder in no-bake molds. Eliminates smoke and fumes from the foundry.

Inventor: Karl D Scheffer
State : NY

Contact:
Karl D Scheffer
121 Governor Drive
Scotia NY 12302
518-399-0016

Status: Complete Status Date: 04/01/81 OERI No.: 004970

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Industrial Processes

Recv. by NIST : 03/19/79
Recom. by NIST : 12/31/79
Award Date : 04/01/81 Award Amount: $ 97,734 Grant No: FG01-81CS15036
Contract Period: 04/01/81 - 06/30/83

Summary: A grant of $97,734 was awarded for fabrication and testing heat recovery in vacuum metal casting process using no-bake molds. Inventor seeks license arrangements.

DOE No: 0127 DOE Coord: D.G.Mello

Title: Process and Apparatus to Produce Crude Oil from Tar Sands

Description: Two-vessel, fluidized bed system connected by heat pipes to transfer heat between the upper pyrolizer vessel and the lower combustor vessel in which char residue is burned. Clean sand comes out in the tailings and a usable grade of synthetic crude oil out the overhead.

Inventor: J D Seader
State : UT

Contact:
J D Seader
Merrill Engineering Building
University of Utah
Sale Lake City UT 84112
801-581-6348

Status: Complete Status Date: 09/16/84 OERI No.: 005003

Patent Status : Patent # -
Development Stage : Laboratory Test
Technical Category: Fossil Fuels

Recv. by NIST : 03/26/79
Recom. by NIST : 12/31/79
Award Date : 09/16/82 Award Amount: $ 49,949 Grant No: FG01-82CE15136
Contract Period: 09/16/82 - 09/30/83

Summary: A 12-month grant of $49,949 was awarded to the University of Utah to design, construct, and operate a device for the purpose of producing crude oil from tar sands. Goals to prove the design, optimize the variables (including the product mix), and to prove the concept have been achieved.

****

DOE No: 0128 DOE Coord: D.G.Mello

Title: Continuous Distillation Apparatus and Method

Description: New design for distilling column where the rectifying and stripping sections are side by side, and heat pipes transfer heat from the rectifying to the stripping section.

Inventor: J D Seader
State : UT

Contact:
J D Seader
Merrill Engineering Building
University of Utah
Salt Lake City UT 84112
801-581-6348

Status: Complete Status Date: 04/02/85 OERI No.: 005004

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv. by NIST : 03/26/79
Recom. by NIST : 12/31/79
Award Date : 09/16/82 Award Amount: $ 49,652 Grant No: FG01-82CE15138
Contract Period: 09/16/82 - 09/30/83

Summary: A 12-month grant of $49,652 was awarded to the University of Utah to design, construct, and operate a model distillation apparatus to simulate the rectifying and stripping sections of a proposed continuous distillation apparatus.

DOE No: 0129 DOE Coord: J. Aellen

Title: Super U System - Snap Strap

Description: Super U-Snap strap insulation system which is an innovative application technique.

Inventor: James E Kessler
State : MO

Contact:
James E Kessler
9913 Walnut Drive, #201
Kansas City MO 64114

Status: Complete Status Date: 11/28/80 OERI No.: 004007

Patent Status : Patent # - 4069636
Development Stage : Prototype Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 05/24/78
Recom. by NIST : 01/31/80
Award Date : 11/28/80 Award Amount: $ 84,642 Grant No: FG01-81CS15209
Contract Period: 11/28/80 - 11/28/81

Summary: A grant of $84,642 was awarded to test market the Super U System. The project has created ten jobs, and sales have increased 100% (to $300,000). Product is available for franchise.

****

DOE No: 0130 DOE Coord: J.Aellen

Title: Furnace Input Capacity Trimming Switch

Description: A simple inexpensive device for gas and oil furnaces to reduce the flue gas heat loss. During morning startup, when the room thermostat is calling for heat, the device will cycle the furnace on and off to minimize flue gas heat loss.

Inventor: Arnold R Post
State : MD

Contact:
Arnold R Post

Status: No DOE Support Status Date: / / OERI No.: 004389

Patent Status : Disclosure Document Program
Development Stage : Laboratory Test
Technical Category: Buildings, Structures & Components

Recv. by NIST : 09/11/78
Recom. by NIST : 02/26/80

Summary: Project terminated because inventor failed to respond. After repeated requests, inventor was finally informed that he had until August 30, 1981 to submit a preliminary proposal or his invention would no longer be considered for DOE support. Inventor failed to respond - project terminated.

DOE No: 0131 DOE Coord: J. Aellen

Title: Valve Deactuator for Internal Combustion Engines

Description: A retrofit device that can provide variable displacement operation on existing gasoline engines by one cylinder at a time deactuating.

Inventor: Edgar R Jordon
State : MI

Contact:
N. John Beck
Fuel Injection Development Co
5141 Santa Fe Street
San Diego CA 92109
619-270-6760

Status: Complete Status Date: 09/25/80 OERI No.: 005110

Patent Status : Patent # - 4114588
Development Stage : Prototype Development
Technical Category: Combustion Engines & Components

Recv. by NIST : 05/01/79
Recom. by NIST : 02/29/80
Award Date : 09/25/80 Award Amount: $ 65,972 Grant No: FG01-80CS15023
Contract Period: 09/25/80 - 06/25/82

Summary: A grant of $65,972 was awarded to develop and test a valve deactivator for internal combustion engines. The invention is available for sale or lease.

****

DOE No: 0132 DOE Coord: D.G.Mello

Title: Process for Reclaiming and Upgrading Thin-Walled Malleable Waste Material

Description: A system for mechanically pelletizing ferrous and non-ferrous metals and some plastics, grading according to size, and then separating according to density by conventional gravity techniques.

Inventor: Michael Knezevich
State : IN

Contact:
Michael Knezevich

Status: No DOE Support Status Date: / / OERI No.: 003045

Patent Status : Patent # - 4119453
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv. by NIST : 11/22/77
Recom. by NIST : 03/25/80

Summary: Other financial commitments prevent inventor from proceeding.

DOE No: 0133 DOE Coord: D.G.Mello

Title: AUTOTHERM Car Comfort System

Description: An auxiliary coolant circulator for an automobile which will provide heat to the vehicle operator for a period of time without requiring the engine to idle.

Inventor: F J Perhats
State : IL

Contact:
James V Enright
Autotherm, Inc.
314 East Main Street
P.O. Box #333
Barrington IL 60010
312-381-6366

Status: Complete Status Date: 06/19/83 OERI No.: 004641

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 07/27/78
Recom. by NIST : 03/26/80
Award Date : 06/19/81 Award Amount: $ 71,034 Grant No: FG01-81CS15050
Contract Period: 06/19/81 - 06/19/83

Summary: A 24-month grant of $71,034 was awarded to perform the necessary research and development to ready the invention for the marketplace. A component, the pump, is on the market with sales of $36,000. An additional $300,000 in sales, supporting a 5-man operation, has come from Europe and Canada. Product is available for wholesale distribution. To date the company has sold 10K units at $160 each, altogether saving 0.625 trillion Btu/Yr. They expect to sell 5-10K units/Yr. for the next 5 years.

****

DOE No: 0134 DOE Coord: D.G.Mello

Title: Expanded Polystyrene Bead Insulation System

Description: A means for retro-insulating housing walls, utilizing expanded polystyrene bead insulation coated with a flame-retardant adhesive and applied with a unique blower-mixer nozzle.

Inventor: John C Rupert
State : MN

Contact:
John C Rupert
1511 Grantham Street
Saint Paul MN 55108
612-645-0414

Status: Complete Status Date: 01/02/84 OERI No.: 005239

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 05/30/79
Recom. by NIST : 03/31/80
Award Date : 09/26/80 Award Amount: $ 80,844 Grant No: FG01-80CS15027
Contract Period: 09/26/80 - 12/31/82

Summary: A grant of $80,844 was awarded to select an adhesive/flame retardant, test it at an independent laboratory, develop the blower system, develop a business plan, and demonstrate the technology. A final report is due. A first commercial sale grossed $14,000, with total residential sales grossing $100,000. Firm employs three individuals.

DOE No: 0135 DOE Coord: D.G.Mello

Title: Point Focus Parabolic Solar Collector

Description: It is a lightweight parabolic solar collector design which uses prestressed structural members and cables to achieve high rigidity at a low cost.

Inventor: M Hossein Khorsand
State : CA

Contact:
M Hossein Khorsand
33042 Commodore Court
San Juan Capistrano CA 92675

Status: Complete Status Date: 06/22/84 OERI No.: 005216

Patent Status : Not Applied For
Development Stage : Working Model
Technical Category: Direct Solar

Recv. by NIST : 05/29/79
Recom. by NIST : 04/30/80
Award Date : 06/22/82 Award Amount: $ 97,892 Grant No: FG01-82CE15088
Contract Period: 06/22/82 - 06/22/84

Summary: A 24-month grant of $97,892 was awarded to design, build and analyze a prototype point focus collector.

****

DOE No: 0136 DOE Coord: J. Aellen

Title: Windamper

Description: Wind damper for high voltage electric transmission line to prevent galloping in wind and ice storms

Inventor: Albert S Richardson, Jr.
State : MA

Contact:
Albert S Richardson, Jr.
83 Second Avenue
Burlington MA 01803
617-862-7200

Status: Complete Status Date: 09/01/82 OERI No.: 003885

Patent Status : Patent # - 3440328
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv. by NIST : 04/25/78
Recom. by NIST : 05/08/80
Award Date : 09/01/82 Award Amount: $ 76,000 Grant No: FG01-82CE15102
Contract Period: 09/01/82 - 08/31/83

Summary: A 12-month grant of $76,000 was awarded to extend the analysis of the windamper antigallop merits from single conductor to bundled conductor applications. To date, a total of 1400 units has been installed with a total market value of $130,000. The invention is available for licensing, both domestic and foreign.

DOE No: 0137 DOE Coord: J. Aellen

Title: A Portable Pollution Free Automobile Incinerator

Description: Portable automobile incinerator

Inventor: H Roy Weber
State : HI

Contact:
H Roy Weber
Box #336
Kailua HI 96734
808-262-6548

Status: Complete Status Date: 06/30/86 OERI No.: 005130

Patent Status : Patent Applied For
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv. by NIST : 05/17/79
Recom. by NIST : 05/08/80
Award Date : 06/20/81 Award Amount: $ 99,408 Grant No: FG01-81CS15044
Contract Period: 06/20/81 - 09/30/82

Summary: A 15-month grant of $99,408 was awarded to fabricate, construct and test, an incinerator to prove the invention is a viable method of reducing scrap cars into satisfactory condition for recycling into the iron and steel industry. The company filed bankruptcy before the grant was completed.

****

DOE No: 0138 DOE Coord: J. Aellen

Title: Phantom Tube

Description: Phantom tube is a non light emitting, low energy device to be paired with a fluorescent tube in rapid or instant start fixtures. Device completes the electrical circuit to allow fixtures to operate on fewer lamps than original design specified, thus reducing electric power consumption. Product lifetime is virtually unlimited.

Inventor: Gerald R Seeman
State : CA

Contact:
Bernard Joseph Margowsky

Status: No DOE Support Status Date: 12/31/81 OERI No.: 001994

Patent Status : Patent # - 3956665
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 03/28/77
Recom. by NIST : 05/28/80

Summary: No appropriate DOE support can be identified. Product supports 5 employees and is on the market. The relatively slow sales of 1.5 million units/year appear adequate to support any needed market research the company might wish to initiate.

DOE No: 0139 DOE Coord: D.G.Mello

Title: Transformer With Heat Dissipator

Description: An improved method for cooling dry-type transformers, thereby increasing their efficiency without increasing their weight and cost.

Inventor: Louis L Marton
State : CA

Contact:
Louis L Marton

Status: No DOE Support Status Date: / / OERI No.: 003487

Patent Status : Patent # - 3659239 and others
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv. by NIST : 01/16/78
Recom. by NIST : 05/29/80

Summary: Inventor does not seek grant money but wishes us to exert legislative influence to require more efficient transformers in general. It does not appear that this service can be provided.

****

DOE No: 0140 DOE Coord: D.G.Mello

Title: Counter Flow Dual Tube Heat Exchanger

Description: It is a simple plastic heat exchanger to preheat ventilating air for poultry or livestock barns.

Inventor: W E Mattson
State : MN

Contact:
Tony Wilhelm
Wilhelm Engineering Company
707 Second Street, West
Ashland WI 54806
715-682-8175

Status: Complete Status Date: 07/31/84 OERI No.: 003830

Patent Status : Not Applied For
Development Stage : Concept Definition
Technical Category: Industrial Processes

Recv. by NIST : 04/06/78
Recom. by NIST : 06/20/80
Award Date : 09/22/82 Award Amount: $ 49,758 Grant No: FG01-82CE15148
Contract Period: 09/22/82 - 07/22/83

Summary: A 10-month grant of $49,758 was awarded to design, fabricate, instrument and operate, a prototype dual tube hear exchanger. The invention is available for licensing. It has proved to be cost effective.

DOE No: 0141 DOE Coord: D.G.Mello

Title: New Hydrostatic Transmission

Description: A continuously variable hydraulic positive displacement transmission with lockup, overdrive, and regenerative braking for automotive and other vehicular uses.

Inventor: Samuel Shiber
State : IL

Contact:
Samuel Shiber
P. O. Box #371
Mundelein IL 60060

Status: Complete Status Date: 07/09/81 OERI No.: 003673

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 03/06/78
Recom. by NIST : 06/23/80
Award Date : 07/09/81 Award Amount: $ 95,000 Grant No: FG01-81CS15064
Contract Period: 07/09/81 - 07/09/83

Summary: A grant of $95,000 was awarded to design, build and test a Volkswagen Sirocco with a prototype hydrostatic transmission installed. Project was funded with 90 percent inventor-originated funds and 10 percent DOE funds. Inventor's share was 50 percent domestic and 50 percent foreign funded. Transmission is now available for licensing.

****

DOE No: 0142 DOE Coord: J. Aellen

Title: Process for Heatless Production of Hollow Items

Description: A metal casting method for hollow parts

Inventor: Anatol Michelson
State : FL

Contact:
Anatol Michelson
3235 Pine Valley Drive
Sarasota FL 33579
815-388-1252

Status: Complete Status Date: 07/01/81 OERI No.: 005822

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 09/24/79
Recom. by NIST : 06/26/80
Award Date : 06/30/81 Award Amount: $108,920 Grant No: FG01-81CS15055
Contract Period: 06/30/81 - 12/31/82

Summary: An 18-month grant of $108,920 was awarded to construct and test a working model to demonstrate the heatless production of hollow casting. The work has been completed. The invention has potential for greatly increasing productivity of the casting process. Inventor interested in licensing.

DOE No: 0143 DOE Coord: J Aellen

Title: Oil Well Pump Jack

Description: A new design for a pump that would replace the conventional beam pumps in pumping oil wells. It utilizes longer strokes than generally used by the beam pumps and has slower rates of acceleration/deceleration, reducing the power required to overcome the inertia of the sucker rods and other moving parts.

Inventor: Robert A Clay
State : CA

Contact:
Amar Amancharla
Alphatech Corporation
Houston TX 77052
713-530-9060

Status: Complete Status Date: 03/06/85 OERI No.: 005888

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv. by NIST : 10/19/79
Recom. by NIST : 06/27/80
Award Date : 09/16/84 Award Amount: $ 52,500 Grant No: FG01-84CE15188
Contract Period: 09/16/84 - 03/06/85

Summary: A phase one grant of $52,500 was made to perform engineering designs of the pump jack. Phase two will be funded upon availability of funds.

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DOE No: 0144 DOE Coord: P.M.Hayes

Title: SpaCirc Space Circulation Fan

Description: The invention is a different type of ceiling fan designed for improved circulation and mixing of air throughout an air conditioned room. The increased air velocity allows the perception of comfort at higher temperatures and humidities.

Inventor: Robert C Saunders, Junior
State : MD

Contact:
Robert C Saunders, Junior

Status: No DOE Support Status Date: / / OERI No.: 005852

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 10/09/79
Recom. by NIST : 07/23/80

Summary: Unable to reach agreement on work to be done. Inventor's interest has waned, due to several competitors now in the field and expected high costs of production of the Spacirc. No further action is anticipated.

DOE No: 0145 DOE Coord: J. Aellen

Title: Solar Conversion by Concentration Cells with Hydrides

Description: The invention is a hydrogen concentration cell which converts solar energy to electricity by using heat to generate the gas pressure to drive the cell. (It is an electrochemical heat engine with sunlight furnishing the heat.)

Inventor: Robert E Salomon
State : PA

Contact:
Robert E Salomon
Chemistry Department
Temple University
Philadelphia PA 19122
215-787-7125

Status: Complete Status Date: 07/01/81 OERI No.: 006213

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Direct Solar

Recv. by NIST : 12/26/79
Recom. by NIST : 07/29/80
Award Date : 07/01/81 Award Amount: $ 67,868 Grant No: FG01-81CS15043
Contract Period: 07/01/81 - 09/30/83

Summary: A 17-month grant of $67,868 was awarded to build and test a laboratory model of the inventor's system, to determine efficiency and feasibility. Inventor requested an extension through 8/83 to allow summer school student assistance to continue. Inventor interested in industry financial support, and eventual licensing. This project has been completed.

****

DOE No: 0146 DOE Coord: J.Aellen

Title: Line Integral Method of Magneto-Electric Exploration

Description: A method of exploring for gas and oil deposits by plotting the intensity and polarities of local perturbations in the earth's magnetic field. These perturbations are caused by naturally occurring electrotelluric (ET) currents associated with the oil and gas.

Inventor: Sylvain J Pirson
State : TX

Contact:
Ronald M Hertzfeld
5310 Harvest Hill
Suite #285
Dallas TX 75230
214-386-9311

Status: Complete Status Date: 08/15/83 OERI No.: 004794

Patent Status : Patent # - 3943436
Development Stage : Limited Production/Marketing
Technical Category: Fossil Fuels

Recv. by NIST : 01/25/79
Recom. by NIST : 07/30/80
Award Date : 08/13/82 Award Amount: $ 74,689 Grant No: FG01-82CE15127
Contract Period: 08/13/82 - 08/15/83

Summary: A grant of $74,689 was awarded to make a priori predictions on at least 10 locations where wildcat wells are planned. Results show not only accuracy of prediction of dry/wet holes, but also predicted depth of drilling required. The inventor has sold about ten projects based on these results. Project has been completed.

DOE No: 0147 DOE Coord: J. Aellen

Title: Railroad Switch Heater

Description: The invention is an electric resistance heater for attachment to railroad switches. The heater can be activated to prevent ice and snow from clogging the area where the railroad switch is closed or opened.

Inventor: Henry Keep, Junior
State : CT

Contact:
A. D. Barrett, VP

Status: No DOE Support Status Date: / / OERI No.: 005692

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 09/04/79
Recom. by NIST : 07/31/80

Summary: Inventor advised that DOE would decline funding because the proposed testing of a commercially available device was outside this program's area of interest. Quantities of the device have been sold to Amtrak.

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DOE No: 0148 DOE Coord: J. Aellen

Title: Reclamation of Oil and High-Grade Iron Concentrates from Steel Mill Wastes

Description: The invention is a process for steel mills to use in order to recover the energy value of the oil and mill scale from the mill scale produced in rolling mill operations.

Inventor: Leonard A Duval
State : OH

Contact:
Leonard A Duval
Colerapa Industries, Inc
Box #172
Aurora OH 44202
216-562-9822

Status: Complete Status Date: 03/10/82 OERI No.: 005418

Patent Status : Patent # - 3844943
Development Stage : Working Model
Technical Category: Industrial Processes

Recv. by NIST : 08/22/79
Recom. by NIST : 08/15/80
Award Date : 03/10/82 Award Amount: $ 99,000 Grant No: FG01-82CE15084
Contract Period: 03/10/82 - 09/09/82

Summary: In FY 82, a 6-month grant of $99,000 was awarded to test the Duval millscale deoiling process, using Duval's pilot plant with a design capacity of 2 tons/hr of oily millscale. In FY 84 the inventor reported to NBS that he had achieved commercial success with the first plant being built in Aurora, Ohio. Others were planned for Chicago, Detroit, Pittsburgh and Hamilton, Ontario. An export license was signed with SPEICHIM in Paris that covers Europe, China and the USSR. Negotiations were underway with C. Itoh of Tokyo. Each plant will require $5 million capital and 35 employees.

DOE No: 0149 DOE Coord: P.M.Hayes

Title: SCOTCH - (Simple, Cost-Effective, Optimum Temperature Control for Housing)

Description: A system to retrofit residential and other steam heating systems to allow zone heating.

Inventor: Ogden H Hammond
State : MA

Contact:
Ogden H Hammond

Monument Beach MA 02553
617-757-8400

Status: Complete Status Date: 07/28/82 OERI No.: 005610

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 08/06/79
Recom. by NIST : 08/18/80
Award Date : 01/26/81 Award Amount: $ 91,962 Grant No: FG01-81CS15038
Contract Period: 01/26/81 - 07/28/82

Summary: A grant of $91,962 was awarded to design, build and test prototype installations in several residences in the Boston area where steam heated homes are numerous and winters severe. Grant is complete, the company made some sales, and is licensing the control system, which uses house wiring to convey signals.

****

DOE No: 0150 DOE Coord: D.G.Mello

Title: The Use of Solid Waste Material from a Lubricating Oil and/or Vegetable Oil Refining Operation.

Description: The invention involves the use of solid waste material from a lubricating oil and/or vegetable oil refining operation being used as a raw material for a Portland cement plant.

Inventor: Edward W Midlam
State : LA

Contact:
Edward W Midlam
2300 21st Street
Lake Charles LA 70601
318-436-6656

Status: Complete Status Date: 08/06/81 OERI No.: 007141

Patent Status : Disclosure Document Program
Development Stage : Production Engineering
Technical Category: Industrial Processes

Recv. by NIST : 06/16/80
Recom. by NIST : 09/30/80
Award Date : 08/06/81 Award Amount: $ 64,200 Grant No: FG01-81CS15073
Contract Period: 08/06/81 - 06/30/83

Summary: A grant of $64,200 was awarded to investigate one or more specific marketing opportunities. Unfavorable market conditions prevented inventor from pursuing the project further.

DOE No: 0151 DOE Coord: J.Aellen

Title: Film Type Storm Window

Description: A plastic film type of storm window that is tensioned at the corners and sealed on the perimeter to produce a wrinkle free and air tight membrane for window insulation.

Inventor: Yao Tzu Li
State : MA

Contact:
SETRA Systems, Inc.

Status: No DOE Support Status Date: / / OERI No.: 005494

Patent Status : Patent # - 4210191
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 07/30/79
Recom. by NIST : 09/30/80

Summary: Inventor sold Product.

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DOE No: 0152 DOE Coord: D.G.Mello

Title: Vehicle Exhaust Gas Warm-up System

Description: An accelerated warm-up system for an internal combustion engine which uses the hot exhaust gases to heat the cooling water. Engine cooling water is ducted to a heat exchanger/muffler in the exhaust system during the warm-up period.

Inventor: David S Majkrzak
State : ND

Contact:
David S Majkrzak
345 Cherry Court
West Fargo ND 58078
701-282-5593

Status: Complete Status Date: 08/06/83 OERI No.: 006439

Patent Status : Not Applied For
Development Stage : Prototype Development
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 02/12/80
Recom. by NIST : 09/30/80
Award Date : 08/06/81 Award Amount: $ 77,500 Grant No: FG01-81CS15063
Contract Period: 08/06/81 - 08/06/83

Summary: A grant of $77,500 was awarded to design, build and test a prototype model of the vehicle gas warm-up system. ERIP assistance is complete. Other innovations in this area may have made this invention obsolete.

DOE No: 0153 DOE Coord: D.G.Mello

Title: A New Equipment Design Concept for Storage of Hot Foods

Description: A series of food handling systems designed to reduce heat loss/gain during storage or transport. The basic concept is that of including a heat storage material with the food enclosed in an insulated container to allow the food to stay warm/cool longer.

Inventor: Carl E Pearl
State : CA

Contact:
Carl E Pearl

Status: No DOE Support Status Date: 02/01/83 OERI No.: 005553

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv. by NIST : 08/10/79
Recom. by NIST : 09/30/80

Summary: The inventor has decided to suspend effort on this project in favor of another, more promising invention not supported by ERIP.

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DOE No: 0154 DOE Coord: J.Aellen

Title: Rotating Horsehead for Pumping Units

Description: An ellipsoidal head for an oil well pump beam unit used in sucker-rod pumping. The ellipsoidal head increases the strokes of the sucker-rod over that of the conventional "horse" head and thus causes an increase in flow.

Inventor: Forrest E Chancellor
State : CA

Contact:
Forrest E Chancellor

Status: No DOE Support Status Date: 06/30/86 OERI No.: 005750

Patent Status : Patent # - 4121471
Development Stage : Limited Production/Marketing
Technical Category: Fossil Fuels

Recv. by NIST : 09/07/79
Recom. by NIST : 10/29/80

Summary: Needs licensing and marketing assistance.

DOE No: 0155 DOE Coord: J.Aellen

Title: Slip Mining

Description: A method of surface mining coal that involves skidding a series of overburden blocks off the coal. The blocks are buoyantly supported, stabilized and displaced by a dense mud slurry. Slabs of coal uncovered by block movement are floated to the surface of the dense mud and recovered from the surface of the mud filled pit.

Inventor: James M Cleary
State : MA

Contact:
James M Cleary
92 McCallum Drive
Box #541
Falmouth MA 02541
617-548-6686

Status: Complete Status Date: 12/10/86 OERI No.: 007292

Patent Status : Patent # - 4059309 and others
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv. by NIST : 07/23/80
Recom. by NIST : 10/31/80
Award Date : 12/10/84 Award Amount: $109,385 Grant No: FG01-85CE15195
Contract Period: 12/10/84 - 12/10/86

Summary: A grant of $109,385 was awarded in three phases to build and field test a prototype slurry trenching machine.

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DOE No: 0156 DOE Coord: J.Aellen

Title: Direct-Current Electrical Heat-Treatment of Continuous Metal Sheets in a Protective Atmosphere.

Description: A new application of electrical conduction for the continuous heat treatment of rolled steel strip that uses less energy than conventional methods.

Inventor: James J Dolan
State : FL

Contact:
James J Dolan
Twenty-Two Laurel Oak
Amelia Island FL 32034
904-261-7571

Status: Complete Status Date: 07/23/81 OERI No.: 005375

Patent Status : Patent # - 4154432 and others
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv. by NIST : 07/03/79
Recom. by NIST : 10/31/80
Award Date : 07/23/81 Award Amount: $ 99,485 Grant No: FG01-81CS15058
Contract Period: 07/23/81 - 07/23/82

Summary: A 12-month grant of $99,485 was awarded to design a plant for Southwest Pipe Company, prepare a design manual, and to collect data on energy savings. Two installations are now running: one in Texas and one in Alabama. Negotiations underway for three more in Indian Steel Mills.

DOE No: 0157 DOE Coord: J.Aellen

Title: Magnaseal Method and Means for Sealing Steel Ingot Casting Molds to Stools

Description: A means of sealing steel ingot casting molds to stools by use of fine metallic particles and an electromagnetic field to emplace the particles.

Inventor: Albert L McQuillen, Jr
State : PA

Contact:
Albert L McQuillen, Jr
1701 Partridge Run Road
Pittsburgh PA 15241
412-745-7200

Status: Complete Status Date: 06/18/81 OERI No.: 005968

Patent Status : Patent # - 3837393
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 11/01/79
Recom. by NIST : 10/31/80
Award Date : 06/18/81 Award Amount: $ 91,202 Grant No: FG01-81CS15051
Contract Period: 06/18/81 - 12/31/82

Summary: A grant of $91,202 was awarded to build and install a Magnaseal system in the U. S. Steel plant in Lorrain, Ohio; and to demonstrate and test it.

****

DOE No: 0158 DOE Coord: G.K.Ellis

Title: Energy Conservative Electric Cable System

Description: A low-loss shielded power cable using a naturally cooled sodium conductor and a pressurized gas insulator.

Inventor: Paul F Pugh
State : CA

Contact:
Paul F Pugh
4082 Sequoyah Road
Oakland CA 94605
415-638-5015

Status: Complete Status Date: 12/15/85 OERI No.: 002049

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Miscellaneous

Recv. by NIST : 04/13/77
Recom. by NIST : 10/31/80
Award Date : 09/16/81 Award Amount: $140,000 Grant No: FG01-81CS15074
Contract Period: 09/16/81 - 12/15/85

Summary: A grant of $140,000 was awarded and has been completed, to construct and lay cable from the mainland to Alcatraz Island in San Francisco Bay. Inventor also built and conducted lab tests on high voltage cable for subsequent evaluation by independent third party. Cable has been approved under the National Electric Code. Inventor negotiating with venture capital sources to raise $4.5 million to build new plant and set up national distribution network.

DOE No: 0159 DOE Coord: J.Aellen

Title: Non-Tubing Type Lift Device, Described as the NTT Rabbit

Description: A gas powered lift device designed to collect oil from low producing (or non-producing) wells. It is a piston device which is lowered inside the oil well casing into the liquid. A pressure operated valve closes, the gas pressure below increases, and the device rises lifting the fluid trapped above.

Inventor: William D Gramling
State : MD

Contact:
William D Gramling
5144 Newport Avenue
Chevy Chase MD 20016
301-686-4125

Status: Complete Status Date: 07/24/81 OERI No.: 005380

Patent Status : Patent # - 4113010 and others
Development Stage : Prototype Development
Technical Category: Fossil Fuels

Recv. by NIST : 05/07/79
Recom. by NIST : 11/25/80
Award Date : 07/24/81 Award Amount: $ 71,298 Grant No: FG01-81CS15062
Contract Period: 07/24/81 - 04/24/83

Summary: A grant of $71,298 was awarded to modify, design, install and test the device in several gas/oil wells in Glenville, West Virginia and to investigate and test the feasibility of installing the devices in other areas. After several modifications the unit was tested and operates successfully. However, there appears to be no market for this invention.

****

DOE No: 0160 DOE Coord: D.G.Mello

Title: High Efficiency Absorption Refrigeration Cycle

Description: An improved absorption refrigeration cycle employing a novel combination of absorbent and refrigerant fluids. Both a simple stage and two-stage cycle system are presented.

Inventor: Leon Lazare
State : CT

Contact:
Leon Lazare
c/o The Puraq Company
111 Hanna's Road
Stamford CT 06903
203-322-4125

Status: Complete Status Date: 04/30/82 OERI No.: 006900

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv. by NIST : 05/22/80
Recom. by NIST : 11/25/80
Award Date : 04/30/81 Award Amount: $ 87,537 Grant No: FG01-81CS15046
Contract Period: 04/30/81 - 04/30/82

Summary: A grant of $87,537 was awarded for a plan leading to the installation of the system in four chemical plants to demonstrate the technical and economic feasibility of the process when applied to four different, but representative chemical lines. The grant is complete. Best market for the technology was found to be in ammonia plants. Sales have not yet been closed.

DOE No: 0161 DOE Coord: J.Aellen

Title: duPont Connell Energy Coal Gasification Process

Description: A method of making low-to-medium Btu gas from coal is described. A key feature is control of retort heat fluxes.

Inventor: Anthony A duPont
State : CA

Contact:
Anthony A duPont
DuPont Aerospace Company, Inc
1111 East Wakeham, Suite J
Santa Ana CA 92705
714-953-9380

Status: Complete Status Date: 06/30/86 OERI No.: 000854

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Fossil Fuels

Recv. by NIST : 03/31/76
Recom. by NIST : 11/28/80
Award Date : 08/05/81 Award Amount: $ 98,074 Grant No: FG01-81CS15068
Contract Period: 08/05/81 - 02/05/83

Summary: A grant of $98,074 was awarded to design, build, and test a laboratory scale model of the inventor's concept.

****

DOE No: 0162 DOE Coord: G.K.Ellis

Title: Tubular Pneumatic Conveyor Pipeline

Description: A pneumatic tubular conveyor pipeline for transporting dry granular materials such as coal, barite or cement over long distances. The pipeline has an outer impervious pipe and an inner porous pipe radially spaced.

Inventor: Lemuel Leslie Ply
State : TX

Contact:
Lemuel Leslie Ply
Ply International, Inc
Box #899
Wimberly TX 78676
512-847-9347

Status: Complete Status Date: 09/30/84 OERI No.: 006992

Patent Status : Patent # - 4116491
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv. by NIST : 05/23/80
Recom. by NIST : 11/28/80
Award Date : 09/30/82 Award Amount: $ 44,480 Grant No: FG01-82CE15128
Contract Period: 09/30/82 - 09/30/84

Summary: A grant of $44,480 was awarded to design, build, and test a prototype section of pipeline using several 10-foot sections of pipe. This project is complete.

DOE No: 0163 DOE Coord: P.M.Hayes

Title: Thermotropic Plastic Films

Description: A thermotropic plastic film which can be formulated to become opaque above a particular temperature. When sealed between two layers of glass it could serve as a window shade for greenhouses or other solar heated structures.

Inventor: Dennis D Howard
State : PA

Contact:
Dennis D Howard
200 West Grandview Boulevard
Erie PA 16512
814-868-3611

Status: Complete Status Date: 07/13/82 OERI No.: 006831

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv. by NIST : 05/15/80
Recom. by NIST : 12/04/80
Award Date : 07/09/81 Award Amount: $ 99,093 Grant No: FG01-81CS15045
Contract Period: 07/09/81 - 07/13/82

Summary: A grant of $99,093 was given to perform research and development leading to a practical design with special attention given to edge sealing and general weather proofing of the laminated panes. The grant is complete; double glass enclosures were found to be too costly. Inventor is using his own funds to develop an embossed plastic seal via small compartments of fluid separated by heat-sealed pattern. Company seeks joint venture and/or licensing.

****

DOE No: 0164 DOE Coord: J.Aellen

Title: Elastomer Energy Recovery Elements and Vehicle Component Applications

Description: A regenerative braking device, for a small urban automobile, that stores energy during downhill operation for additional acceleration and power when needed with a minimum of fuel consumption. Energy is mechanically stored by an elastomeric storage device.

Inventor: John D Gill
State : MD

Contact:
John D Gill
Elastomer Energy Recovery Inc
419 Fourth Street
Annapolis MD 21403
301-263-5735

Status: Complete Status Date: 04/15/82 OERI No.: 006433

Patent Status : Disclosure Document Program
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 12/12/79
Recom. by NIST : 12/04/80
Award Date : 07/09/81 Award Amount: $ 89,507 Grant No: FG01-81CS15054
Contract Period: 07/09/81 - 04/15/82

Summary: A grant of $89,507 was awarded to design, build, and test a scale model to determine optimum design after which a full scale model will be built and tested. The grant is complete. Inventor now seeks $100,000 private sector support to demonstrate proof of concept of a two-person, enclosed, three wheel moped using a small gasoline motor. Energy is stored in elastomer via pedals on downhill runs and upon deceleration.

DOE No: 0165 DOE Coord: D.G.Mello

Title: Process for Recovering Hydrogen and Elemental Sulfur from Hydrogen Sulfide and/or Mercaptans-Containing Hydrogen

Description: A new process for recovering hydrogen and elemental- sulfur from hydrogen sulfide using iodine slurry

Inventor: Wu-Chi Chen
State : TX

Contact:
Wu-Chi Chen
859 Brittmore Road
Houston TX 77079
713-461-6811

Status: Complete Status Date: 10/29/84 OERI No.: 006985

Patent Status : Patent # - 4066739
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv. by NIST : 05/16/80
Recom. by NIST : 12/29/80
Award Date : 08/04/81 Award Amount: $ 70,000 Grant No: FG01-81CS15065
Contract Period: 08/04/81 - 01/15/83

Summary: A grant of $70,000 was awarded to investigate the feasibility of the process by performing laboratory and economic studies. Inventor is discussing licensing possibilities with private research corporations. The project is now complete.

****

DOE No: 0166 DOE Coord: J.Aellen

Title: Borehole Angle Control

Description: A modified oil well drill bit which can correct the course of the borehole as the hole is being drilled. It selectively injects cuttings to one side of the drill bit to provide a wedging action between the bit and the borehole.

Inventor: Robert F Evans
State : TX

Contact:
Robert F Evans
Evergreen Drilling Research
12820 Montford
Apartment #150
Dallas TX 75230
214-943-2181

Status: Complete Status Date: 11/26/85 OERI No.: 004656

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv. by NIST : 11/27/78
Recom. by NIST : 12/29/80
Award Date : 07/28/81 Award Amount: $ 98,148 Grant No: FG01-81CS15067
Contract Period: 07/28/81 - 11/26/85

Summary: A grant of $98,148 was awarded to design, fabricate and conduct field tests on the drill bits and control system.

DOE No: 0167 DOE Coord: J.Aellen

Title: Vaned Pipe for Pipeline Transport of Solids

Description: A slurry pipeline with helical vanes to maintain a rotating motion in the slurry to hold the solids in suspension in the laminar flow range, thus increasing the range of flow rates at which solids can be transported without settling.

Inventor: Edward B Connors
State : ID

Contact:
Edward B Connors
1337 Holman
Pocatello ID 83201
208-237-6661

Status: Complete Status Date: 10/01/83 OERI No.: 006483

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv. by NIST : 02/25/80
Recom. by NIST : 01/19/81
Award Date : 08/11/82 Award Amount: $111,577 Grant No: FG01-82CE15083
Contract Period: 08/11/82 - 08/30/84

Summary: A grant of $111,577 was awarded to design, build and test several configurations of the basic idea under various flow conditions with various slurry mixtures. The project was completed on October 1st, 1983.

****

DOE No: 0168 DOE Coord: G.K.Ellis

Title: The Hot Water Saver

Description: Modifications to a residential hot water system so that hot water trapped in the pipes between the water-heater and the point of use is returned to the water heater thus reducing heat loss and water consumption.

Inventor: Spencer Kim Haws
State : WA

Contact:
Spencer Kim Haws
P. O. Box #315
Mesa WA 99343
509-265-4327

Status: Complete Status Date: 10/09/84 OERI No.: 006783

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 04/07/80
Recom. by NIST : 01/28/81
Award Date : 09/30/82 Award Amount: $ 90,000 Grant No: FG01-82CE15134
Contract Period: 09/30/82 - 09/29/83

Summary: A grant of $90,000 was awarded to laboratory and field test the unit, and to document savings and find optimum application. The test results showed 17% of the energy used for water heating could be saved by using this invention. Mr. Haws sold his invention to Metlund Enterprises of Stockton, CA in exchange for royalties. Methlund Enterprises had sold about 400 units as of April, 1986.

DOE No: 0169 DOE Coord: P.M.Hayes

Title: MIRAFOUNT

Description: A cattle waterer which is functional in the coldest climate without the use of an immersed electric or gas heater. It consists of a heavily insulated tank with a floating, insulated cover and a float valve assembly.

Inventor: Mervin W Martin
State : MO
Contact:
Carter Thompson

Status: No DOE Support Status Date: 03/15/85 OERI No.: 006239

Patent Status : Patent # - 3745977
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv. by NIST : 12/27/79
Recom. by NIST : 01/30/81

Summary: The inventor wanted support for a marketing study, which it is not DOE policy to provide.

****

DOE No: 0170 DOE Coord: J.Aellen

Title: Fog System - Low Energy Freeze Protection for Agriculture

Description: A low energy-consuming agricultural freeze protection system using a non-polluting man-made water fog to cover crops and prevent heat loss and freeze damage. The fog system is designed to use significantly less energy than oil-burning agricultural heaters. The inventor has also developed instruments to increase quality of the clouds.

Inventor: Thomas R Mee
State : CA
Contact:
Thomas R Mee

Status: No DOE Support Status Date: 07/09/86 OERI No.: 005622

Patent Status : Patent # - 4039144 and others
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv. by NIST : 08/22/79
Recom. by NIST : 01/30/81

Summary: Inventor reports net income of $400,000 in 1984 with gross sales of $1.9 million. First three months of 1985 have yielded $700,000 gross. Sales have doubled annually over the last three years. Firm now employs thirty individuals.

DOE No: 0171 DOE Coord: P.M.Hayes

Title: A Method of Preserving Fruits and Vegetables without Refrigeration

Description: A method for preserving fruits and vegetables without refrigeration by using controlled atmosphere packages to keep oxygen levels low and the water vapor and carbon dioxide levels at desired optimums.

Inventor: Karakian Bedrosian
State : NJ

Contact:
Karakian Bedrosian
Sherwood Court
Alpine NJ 07620
201-767-3260

Status: Complete Status Date: 10/31/82 OERI No.: 006950

Patent Status : Patent # - 4079152
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv. by NIST : 04/28/80
Recom. by NIST : 02/23/81
Award Date : 08/25/81 Award Amount: $ 97,300 Grant No: FG01-81CS15061
Contract Period: 08/25/81 - 10/31/82

Summary: A grant of $97,300 was awarded to conduct laboratory studies and field trials of various package configurations suitable for shipment of tomatoes by truck from point of growth to point of consumption. Demonstrations were successful. Marketed under the trade name of "TomAHtoes", 751,000 25-pound boxes were shipped in 1987, with $35 million in retail sales. With its potential for use with other fresh fruits and vegetables, this innovative packaging can provide significant national energy savings.

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DOE No: 0172 DOE Coord: D.G.Mello

Title: GEM Electrostatic Filtration System

Description: An electrostatic filter for removing suspended particles from fluids such as hydraulic fluids, liquid fuels, engine lubricants and waste oil.

Inventor: Edward A Griswold
State : CA

Contact:
Edward A Griswold
Special Equipment Company
26022 Cape Drive, #G
Laguna Niguel CA 92677
714-581-6730

Status: Complete Status Date: 09/29/82 OERI No.: 004255

Patent Status : Patent # - 3891528 and others
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 08/03/78
Recom. by NIST : 02/26/81
Award Date : 10/01/82 Award Amount: $ 88,285 Grant No: FG01-83CE15139
Contract Period: 10/01/82 - 06/30/83

Summary: An 8-month grant of $88,285 was awarded for demonstration of the GEM filtration system. The unit was designed and installed on several types of diesel engines under controlled conditions. Filtered material was analyzed. ERIP assistance is complete.

DOE No: 0173 DOE Coord: J.Aellen

Title: Thermal Ice Cap

Description: An insulating blanket to reduce refrigeration loads in ice skating rinks during periods of non-use, combined with an advanced method of applying and removing the 17,000 sq. ft of thermal insulation.

Inventor: Bill Burley
State : PA

Contact:
Bill Burley
Peterson Drive
Johnstown PA 15905
814-288-1750

Status: Complete Status Date: 08/10/81 OERI No.: 006277

Patent Status : Not Applied For
Development Stage : Working Model
Technical Category: Buildings, Structures & Components

Recv. by NIST : 01/07/80
Recom. by NIST : 02/26/81
Award Date : 08/19/81 Award Amount: $ 79,726 Grant No: FG01-81CS15066
Contract Period: 08/19/81 - 05/15/82

Summary: A grant of $79,726 was awarded to build and test a prototype model of the thermal ice cap, and was successfully completed. Energy savings were experimentally determined to be almost exactly as predicted by NBS analysis. This experimental device is still in use on the Mall in Washington, DC. Inventor seeks opportunities to direct sales.

****

DOE No: 0174 DOE Coord: J.Aellen

Title: Skate on Plastic Ice Skating System

Description: A non-refrigerated plastic skating surface to replace energy intensive ice skating surfaces.

Inventor: E O Nathaniel
State : MO

Contact:
Gene Plattner

Status: No DOE Support Status Date: 09/28/81 OERI No.: 006241

Patent Status : Patent # - 4030729
Development Stage : Limited Production/Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 12/31/79
Recom. by NIST : 03/05/81

Summary: Invention coordinator and inventor agreed to scope of work for a grant. Prior funding by the Small Business Administration has led to sales of some units. Units were not a commercial success because of perceived "extra skating effort".

DOE No: 0175 DOE Coord: J.Aellen

Title: A Low-Energy Carpet Backing System

Description: A low energy carpet backing system which uses a hot- melt thermoplastic coating. The hot-melt coating replaces the present latex adhesive coating which locks the tufts or stitches into the primary backing fabric.

Inventor: Den M Acres
State : GA

Contact:
W W Seward
c/o DASH, Inc.
1303 Dug-Gap Road
Dalton GA 30720
404-278-2556

Status: Complete Status Date: 08/01/81 OERI No.: 006931

Patent Status : Patent Applied For
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv. by NIST : 05/05/80
Recom. by NIST : 03/26/81
Award Date : 08/01/81 Award Amount: $ 79,173 Grant No: FG01-81CS15070
Contract Period: 08/01/81 - 01/31/83

Summary: A grant of $79,173 was awarded and completed to refit a carpet backing machine with automatic control elements and test on a variety of carpet products. Grantee intends to market the product directly to carpet mills, and predicts an estimated 86% energy savings in manufacture of coated carpeting. Commercial viability of the technology was demonstrated. Inventor is in commercial production. He seeks venture capital assistance.

****

DOE No: 0176 DOE Coord: J.Aellen

Title: Self-Contained, Water Proof, Stoker Fired, Fully Automatic, Portable Solid Fuel Furnaces

Description: An automatically fired portable furnace for burning coal and agricultural waste (e.g. corn, wood waste, poultry manure) for use in drying grain and heating homes and buildings.

Inventor: John D. Finnegan
State : MN

Contact:
Dale Flickinger

Status: No DOE Support Status Date: 06/30/86 OERI No.: 007428

Patent Status : Not Patentable
Development Stage : Working Model
Technical Category: Buildings, Structures & Components

Recv. by NIST : 08/18/80
Recom. by NIST : 04/03/81

Summary: DOE found no basis for support.

DOE No: 0177 DOE Coord: D.G.Mello

Title: The Solar I Option

Description: A solar heating system using commercially available collectors and components and a concrete floor slab as a heat storage device and heat exchanger.

Inventor: Robert John Starr
State : VT

Contact:
Robert John Starr
R.F.D.
Sutton VT 05867
802-626-8045

Status: Complete Status Date: 08/15/84 OERI No.: 006040

Patent Status : Not Applied For
Development Stage : Limited Production/Marketing
Technical Category: Direct Solar

Recv. by NIST : 12/03/79
Recom. by NIST : 05/07/81
Award Date : 09/24/82 Award Amount: $ 52,960 Grant No: FG01-82CE15140
Contract Period: 09/24/82 - 06/30/84

Summary: A grant of $52,960 was awarded to test the effectiveness of a previously installed system. The University of Massachusetts furnished instrumentation, data analysis and computer programs for future design analysis. Energy savings were essentially as predicted. Some sales have been made, but generally "solar" market is slow. This project has been completed.

****

DOE No: 0178 DOE Coord: D.G.Mello

Title: Process and Apparatus for Producing Cellulated Vitreous Refractory Material

Description: A process and apparatus to produce cellular vitreous refractory material in prescribed shapes lighter than conventional brick or tile and more impermeable. The material will have high structural strength and will be highly insulative and light weight.

Inventor: John W North
State : GA

Contact:
John W North
J W North Company
c/o Silica-North, Ltd.
P O Box #838
Tuscombia AL 35674
205-381-3582

Status: Complete Status Date: 07/23/84 OERI No.: 007726

Patent Status : Patent # - 4212635 and others
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv. by NIST : 10/30/80
Recom. by NIST : 04/15/81
Award Date : 09/08/82 Award Amount: $ 94,688 Grant No: FG01-82CE15117
Contract Period: 09/08/82 - 09/08/83

Summary: A 12-month grant of $94,688 was awarded to design, build and operate a pilot plant for manufacture of cell glass building material. There appears to be no market for this product.

DOE No: 0179 DOE Coord: G.K.Ellis

Title: Development and Commercialization of Low Cost, Non- Metallic, Solar Systems

Description: A solar hot water heating system consisting of a non-metallic flat plate solar collector made from ethylene-propylene-diene monomer and non-pressurized thermal storage.

Inventor: Charles E Edwards
State : MA

Contact:
Charles E Edwards
Six Reeves Road
Bedford MA 01730
617-458-6463

Status: Complete Status Date: 01/03/84 OERI No.: 007158

Patent Status : Patent Applied For
Development Stage : Prototype Development
Technical Category: Direct Solar

Recv. by NIST : 06/19/80
Recom. by NIST : 04/17/81
Award Date : 08/17/81 Award Amount: $ 99,999 Grant No: FG01-81CS15071
Contract Period: 08/17/81 - 01/03/84

Summary: A grant of $99,999 was awarded to Solex Corporation to finalize design and manufacturing methods for a low cost solar collector. Prototypes were manufactured and tested for efficiency and weatherability. The inventor got $500,000 over a 5- year contract in Saudi Arabia. Governments of Saudi Arabia and Jordon have indicated interest in licensing his technology. He has received numerous inquiries about his technology from all over the world.

****

DOE No: 0180 DOE Coord: J.Aellen

Title: Adjustable Solar Concentrator (ASC)

Description: A Concentrating Solar Collector using movements and loads on edges of elastic sheets to form cylindrical parabolic reflector.

Inventor: Richard E Dame
State : MD

Contact:
Richard E Dame
10701 Harper Avenue
Silver Spring MD 20901
301-681-6903

Status: Complete Status Date: 08/15/84 OERI No.: 002116

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Direct Solar

Recv. by NIST : 04/27/77
Recom. by NIST : 04/20/81
Award Date : 08/26/81 Award Amount: $ 97,066 Grant No: FG01-81CS15172
Contract Period: 08/26/81 - 12/28/83

Summary: A grant of $97,066 was awarded to develop a fabrication technique for a low-cost, high- performance adjustable concentrating solar collector. Effort successful, but market for medium-temperature collectors is very poor. The project has been completed.

DOE No: 0181 DOE Coord: J.Aellen

Title: The Karlson Ozone Sterilizer

Description: An ozone sterilizer for medical use in both field and hospital. It is low-powered and lightweight. It sterilizes in less than ten minutes, requires no steam and can automatically package sterilized instruments for storage up to several months.

Inventor: Eskil L Karlson
State : PA

Contact:
Eskil L Karlson
4634 State Street
Erie PA 16509
814-868-1121

Status: Complete Status Date: 04/27/82 OERI No.: 008061

Patent Status : Patent # - 3719017 and others
Development Stage : Prototype Development
Technical Category: Miscellaneous

Recv. by NIST : 02/09/81
Recom. by NIST : 05/29/81
Award Date : 05/01/82 Award Amount: $133,304 Grant No: FG01-82CE15082
Contract Period: 05/01/82 - 05/01/84

Summary: A 24-month grant of $133,304 was awarded to design, develop, and test the Karlson ozone sterilizer system. Inventor seeks venture capital and/or licensing for third world and other markets. This project has been completed.

****

DOE No: 0182 DOE Coord: J.Aellen

Title: Improved Seal for Geothermal Drill Bit

Description: A new type of sealing arrangement for the cone bearings of a standard rotary drill bit used for geothermal exploration which prolongs the bearing life for a given load and rotary speed.

Inventor: Robert F Evans
State : CA

Contact:
Robert F Evans
Box #62
La Mirada CA 90637
213-697-8486

Status: Complete Status Date: 07/09/86 OERI No.: 007089

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Other Natural Sources

Recv. by NIST : 06/03/80
Recom. by NIST : 05/29/81
Award Date : 09/01/82 Award Amount: $ 94,898 Grant No: FG01-82CE15104
Contract Period: 09/01/82 - 08/31/83

Summary: A 12-month grant of $94,898 was awarded to select by research the best elastomer for use as a bearing seal, and then to test it in the laboratory and in the field. Inventor has made no decision yet on marketing strategy.

DOE No: 0183 DOE Coord: J.Aellen

Title: Increased Vapor Generator Feature for a Reheat Vapor Generator

Description: A method to provide peak power more economically from a base steam/turbine electric plant.

Inventor: E. Stephen Miliaras
State : MA

Contact:
E. Stephen Miliaras
c/o Energotechnology Corp.
238 Main Street, Suite #514
Cambridge MA 02142
617-492-3700

Status: Complete Status Date: 12/31/83 OERI No.: 005961

Patent Status : Patent # - 3826093 and others
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv. by NIST : 10/16/79
Recom. by NIST : 06/18/81
Award Date : 06/07/82 Award Amount: $ 98,977 Grant No: FG01-82CE15194
Contract Period: 06/07/82 - 12/31/83

Summary: A grant of $98,977 was awarded to design the system for a specific installation that will need increased capacity. For the purpose, negotiations are under way with Southern California Edison. Extensive subcontracting of the installation will be done by Dynatech R & D of Boston. Design completed and 10% capacity increase predicted. Construction awaits SCE needs for additional capacity. The project is completed.

****

DOE No: 0184 DOE Coord: J.Aellen

Title: Coasting Fuel Shutoff

Description: A device suitable for new production or retrofit to turn off the fuel during coasting conditions for automobiles.

Inventor: Nathan Gold
State : CA

Contact:
Nathan Gold

Status: No DOE Support Status Date: 06/30/86 OERI No.: 002111

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Combustion Engines & Components

Recv. by NIST : 04/27/77
Recom. by NIST : 06/23/81

Summary: Several contacts have been made with the inventor, none of which elicited a response. Other similar devices are now on the market. Inventor was pursuing licensing agreements

DOE No: 0185 DOE Coord: P.M.Hayes

Title: Insulated Garage Door

Description: An insulated overhead roll-up garage door with special seals to reduce direct heat transmission and infiltration. The door is sectionalized and is comprised of pivotally connected panels each having a cavity filled with insulation.

Inventor: Cecil H Wolf
State : IL

Contact:
Charles Bach

Status: No DOE Support Status Date: 03/15/85 OERI No.: 002443

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Buildings, Structures & Components

Recv. by NIST : 07/11/77
Recom. by NIST : 07/27/81

Summary: Inventor has yet to furnish an acceptable work proposal to DOE. There is no basis for DOE support. The product is being marketed by Therma-Seal, Inc., 4100-B McDonald Avenue, Des Moines, Iowa - (515) 262-0600.

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DOE No: 0186 DOE Coord: J.Aellen

Title: Oil Recovery by In-Situ Exfoliation Drive

Description: A process for recovering oil in-situ from oil shale which involves alternatively heating and cooling a rubble chamber to exfoliate the crushed rock. The rock releases hydrocarbons which are then pumped to the surface.

Inventor: Sylvain J Pirson
State : TX

Contact:
Ronald Hertzfeld

Status: No DOE Support Status Date: 03/15/85 OERI No.: 007361

Patent Status : Disclosure Document Program
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv. by NIST : 07/31/80
Recom. by NIST : 07/28/81

Summary: The inventor has chosen not to pursue this idea at this time, probably because the national interest in shale oil is very low. He is concentrating on #146 which has also been recommended to ERIP.

DOE No: 0187 DOE Coord: G.K.Ellis

Title: Variable Field Induction Motor

Description: A means of controlling the field current in an AC induction motor to improve the efficiency under partial load conditions.

Inventor: Louis W Parker
State : FL

Contact:
Rhey Hedges

Status: No DOE Support Status Date: 03/17/85 OERI No.: 003145

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Miscellaneous

Recv. by NIST : 12/07/77
Recom. by NIST : 08/06/81

Summary: No work proposal was submitted. Technology was licensed to companies in the USA, UK, South Africa and Hong Kong. There is no basis for DOE support.

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DOE No: 0188 DOE Coord: P.M.Hayes

Title: Remote Controlled Underground Mining System for Horizontal or Pitching Seams

Description: A remote controlled underground mining system which uses a unique guidance system for directional drilling of horizontal and pitching seams. Gaseous deposits can be mined without exposure of manpower to hazards.

Inventor: John C Haspert
State : CA

Contact:
John C Haspert
Underground Systems
P. O. Box #1252
735 West Duarte Road
Arcadia CA 91006

Status: Complete Status Date: 11/16/83 OERI No.: 007486

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Fossil Fuels

Recv. by NIST : 09/08/80
Recom. by NIST : 08/28/81
Award Date : 08/16/82 Award Amount: $ 98,251 Grant No: FG01-82CE15130
Contract Period: 08/16/82 - 11/16/83

Summary: A grant of $98,251 was awarded to design special mining equipment, specifying standard parts that are required to build the remote mining system. Grant completed. Designs and drawings submitted to DOE. There is no obvious commercial interest.

DOE No: 0189 DOE Coord: D.G.Mello

Title: Pump Jack

Description: An oil well pumping system in which a hydraulic pump drives a double-acting hydraulic cylinder in an upward motion. During the down-stroke the pressure below the piston in bled through a flow control valve.

Inventor: Gerald Eastman
State : OK

Contact:
Gerald Eastman
P. O. Box #145
Ochelata OK 74051
918-535-2393

Status: Complete Status Date: 12/15/83 OERI No.: 007658

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Miscellaneous

Recv. by NIST : 10/10/80
Recom. by NIST : 08/31/81
Award Date : 06/15/82 Award Amount: $ 83,604 Grant No: FG01-82CE15087
Contract Period: 06/15/82 - 12/15/83

Summary: An grant of $83,604 was awarded to field test and document the results of testing several of these units at varying depths from 2000 to 7000 feet. Rhino Engineering supervised the tests and documented the results. After several failures and corrections, units operated trouble free for 10 months. Medium-sized company seeks license from inventor. This project is complete.

****

DOE No: 0190 DOE Coord: G.K.Ellis

Title: Oxygen-Conducting Material and Oxygen-Sensing Method

Description: An improved oxygen sensing device formed by tape casting an oxygen-conducting material into a dense ceramic body with metal electrodes interdispersed between ceramic layers.

Inventor: W N Lawless
State : OH

Contact:
W N Lawless
Lake Shore Ceramics, Inc
64 East Walnut Street
Westerville OH 43081
614-891-2243

Status: Complete Status Date: 05/17/83 OERI No.: 007963

Patent Status : Disclosure Document Program
Development Stage : Engineering Design
Technical Category: Miscellaneous

Recv. by NIST : 01/07/81
Recom. by NIST : 09/30/81
Award Date : 05/18/82 Award Amount: $ 89,076 Grant No: FG01-82CE15098
Contract Period: 05/18/82 - 05/17/83

Summary: A grant of $89,076 was awarded to fabricate and test several ceramic compositions that will be useful for oxygen sensing and possibly be useful as a fuel cell material. First items fabricated under subcontract by Penn State U. are promising. The potential fuel cell application was identified in ERIP's pilot testing of licensing opportunities, the inventor being told that it represented a potential significant advance in state-of-the-art for fuel cells. As indicated, recent tests have confirmed this. This project has been completed.

DOE No: 0191 DOE Coord: G.K.Ellis

Title: Rotary Heat Pump Air Conditioner, Heater and Ventilator for Automotive, Mobile and Stationary Use.

Description: The invention is an air conditioning unit for mobile or internal stationary application, utilizing waste heat from an internal combustion engine. The refrigeration cycle is a conventional lithium- bromide absorption cycle. Various cycle components are enclosed in a hermetic cylinder, which is rotated by an electric motor. Heat is absorbed or rejected by rotating finned surfaces.

Inventor: Milton Pravda
State : MD

Contact:
Gabriel S Joseph, III
Conserve Resources, Inc
8416 Stonewall Drive
Vienna VA 22180

Status: Complete Status Date: 04/07/88 OERI No.: 004890

Patent Status : Patent # - 3740966
Development Stage : Prototype Test
Technical Category: Buildings, Structures & Components

Recv. by NIST : 02/13/79
Recom. by NIST : 09/30/81
Award Date : 05/08/86 Award Amount: $ 94,171 Grant No: FG01-86CE15266
Contract Period: 05/08/86 - 04/07/88

Summary: A phase one grant was awarded to modify the heat exchanger part of the heat pump and test it. The results were encouraging. A phase II grant was awarded to have Pacific Northwest Laboratories (PNL) build prototype. A detailed concept evaluation and a sensitivity assessment of the inventor's earlier design analysis was initiated before building the prototype. Phase II is still in process. Manco Corp sold the invention to CRI.

****

DOE No: 0192 DOE Coord: D.G.Mello

Title: Closed Cycle Dehumidification Clothes Dryer

Description: A clothes dryer that uses a vapor compression refrigeration cycle to dehumidify the air that passes through the dryer. Air temperature will gradually increase as the condenser restores heat lost to the evaporator and adds energy introduced into the refrigerant by the compressor.

Inventor: Donald C Lewis
State : ME

Contact:
Donald C Lewis
P. O. Box #1107
Bangor ME 04401
800-648-9200

Status: Complete Status Date: 06/15/83 OERI No.: 007943

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv. by NIST : 12/30/80
Recom. by NIST : 10/07/81
Award Date : 07/16/82 Award Amount: $ 81,648 Grant No: FG01-82CE15100
Contract Period: 07/16/82 - 06/15/83

Summary: An 8-month grant of $81,648 was awarded to design, construct and test the clothes dryer. Preliminary tests of the unit, which operates at 115v, show 65-70 percent energy savings over the conventional dryer. Inventor expects profitable operation at 1% of total dryer market, and is looking for licensing opportunities with eventual sell-out if market share expands.

DOE No: 0193 DOE Coord: J.Aellen

Title: Engine Heating Device

Description: A truck diesel engine heater (Heat-exchanger/heat- sink) which stores heat from the exhaust for later use in warming a cold engine prior to startup. Crankcase oil or engine coolant is circulated through the heat exchanger and engine for warmup.

Inventor: Nicholas Archer Sanders
State : VT

Contact:
Nicholas Archer Sanders
Weatheready, Incorporated
Eleven Green Ridge Road
Route One, Box #175
Norwich VT 05055
603-643-4351

Status: Complete Status Date: 09/30/83 OERI No.: 006928

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 05/07/80
Recom. by NIST : 10/30/81
Award Date : 09/30/82 Award Amount: $ 91,150 Grant No: FG01-82CE15141
Contract Period: 09/30/82 - 09/30/83

Summary: A 12-month grant of $91,150 was awarded to construct and test a prototype unit. Results of testing showed large energy savings, but equipment cost needs to be reduced. Marketing proceeding: Honeywell, State of Minnesota and US Army are among interested parties.

****

DOE No: 0194 DOE Coord: J.Aellen

Title: Radiant Energy Power Source for Jet Aircraft

Description: Installation of photovoltaic cells in proximity to the liner of a jet engine combustion chamber to generate electrical power for replacing aircraft primary - and/or auxiliary-power units.

Inventor: Oscar Leonard Doellner
State : AZ

Contact:
Oscar Leonard Doellner
1943 South Plumer Avenue
Tucson AZ 85713
602-623-7303

Status: Complete Status Date: 09/28/87 OERI No.: 005673

Patent Status : Patent # - 4090359
Development Stage : Concept Development
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 08/30/79
Recom. by NIST : 11/12/81
Award Date : 09/20/82 Award Amount: $ 65,000 Grant No: FG01-82CE15144
Contract Period: 09/20/82 - 09/28/87

Summary: A phase one grant of $10,000 was awarded. Ground tests on the J-85 engine determine sufficient radiant energy is available to power photovoltaic cells. Tests were conducted at Williams AFB. The project has received national and international recognition. A phase two grant package for $55,000 was used to build and test the hardware to harness radiant energy from a jet engine.

DOE No: 0195 DOE Coord: J.Aellen

Title: Proportional Current Battery

Description: A proportional current electric storage battery with tapered plate thickness that can maintain high current drain and charging rates with minimal material and weight.

Inventor: Edward L Barrett
State : IL

Contact:
Mark Pridmore
27 Elder Lane
La Grange IL 60525
312-579-5287

Status: Complete Status Date: 07/09/86 OERI No.: 007280

Patent Status : Patent # - 3846174
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv. by NIST : 07/14/80
Recom. by NIST : 11/13/81
Award Date : 09/15/82 Award Amount: $ 87,757 Grant No: FG01-82CE15103
Contract Period: 09/15/82 - 01/15/84

Summary: A grant of $87,757 was awarded to build and test a working model of the tapered plate battery. The inventor has no plans yet for marketing. Awaiting final report.

****

DOE No: 0196 DOE Coord: J.Aellen

Title: Manufacturing and Using Nitrogen Fertilizer Solutions on a Farm

Description: The continuous manufacture, on a farm, of nitrogenous fertilizer by the reaction of nitrogen dioxide with water to produce nitric acid which is neutralized to ammonium nitrate or other nitrogenous compounds that can be applied to a field by way of an irrigation system.

Inventor: John A Eastin
State : NE

Contact:
John A Eastin
P O Box #30327
Lincoln NE 68509
402-467-2508

Status: Complete Status Date: 08/31/82 OERI No.: 000461

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 12/05/75
Recom. by NIST : 12/23/81
Award Date : 08/31/82 Award Amount: $ 99,592 Grant No: FG01-82CE15142
Contract Period: 08/31/82 - 08/31/83

Summary: A 12-month grant of $99,592 was awarded to construct and test a prototype integrated unit, and measure its efficiency. Grantee plans to manufacture and sell units if process is successful. Farm co-ops will produce fertilizer, thus diversifying the process and reducing costs of transportation and storage. This project has been completed.

DOE No: 0197 DOE Coord: D.G.Mello

Title: Frequency Regulator and Protective Devices for Synchronous Generators

Description: A solid-state frequency controller and protective device for small scale synchronous generators used for isolated power generation such as hydroelectric generation.

Inventor: Robert F Karlicek
State : CA

Contact:
Robert F Karlicek
Edison Engineering
1920 Camino Centraloma
Fullerton CA 92633
818-302-4331

Status: Complete Status Date: 09/15/82 OERI No.: 007086

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Other Natural Sources

Recv. by NIST : 06/03/80
Recom. by NIST : 12/28/81
Award Date : 09/20/82 Award Amount: $ 65,990 Grant No: FG01-82CE15132
Contract Period: 09/20/82 - 09/20/83

Summary: A 12-month grant of $65,990 was awarded to build, test and develop a solid state frequency controller and protective device for small scale synchronous generators of three sizes: 5,100 and 150kw. ERIP assistance is complete. No further report is available.

****

DOE No: 0198 DOE Coord: J.Aellen

Title: The Thermatreat System

Description: An on-site aerobic sewage treatment plant for home use which recovers heat for space and water heating.

Inventor: Robert H Nealy
State : PA

Contact:
Robert H Nealy

Status: No DOE Support Status Date: 06/30/86 OERI No.: 005281

Patent Status : Patent # -
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv. by NIST : 06/06/79
Recom. by NIST : 12/30/81

Summary: Recommendation under consideration by DOE, with some further need for negotiation indicated. Inventor seeks $500,000 for R & D, and invention is in the concept stage. DOE action in abeyance in FY 84 pending inventor obtaining SEC approved prospectus.

DOE No: 0199 DOE Coord: J.Aellen

Title: Rotary Coal Combustor and Heat Exchangers

Description: A rotary multi-fuel fluidized-bed-combustor and heat exchanger that can be used in parallel with steam turbines for power generation or to provide a pressurized clean gas for use with high temperature gas turbines.

Inventor: John Hunter
Country : Scotland

Contact:
Edward Levi
Lehigh University
Energy Research Center
440 Broadhead Avenue
Bethlehem PA 18015
215-861-4090

Status: Complete Status Date: 06/30/87 OERI No.: 007718

Patent Status : Patent # - 1521088 and others
Development Stage : Engineering Design
Technical Category: Buildings, Structures & Components

Recv. by NIST : 10/24/80
Recom. by NIST : 01/18/82
Award Date : 08/16/85 Award Amount: $ 63,847 Grant No: FG01-85CE15242
Contract Period: 08/16/85 - 06/30/87

Summary: A grant of $63,847 was awarded on August 16, 1985, to Lehigh University to perform engineering analysis on Mr. Hunter's combustor/Gasifier. Designs will be prepared and economic analysis will be performed. The proposed combustor/Gasifier will be compared with state-of-the-art units.

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DOE No: 0200 DOE Coord: J.Aellen

Title: Removal of Sulfur Dioxide from the Stack Gas of Combustors Burning High Sulfur Fuel

Description: A process for removing sulfur dioxide from flue gasses and converting sulfur dioxide to elemental sulfur.

Inventor: Shao-E Tung
State : MA

Contact:
Shao-E Tung
Ninety-One Blake Road
Brookline MA 02146
617-923-4032

Status: Complete Status Date: 02/10/84 OERI No.: 007385

Patent Status : Patent # - 4324775 and others
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv. by NIST : 08/08/80
Recom. by NIST : 01/27/82
Award Date : 08/10/82 Award Amount: $ 99,820 Grant No: FG01-82CE15125
Contract Period: 08/10/82 - 02/10/84

Summary: An 18 month R & D contract of $99,820 was awarded to obtain laboratory data o equilibrium and rates, upon which the absorption/stripping portion of th invention is based. The possibility exists for follow-on investment by th Peoples' Republic of China. Inventor seeks licensing opportunities.

DOE No: 0201 DOE Coord: D.G.Mello

Title: Hydraulic, Variable, Engine Valve Actuation System

Description: A modified hydraulic valve lifter which provides a means to vary valve timing and lift to improve fuel economy and reduce emissions. The device is actuated by engine oil pressure and is controlled by manifold vacuum in response to engine demand.

Inventor: Louis A Hausknecht
State : OH

Contact:
Louis A Hausknecht
4504 State Road
Cleveland OH 44109
216-749-1686

Status: Complete Status Date: 12/31/84 OERI No.: 006680

Patent Status : Patent # - 4153016 and others
Development Stage : Working Model
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 03/31/80
Recom. by NIST : 02/26/82
Award Date : 08/27/82 Award Amount: $ 85,060 Grant No: FG01-82CE15137
Contract Period: 08/27/82 - 08/27/83

Summary: A 12-month grant of $85,060 was awarded for the design, assembly and testing of a prototype hydraulic variable valve actuating system to be used in automobile engines.

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DOE No: 0202 DOE Coord: D.G.Mello

Title: Wobbling Type Distillation Apparatus

Description: A multiple-effect vacuum distillation system employing sets of wobbling tubes to produce a thin liquid film thereby improving the evaporation efficiency.

Inventor: Yao Tzu Li
State : MA

Contact:
Yao Tzu Li
Huckleberry Hill
Lincoln MA 01773
617-259-9592

Status: Complete Status Date: 09/16/83 OERI No.: 005495

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Miscellaneous

Recv. by NIST : 07/30/79
Recom. by NIST : 03/31/82
Award Date : 09/17/82 Award Amount: $ 99,880 Grant No: FG01-82CE15129
Contract Period: 09/17/82 - 09/16/83

Summary: A grant of $99,880 was awarded to design, build and test a prototype distillation device capable of 25 gallons/minute throughput. The inventor is seeking licenses or capital to build and market his machine.

DOE No: 0203 DOE Coord: G.K.Ellis

Title: Microwave Methods and Apparatus for Paving and Paving Maintenance

Description: A method to repave asphalt roads in place using recycled material and microwave heating.

Inventor: Morris R Jeppson
State : CA

Contact:
Morris R Jeppson
Box #221489
Carmel CA 93922
408-624-3152

Status: Complete Status Date: 12/21/84 OERI No.: 005898

Patent Status : Patent # - 4319856 and others
Development Stage : Working Model
Technical Category: Industrial Processes

Recv. by NIST : 10/02/79
Recom. by NIST : 04/28/82
Award Date : 09/22/82 Award Amount: $ 52,000 Grant No: FG01-84CE15173
Contract Period: 09/22/82 - 12/21/84

Summary: A grant for $52,000 was awarded on December 12, 1984 to design a prototype machine. The inventor prepared a design for a full-scale automatic paving machine. He has a smaller prototype which appears to perform well. He is seeking capital or an industrial partner to build a full-scale prototype of his machine. He has received numerous inquiries about his machine from prospective users.

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DOE No: 0204 DOE Coord: D.G.Mello

Title: The Induction Propeller

Description: An induction propeller for ship propulsion designed to include forward hydrodynamic rake for increased mass flow and higher efficiency.

Inventor: Raymond P Holland Jr
State : NM

Contact:
Raymond P Holland Jr

Status: No DOE Support Status Date: 11/10/82 OERI No.: 003872

Patent Status : Patent # - 3226031
Development Stage : Prototype Development
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 04/11/78
Recom. by NIST : 04/29/82

Summary: Inventor has abandoned this project in favor of another more promising invention not being supported by ERIP.

DOE No: 0205 DOE Coord: J.Aellen

Title: Energy Efficient Solid State Multiple Operator Metallic Arc Welding System

Description: A system for distributing and controlling AC electric power for metal arc welding to multiple welding stations.

Inventor: Charles B James
State : MO

Contact:
Mister Raymo

Status: No DOE Support Status Date: 06/09/83 OERI No.: 007178

Patent Status : Disclosure Document Program
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv. by NIST : 06/26/80
Recom. by NIST : 05/21/82

Summary: Declined DOE assistance.

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DOE No: 0206 DOE Coord: D.G.Mello

Title: Method and Apparatus for High Efficiency Operation of Electromechanical Energy Conversion

Description: An electrical controller for a separately-excited (shunt) DC motor which optimizes the ratio of armature and field currents to achieve minimum electrical I-squared-R losses for any load conditions.

Inventor: Jonathan Gabel
State : CA

Contact:
Jonathan Gabel
5800 Ocean View Drive
Oakland CA 94618
415-653-8879

Status: Complete Status Date: 10/30/86 OERI No.: 007962

Patent Status : Patent Applied For
Development Stage : Working Model
Technical Category: Combustion Engines & Components

Recv. by NIST : 01/07/81
Recom. by NIST : 05/26/82
Award Date : 04/08/85 Award Amount: $ 49,500 Grant No: FG01-85CE15159
Contract Period: 04/08/85 - 04/07/86

Summary: A grant of $49,500 was awarded on April 8, 1985 to build and test a prototype. Grantee completed design of unit, but installation and testing of prototype will be done with private funds. There is no present plan to distribute the device.

DOE No: 0207 DOE Coord: J.Aellen

Title: Glass Sheet Manufacturing Method and Apparatus

Description: A glass manufacturing process and apparatus having a vertical air-cooled electric furnace and transverse air-cooled refiner section. The furnace melts glass by passing an electric current through the composition and thus eliminates the emission of hot spent gasses that normally results from gas-fired furnaces.

Inventor: Frank L Anderson
State : WV

Contact:
Frank L Anderson

Status: No DOE Support Status Date: 09/30/90 OERI No.: 008441

Patent Status : Patent # - 4162907
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv. by NIST : 06/15/81
Recom. by NIST : 06/23/82

Summary: No DOE support.

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DOE No: 0208 DOE Coord: D.G.Mello

Title: CNG Automotive Fuel Cylinders/Gas Transport Modules

Description: A lightweight aluminum gas transport vessel for storing compressed natural gas to fuel light transportation vehicles.

Inventor: Norman C Fawley
State : CA

Contact:
Norman C Fawley
NCF Industries
2320 Cherry Industrial Circle
Long Beach CA 90805
213-630-5768

Status: Complete Status Date: 12/31/85 OERI No.: 008406

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv. by NIST : 06/01/81
Recom. by NIST : 06/23/82
Award Date : 09/15/84 Award Amount: $ 50,000 Grant No: FG01-84CE15196
Contract Period: 09/15/84 - 07/15/85

Summary: An award of $50,000 was made to pressure test the inventor's transport module. Grantee successfully completed all tests; sold rights to major manufacturer of gas cylinders.

DOE No: 0209 DOE Coord: A.R.Barnes

Title: Reclaiming Process for Resin Treated Fiberglass

Description: A process for reclaiming fiberglass from waste material for use as insulation by separating it from the urea-formaldehyde resin coating with which it is impregnated during manufacture.

Inventor: John W Yount
State : NC

Contact:
John W Yount
P O Box #7
Bullock NC 27507
919-693-4839

Status: Complete Status Date: 10/30/86 OERI No.: 007861

Patent Status : Patent Applied For
Development Stage : Production Engineering
Technical Category: Buildings, Structures & Components

Recv. by NIST : 12/03/80
Recom. by NIST : 06/28/82
Award Date : 04/04/84 Award Amount: $ 50,000 Grant No: FG01-84CE15174
Contract Period: 04/04/84 - 01/02/86

Summary: A grant of $50,000 was authorized on April 4th, 1984, for building and testing a fiberglass reclaiming machine. Inventor terminated grant during performance due to problems with sub- contractor.

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DOE No: 0210 DOE Coord: G.K. Ellis

Title: Ultra High Speed Drilling Device for Use in Hard Rock Formations

Description: A diamond cutting disk which is rotated at high linear velocities by twin downhole turbines to drill hard rock formations for deep oil recovery.

Inventor: Lloyd Flatland
State : CA

Contact:
Lloyd Flatland
Lloyd Flatland Dental Products
496 "B" Street
San Rafael CA 94901
415-457-5790

Status: Complete Status Date: 09/30/88 OERI No.: 007631

Patent Status : Disclosure Document Program
Development Stage : Prototype Test
Technical Category Fossil Fuels

Recv. by NIST : 10/03/80
Recom. by NIST : 06/29/82
Award Date : 09/30/86 Award Amount: $ 96,000 Grant No: FG01-84CE15185
Contract Period: 09/30/86 - 09/30/88

Summary: A phase I grant of $46,000 was awarded On August 28, 1984, to build and test a prototype high-speed drill. Suitability to drill hard rock will be determined. Phase I has been successfully completed. A phase II grant of $50,000 was awarded on November 4th, 1985 for further development and has been completed. However, some difficulties were encountered, and the inventor seeks additional development funds.

DOE No: 0211 DOE Coord: J.Aellen

Title: Shock Mounted Stratapax Bit

Description: An oil well drilling bit to support polycrystalline diamond cutters. It is designed with concentric spring tempered steel rings containing helical slots.

Inventor: Robert F Evans
State : TX

Contact:
Robert F Evans
P O Box #45674
Dallas TX 75235
214-351-6487

Status: Complete Status Date: 06/30/86 OERI No.: 007918

Patent Status : Patent Applied For
Development Stage : Concept Definition
Technical Category: Fossil Fuels

Recv. by NIST : 12/18/80
Recom. by NIST : 06/29/82
Award Date : 09/24/82 Award Amount: $ 57,545 Grant No: FG01-82CE15149
Contract Period: 09/24/82 - 02/28/84

Summary: A grant of $57,545 was awarded for the grantee to design, fabricate and test, four variations of the invention.

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DOE No: 0212 DOE Coord: G.K.Ellis

Title: Water Warden

Description: A plastic disc about two inches in diameter that installs in a commercial type of toilet water control valve to reduce the flushing cycle.

Inventor: Louis E Govear
State : CA

Contact:
Hugh Huislander

Status: Other Assistance Status Date: / / OERI No.: 008517

Patent Status : Patent # - 4202525
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 06/14/81
Recom. by NIST : 06/30/82

Summary: Inventor requested assistance in marketing his invention in the Federal sector. A DOE letter of introduction and a listing of States' contacts has been provided.

DOE No: 0213 DOE Coord: G.K. Ellis

Title: The Kaunitz Process for Welding Pipe

Description: A pipe joining process particularly for large transmission pipelines that involves expanding and machining each end and then aligning both sections axially and radially prior to welding.

Inventor: Clyde F Kaunitz
State : MI

Contact:
Clyde F Kaunitz
2339 Bay Woods Court
Bay City MI 48706
517-684-7354

Status: Complete Status Date: 08/06/87 OERI No.: 008110

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv. by NIST : 02/20/81
Recom. by NIST : 06/30/82
Award Date : 06/11/86 Award Amount: $ 49,975 Grant No: FG01-86CE15267
Contract Period: 06/11/86 - 03/11/87

Summary: A grant of $49,975 was awarded on June 11th, 1986 to build and test a prototype. The device was built by CRC-Evans in Tulsa, and reportedly was successfully tested.

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DOE No: 0214 DOE Coord: G.K.Ellis

Title: Convertible Flat/Drop Trailer

Description: A removable bed trailer, constructed in three sections, that enables a single unit to function as a flat-bed trailer, drop-center trailer or a detachable-neck light-duty trailer.

Inventor: Donald E Wise
State : OR

Contact:
Donald E Wise
5119 Jasper
Springfield OR 97447
503-747-9255

Status: Complete Status Date: 07/15/86 OERI No.: 008723

Patent Status : Patent # - 4290642
Development Stage : Production Engineering
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 11/02/81
Recom. by NIST : 07/29/82
Award Date : 09/18/84 Award Amount: $ 63,069 Grant No: FG01-84CE15175
Contract Period: 09/18/84 - 12/15/85

Summary: A grant of $63,069 was awarded on September 18, 1984 to build and test a prototype convertible trailer to determine fuel savings. The inventor has licensed his technology to Trail King Company in Nebraska.

DOE No: 0215 DOE Coord: G.K.Ellis

Title: Slag Waste Heat Boiler

Description: A slag waste heat boiler which produces wet steam from steel plant heat during the steel making process. Molten slag, a by-product, is poured over water-filled rotating cylinders. Steam is formed inside the cylinders and the solidified slag is scraped from the cylinders.

Inventor: Richard Jablin
State : NC

Contact:
Richard Jablin
2511 Woodrow Street
Durham NC 27705
919-286-4693

Status: Complete Status Date: 06/11/87 OERI No.: 002333

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv. by NIST : 06/07/77
Recom. by NIST : 06/29/82
Award Date : 06/11/86 Award Amount: $ 50,000 Grant No: FG01-86CE15264
Contract Period: 06/11/86 - 06/11/87

Summary: A grant was awarded for $50,000 on June 11th, 1986, to support the inventor in marketing the technology as part of an EPA SBIR Phase II project. The deal the deal the inventor anticipated did not materialize. Currently, he is seeking a steel company who would be interested in building the unit on their site. ERIP has referred him to CE's Improved Energy Productivity Division for possible assistance.

****

DOE No: 0216 DOE Coord: D.G.Mello

Title: Method and Assembly for Mounting a Semiconductor Element

Description: A method of packaging semiconductor wafers to achieve double-sided cooling of the wafer without clamps, springs or studs; power semi-conductors, such as used in motor controllers, can thus operate at higher current levels.

Inventor: Richard F Kiley
State : MA

Contact:
Richard F Kiley
Thermal Associates Inc
197 Main Street, P O Box #248
North Reading MA 01864
617-664-3342

Status: Complete Status Date: 12/31/85 OERI No.: 008499

Patent Status : Patent Applied For
Development Stage : Limited Production/Marketing
Technical Category: Combustion Engines & Components

Recv. by NIST : 07/07/81
Recom. by NIST : 07/30/82
Award Date : 09/20/84 Award Amount: $ 53,900 Grant No: FG01-84SE15199
Contract Period: 09/20/84 - 09/20/85

Summary: A grant of $53,900 was awarded to build and test prototype semiconductor elements. Market conditions precluded grantee from developing viable market plans for the product.

DOE No: 0217 DOE Coord: J.Aellen

Title: Jointless Advanced Composite Material Tape for Operating Lift Pumps in Oil Wells

Description: A jointless composite material tape (ribbon rod) made from carbon fibers, epoxy and fiber tape for use in place of steel sucker rods normally used in conjunction with beam pumping of oil wells.

Inventor: Curtis J Tanner
State : CA

Contact:
H N Hensley
2010 Princeton
Midland TX 79701
915-683-3534

Status: Complete Status Date: 10/16/88 OERI No.: 008074

Patent Status : Disclosure Document Program
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv. by NIST : 02/12/81
Recom. by NIST : 07/30/82
Award Date : 04/17/87 Award Amount: $ 82,742 Grant No: FG01-87CE15122
Contract Period: 04/17/87 - 10/16/88

Summary: A grant of $82,742 was awarded on April fourteenth, 1987, to construct and test the product.

****

DOE No: 0218 DOE Coord: G.K.Ellis

Title: Behemoth

Description: An apparatus and process for reclaiming waste oil at drilling sites by separating water and solids. Solids and water can be returned to the site and land restored to its natural state.

Inventor: Wilford Dean Tannehill
State : TX

Contact:
Wilford Dean Tannehill

Status: Other Assistance Status Date: 09/17/85 OERI No.: 008950

Patent Status : Patent Applied For
Development Stage : Production & Marketing
Technical Category: Industrial Processes

Recv. by NIST : 03/17/82
Recom. by NIST : 07/30/82

Summary: The inventor is looking for a licensee or buyer of his invention.

DOE No: 0219 DOE Coord: J.Aellen

Title: Method for Making Acelaldehyde from Ethanol

Description: A process to convert low proof ethanol directly to anhydrous acetaldehyde by an electrogenerative conversion process using fuel cell technology. During the conversion heat and electricity are produced.

Inventor: Thomas M Meshbesher
State : DE

Contact:
Thomas M Meshbesher
4507 Weldin Road
Wilmington DE 19899
302-658-9141

Status: Complete Status Date: 06/30/86 OERI No.: 008054

Patent Status : Patent Applied For
Development Stage : Laboratory Test
Technical Category: Combustion Engines & Components

Recv. by NIST : 02/05/81
Recom. by NIST : 07/30/82
Award Date : 09/18/84 Award Amount: $ 49,983 Grant No: FG01-84CE15191
Contract Period: 09/18/84 - 09/18/85

Summary: A grant of $49,983 was awarded to perform an economic study and mineral lab work to determine the most efficient conditions for converting ethanol into acetaldehyde and electricity.

****

DOE No: 0220 DOE Coord: D.G.Mello

Title: Deep Throat Resistance Welder

Description: A high-frequency spot-welding system which permits relatively small and flexible power cabling between the gun and the power source as compared with the heavy cabling required of either 60-hertz or DC systems. This allows a greater proportion of the power-line energy being transferred to the weld rather than dissipated in the system conductors.

Inventor: Charles A Schwartz
State : OH

Contact:
Charles A Schwartz
24545 Bryden Road
Beachwood OH 44122
216-831-3099

Status: Complete Status Date: 08/31/85 OERI No.: 007767

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Industrial Processes

Recv. by NIST : 11/04/80
Recom. by NIST : 08/30/82
Award Date : 09/19/84 Award Amount: $ 45,920 Grant No: FG01-84CE15192
Contract Period: 09/19/84 - 09/18/85

Summary: A grant of $45,920 was awarded on September 14,1984 to build and test a prototype. The tests confirmed theoretical analysis showing the merits of the new system. Grantee attempting licensing of product.

DOE No: 0221 DOE Coord: J.Aellen

Title: Strainercycle

Description: A means for providing cooling in a building, when the outside temperature drops below 65 degrees Fahrenheit, by injecting strained cooling tower water into chilled water circuits in order to eliminate the use of mechanical refrigeration during this time.

Inventor: Rudolf O Iverson
State : NY

Contact:
Paul Ginouves

Status: Other Assistance Status Date: 09/23/82 OERI No.: 008964

Patent Status : Patent # - 3995443
Development Stage : Production & Marketing
Technical Category: Buildings, Structures & Components

Recv. by NIST : 03/25/82
Recom. by NIST : 09/13/82

Summary: ERIP identified government market for inventor.

****

DOE No: 0222 DOE Coord: D.G.Mello

Title: Louver Trombe Solar Storage Unit

Description: A jalousie shutter, Trombe-type, phase change storage unit. Each shutter is prism shaped and exposes, alternately, a transmission, absorption or combination, side toward the sun.

Inventor: Donald R Thomas
State : VT

Contact:
Donald R Thomas

Status: Other Assistance Status Date: / / OERI No.: 007979

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Direct Solar

Recv. by NIST : 01/15/81
Recom. by NIST : 10/07/82

Summary: ERIP assistance has been completed. Referred to National Appropriate Technology Assistance Service (NATAS) for assistance.

DOE No: 0223 DOE Coord: J.Aellen

Title: Minimizing Subsidence Effects during Production of Coal In Situ

Description: The invention is a process for using a foaming mud cement to prevent or minimize subsidence in underground gasification sites.

Inventor: Ruel Carlton Terry
State : OK

Contact:
Ruel Carlton Terry
2235 Northwest 55th Street
Oklahoma City OK 73112
405-840-9586

Status: Complete Status Date: 06/30/86 OERI No.: 008456

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv. by NIST : 06/17/81
Recom. by NIST : 10/14/82
Award Date : 04/04/84 Award Amount: $ 53,964 Grant No: FG01-84CE15169
Contract Period: 04/04/84 - 01/31/85

Summary: A grant of $53,964 was awarded to perform lab work. Follow-up funding of $248,000 was received from the state of Wyoming using funds provided by the Department of Interior. $60,000 for additional R&D has since been awarded by the US Bureau of Mines.

****

DOE No: 0224 DOE Coord: J.Aellen

Title: Haile Alternate Fuel Grain Dryer

Description: This is a design for a grain dryer which is capable of using grain dust collected from grain elevators as an alternate fuel.

Inventor: Jack D Haile
State : NE

Contact:
Gwyer Grimminger, Presiden
COMET, Inc
3221 Ramada Road
Grand Island NE 68801
308-381-2990

Status: Complete Status Date: 06/30/86 OERI No.: 006782

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Industrial Processes

Recv. by NIST : 04/09/80
Recom. by NIST : 10/14/82
Award Date : 06/01/84 Award Amount: $ 50,000 Grant No: FG01-84CE15190
Contract Period: 06/01/84 - 12/01/85

Summary: A grant of $50,000 was awarded for design and engineering analysis of the grain dryer using grain dust as fuel. The technology is available for licensing.

DOE No: 0225 DOE Coord: J.Aellen

Title: ROVAC High Efficiency Low Pressure Air Conditioning System

Description: An air conditioning unit which utilizes rotary vane compressor with multiple vanes and low pressure refrigerant such as R-114. The vanes in the compressor are mechanically restrained so that they do not touch the casing.

Inventor: Thomas C Edwards
State : FL

Contact:
Raymond E. Shea, Jr
The ROVAC Corporation
P. O. Box 111
1030 Stafford St.
Rochdale MA 01542
508-892-4841

Status: Complete Status Date: 01/20/90 OERI No.: 008593

Patent Status : Patent Applied For
Development Stage : Prototype Test
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 08/24/81
Recom. by NIST : 10/28/82
Award Date : 07/22/88 Award Amount: $ 64,900 Grant No: FG01-88CE15346
Contract Period: 07/22/88 - 01/20/90

Summary: A grant of $64,900 was awarded on July 22nd, 1988, to

****

DOE No: 0226 DOE Coord: D.G.Mello

Title: An Electronic Anemometer System for Locating Air- Infiltration Heat Leaks in Buildings

Description: An electronic anemometer system for detection and location of air infiltration in residential and commercial structures. A fan creates a negative pressure inside the structure and an electronic leak detector detects air motion at cracks in the building.

Inventor: Stewart Ryan
State : OK

Contact:
Stewart Ryan

Status: No DOE Support Status Date: 07/31/85 OERI No.: 008826

Patent Status : Not Applied For
Development Stage : Prototype Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 12/28/81
Recom. by NIST : 11/29/82

Summary: Action temporarily suspended at inventors request. Inventor sold six month option. Inventor subsequently abandoned project. Competing products now exist.

DOE No: 0227 DOE Coord: D.G.Mello

Title: CRM Pipe

Description: A process for manufacturing pipe for high pressure gas transmission lines. Metal pipe is wound with resin impregnated composite-fibre reinforcement.

Inventor: Norman C Fawley
State : CA

Contact:
Norman C Fawley
NCF Industries
2320 Cherry Industrial Circle
Long Beach CA 90805
213-630-5768

Status: Complete Status Date: 12/31/85 OERI No.: 009055

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Miscellaneous

Recv. by NIST : 03/01/82
Recom. by NIST : 12/14/82
Award Date : 07/15/84 Award Amount: $ 50,000 Grant No: FG01-84CE15197
Contract Period: 07/15/84 - 07/15/85

Summary: A grant of $50,000 was awarded to test inventor's device to arrest crack progagation in gas pipelines. Test at Battelle prove value of system. Grantee attempting to license to major steel pipe manufacturer.

****

DOE No: 0228 DOE Coord: J.Aellen

Title: EGD Fog Dispersal System

Description: An electrogasdynamic device for dispersing fog that propels a stream of negatively charged water droplets into the air causing fog droplets to become charged and electrically attracted to the ground.

Inventor: Meredith C Gourdine
State : TX

Contact:
Meredith C Gourdine
Post Office Box #1228
Friendswood TX 77546
713-790-9892

Status: Complete Status Date: 06/25/87 OERI No.: 008466

Patent Status : Patent # -
Development Stage : Prototype Development
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 06/19/81
Recom. by NIST : 12/15/82
Award Date : 06/26/85 Award Amount: $ 88,840 Grant No: FG01-84CE15184
Contract Period: 06/26/85 - 06/25/87

Summary: An $88,840 cost sharing grant with Federal Express was awarded to install and demonstrate the technology at the Elmira, New York airport.

DOE No: 0229 DOE Coord: D.G.Mello

Title: Contoured Finger Follower Variable Valve-Timing Mechanism for Internal Combustion Engines

Description: An inexpensive mechanism for varying the valve- timing of internal combustion engines in response to variations in engine operating conditions.

Inventor: Edward M Tourtelot
State : IL

Contact:
Edward M Tourtelot

Status: No DOE Support Status Date: 07/31/86 OERI No.: 008982

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

Recv. by NIST : 04/14/82
Recom. by NIST : 01/20/83

Summary: Inventor's son will carry project forward. A proposal is being prepared for DOE consideration. Inventor's successor abandoned project. No DOE support required.

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DOE No: 0230 DOE Coord: J.Aellen

Title: Absorption Heat Pump Augmented Separation Process

Description: A reverse absorption heat pump which transfers heat from the condenser of a distillation column to the reboiler using a lithium-bromide-water system.

Inventor: Donald C Erickson
State : MD

Contact:
Donald C Erickson
627 Ridgely Avenue
Annapolis MD 21401
301-266-6521

Status: Complete Status Date: 11/26/85 OERI No.: 007530

Patent Status : Patent # - 4402795 and others
Development Stage : Concept Development
Technical Category: Buildings, Structures & Components

Recv. by NIST : 09/24/80
Recom. by NIST : 01/24/83
Award Date : 04/09/84 Award Amount: $ 25,000 Grant No: FG01-84CE15172
Contract Period: 04/09/84 - 11/26/85

Summary: A first phase grant of $25,000 was awarded on April 9, 1984 to find a suitable application and perform initial design. The inventor is still looking for an industrial partner to install and test a full- scale absorption heat pump. Phase one of this project has been completed.

DOE No: 0231 DOE Coord: G.K.Ellis

Title: Natural Gas from Deep-Brine Solutions

Description: A process for recovering geopressure methane gas by use of a deep-submerged separator of special design which separates the methane at depth and continuously recirculates the spent brine back into the formation of origin.

Inventor: Guy R B Elliott
State : NM

Contact:
Guy R B Elliott
Los Alamos Cons Alpha Inc
133 La Senda Road
Los Alamos NM 87544
505-672-3603

Status: Complete Status Date: 09/30/86 OERI No.: 009008

Patent Status : Patent # - 4262747
Development Stage : Prototype Development
Technical Category: Fossil Fuels

Recv. by NIST : 05/05/82
Recom. by NIST : 01/24/83
Award Date : 04/02/84 Award Amount: $ 75,000 Grant No: FG01-84CE15171
Contract Period: 04/02/84 - 10/01/86

Summary: An grant of $75,000 was awarded to build and test a prototype on the lab scale. Carbon dioxide dissolved in water will be used to operate the pump. The tests were performed and the results were encouraging.

****

DOE No: 0232 DOE Coord: J.Aellen

Title: Method of Separating Lignin and Making Epoxide- Lignin

Description: A process for low cost separation of lignin from the black cooking liquor which is a waste product from the kraft and sulfite paper pulping process, and for producing lignin-epoxide resins.

Inventor: Kenneth R Kurple
State : MI

Contact:
Kenneth R Kurple
9533 Springborn Road
Anchorville MI 48004
313-727-7631

Status: Complete Status Date: 04/30/87 OERI No.: 007662

Patent Status : Patent # - 4111928
Development Stage : Limited Production/Marketing
Technical Category: Industrial Processes

Recv. by NIST : 10/14/80
Recom. by NIST : 01/26/83
Award Date : 07/19/84 Award Amount: $ 96,914 Grant No: FG01-84CE15193
Contract Period: 07/19/84 - 04/30/87

Summary: A $61,739 first phase grant was awarded to perform lab analysis. A second phase of $35,175 was awarded to complete the laboratory work.

DOE No: 0233 DOE Coord: J.Aellen

Title: Mounted Steerable Ripper for Deep Soil Ripping and Subsoil Operations

Description: An hydraulically-actuated, rear-mounted, steerable ripper for crawler tractors intended for agricultural deep tillage operations. The steering action of the ripper assists or affects tractor steering, permitting more effective utilization of power transmitted to the tractor tracks.

Inventor: Daniel A Lockie
State : CA

Contact:
Daniel A Lockie

Status: No DOE Support Status Date: / / OERI No.: 008984

Patent Status : Not Applied For
Development Stage : Concept Development
Technical Category: Industrial Processes

Recv. by NIST : 04/15/82
Recom. by NIST : 02/01/83

Summary: Comparable technology is already on the market.

****

DOE No: 0234 DOE Coord: G.K.Ellis

Title: Geodesic Solar Paraboloid

Description: A parabolic point-focusing solar concentrator consisting of a dish reflecting surface, a track and a geodesic reflector support system.

Inventor: Douglas E Wood
State : WA

Contact:
Douglas E Wood
Box #32
Fox Island WA 98333
206-549-2190

Status: Complete Status Date: 02/14/86 OERI No.: 002968

Patent Status : Patent # - 4171876
Development Stage : Prototype Test
Technical Category: Direct Solar

Recv. by NIST : 11/18/77
Recom. by NIST : 02/24/83
Award Date : 04/17/85 Award Amount: $ 50,000 Grant No: FG01-85CE15203
Contract Period: 04/17/85 - 09/16/86

Summary: A grant of $50,000 was awarded on April 17, 1985 to make design improvements to the existing prototype. It is currently being tested for improvement of efficiency.

DOE No: 0235 DOE Coord: G.K.Ellis

Title: Single Stage Anaerobic Digestion Process

Description: A process for accelerating the manufacture of relatively high-purity methane fuel gas through a process of anaerobic digestion, involving retention of organic material in an aqueous slurry which is maintained at a predetermined V/I ratio, temperature, and minimizes the production of carbon dioxide.

Inventor: Jay E Ort
State : PA

Contact:
Harry Curtin
Penn State Engineering Inc
522 East College Avenue
P O Box #177
State College PA 16801
814-238-5013

Status: Complete Status Date: 12/04/85 OERI No.: 008644

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Fossil Fuels

Recv. by NIST : 09/18/81
Recom. by NIST : 03/30/83
Award Date : 04/02/84 Award Amount: $ 50,000 Grant No: FG01-84CE15170
Contract Period: 04/02/84 - 12/04/85

Summary: A phase one grant of $50,000 was awarded on April 2, 1984 to study and optimize the basic parameters of the process. The first run of tests were not successful due to defective equipment. Another series of tests was performed. The process is not as efficient as anticipated, and it is not economically feasible. Consequently, phase two of this project will not be initiated.

****

DOE No: 0236 DOE Coord: A.R.Barnes

Title: Steam Turbine Packing Ring

Description: A self-adjusting steam turbine packing ring that provides large shaft clearance during turbine start- up and reduced shaft clearance at normal turbine operating speeds. This action avoids packing ring damage during start-up and results in higher operating efficiency. A private sector public-utility is funding further development.

Inventor: Ronald E Brandon
State : NY

Contact:
Ronald E Brandon
1734 Lenox Road
Schenectady NY 12308
518-374-1220

Status: Complete Status Date: 07/02/87 OERI No.: 009167

Patent Status : Patent Applied For
Development Stage : Concept Development
Technical Category: Combustion Engines & Components

Recv. by NIST : 10/25/82
Recom. by NIST : 04/07/83
Award Date : 08/08/84 Award Amount: $ 51,900 Grant No: FG01-84CE15189
Contract Period: 08/08/84 - 07/02/86

Summary: Development was completed in 1987. Operating tests on 200MW PEPCO unit indicate 1.25% gain in heat rate efficiency. Exclusive license with Quabbin Industries, a manufacturer of steam turbine components, was signed in 1987. In the first year of his license, 37 sets were sold, which includes a number of repeat orders.

DOE No: 0237 DOE Coord: D.G.Mello

Title: Hicks Alter-Brake System/Electric Charging Apparatus for Ground Vehicles

Description: An automotive electrical generating and battery charging system that is driven primarily by vehicle momentum during braking, thus reducing required engine power output.

Inventor: David E Hicks
State : CO

Contact:
David E Hicks
5244 Cracker Barrel Circle
Colorado Springs CO 80917
303-596-4390

Status: Complete Status Date: 09/20/85 OERI No.: 009232

Patent Status : Patent # -
Development Stage : Prototype Test
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 01/19/82
Recom. by NIST : 05/12/83
Award Date : 09/20/84 Award Amount: $ 56,438 Grant No: FG01-84CE15183
Contract Period: 09/20/84 - 09/20/85

Summary: A grant of $56,438 was awarded to build and test prototype battery charging system using automobile momentum only. Project successfully completed. Grantee attempting to license product.

****

DOE No: 0238 DOE Coord: G.K.Ellis

Title: Industrial and Residential Clothes Dryer Automatic Shut-Off at Dryness

Description: A sensing system to shut off clothes dryer when the clothes have been dried completely. The proposed system measures the time interval between consecutive peaks as the dryer is cycled on and off between high and low temperature limits and shuts the dryer off when the time intervals become constant.

Inventor: Harry E Wood
State : LA

Contact:
Harry E Wood
6465 Oakland Drive
New Orleans LA 70118
504-488-7853

Status: Complete Status Date: 09/17/85 OERI No.: 009120

Patent Status : Not Applied For
Development Stage : Laboratory Test
Technical Category: Miscellaneous

Recv. by NIST : 08/31/82
Recom. by NIST : 05/12/83
Award Date : 03/07/84 Award Amount: $ 57,000 Grant No: FG01-84CE15168
Contract Period: 03/07/84 - 03/26/85

Summary: A grant of $57,000 was awarded on September 17, 1985 for building and testing a prototype. The project was successfully concluded. The inventor licensed his technology.

DOE No: 0239 DOE Coord: J.Aellen

Title: Electrochemical Separation and Concentration of Sulfur-Containing Gases from Gas Mixtures

Description: An electrochemical process for removing sulfur oxides from flue gas discharges from power plants which burn sulfur-containing fuels, principally high sulfur coals.

Inventor: Jack Winnick
State : GA

Contact:
Jack Winnick
3028 Vinings Way
Atlanta GA 30339
404-894-2839

Status: Complete Status Date: 06/30/86 OERI No.: 008674

Patent Status : Patent # - 4246081
Development Stage : Working Model
Technical Category: Industrial Processes

Recv. by NIST : 10/01/81
Recom. by NIST : 05/18/83
Award Date : / / Award Amount: $ 50,000 Grant No: FG01-84CE15178
Contract Period: / / - / /

Summary: ERIP provided and transferred a $50,000 grant to PETC which added $200,000. Work was performed at Georgia Tech Research Institute where electrode models were fabricated and tested in a bench scale model of the process.

****

DOE No: 0240 DOE Coord: G.K.Ellis

Title: All Steam Heated Sadiron for Commercial Use

Description: A commercial use sadiron which is operated solely by superheated high pressure steam generated from an external boiler to supply both the heat to the iron sole plate and steam for moisture spray application as needed during the ironing practice.

Inventor: Jay R Royston
State : CA

Contact:
Uwe H Butenhoff

Status: No DOE Support Status Date: 09/17/85 OERI No.: 008823

Patent Status : Patent Applied For
Development Stage : Engineering Design
Technical Category: Miscellaneous

Recv. by NIST : 12/28/81
Recom. by NIST : 07/19/83

Summary: Initial request for grant was rejected due to probable insufficient energy-saving potential. A study conducted by NATAS indicated insufficient market for this product. Two other companies are producing somewhat related product.

DOE No: 0241 DOE Coord: J.Aellen

Title: Polysulfide Oil Field Corrosion Control System

Description: A polysulfide additive to inhibit the corrosion of ferrous based metals in oil field and geothermal applications.

Inventor: Richard J Gay
State : TX

Contact:
Richard J Gay
9215 Clarewood - #358
Houston TX 77036
713-498-8553

Status: Complete Status Date: 09/05/85 OERI No.: 008601

Patent Status : Not Applied For
Development Stage : Prototype Development
Technical Category: Fossil Fuels

Recv. by NIST : 08/24/81
Recom. by NIST : 07/28/83
Award Date : 12/07/84 Award Amount: $ 73,900 Grant No: FG01-85CE15200
Contract Period: 12/07/84 - 09/05/85

Summary: A grant of $73,900 was awarded on December 7th, 1984 to perform lab test, analysis and field test.

****

DOE No: 0242 DOE Coord: G.K.Ellis

Title: New Petersburg Beam Trawl

Description: An improved trawl design to reduce drag for either single rigged or double rigged vessels.

Inventor: Donald Shuler
State : AK

Contact:
Donald Shuler
General Delivery
Petersburg AK 99833
907-772-3038

Status: Complete Status Date: 06/30/86 OERI No.: 009310

Patent Status : Disclosure Document Program
Development Stage : Prototype Development
Technical Category: Industrial Processes

Recv. by NIST : 12/22/82
Recom. by NIST : 09/29/83
Award Date : 09/05/84 Award Amount: $ 63,000 Grant No: FG01-84CE15180
Contract Period: 09/05/84 - 09/05/85

Summary: A grant of $63,000 was awarded on September 5, 1984 to build and test a prototype beam-trawl fishing net to determine fuel efficiency per pound of catch. The inventor failed to submit quarterly technical reports. The beam trawl nets were built but never tested in the presence of an independent observer from the Sea Grant Program. Inventor's whereabouts are unknown. The contracting officer was informed of this fact. Further pursuit was determined not to be in the government's best interests.

DOE No: 0243 DOE Coord: P.M.Hayes

Title: An Electronic/Pneumatic Ejector System for Producing an Aluminum Rich Concentrate from Municipal Waste

Description: Method and apparatus for processing municipal waste to overcome the disadvantages of the mass burning and the refuse derived-fuel methods by combining the two processes and recovering aluminum and steel.

Inventor: Edward J Sommer, Junior
State : TN

Contact:
Garry R Kenny
Magnetic Separation Syst Inc
105 28th Avenue, South
Nashville TN 37212
615-329-0695

Status: Complete Status Date: 09/13/85 OERI No.: 008031

Patent Status : Disclosure Document Program
Development Stage : Working Model
Technical Category: Industrial Processes

Recv. by NIST : 01/23/81
Recom. by NIST : 09/29/83
Award Date : 09/15/84 Award Amount: $ 50,640 Grant No: FG01-84CE15179
Contract Period: 09/15/84 - 09/13/85

Summary: A grant of $50,000 was awarded on August 15th, 1984 to design, build and test a prototype of the aluminum recovery system. The inventors have licensed the process to National Recovery Technology in Nashville, Tennessee and they are marketing the system. A new application to remove aluminum contaminants from crushed recycled glass and granulated beverage bottles was developed and the marketing rights for the European Common Market were licensed to a West German company.

****

DOE No: 0244 DOE Coord: J.Aellen

Title: CHARLIE - Trademark - Federally Registered #1123957

Description: An electronic system for controlling engine- compression type brakes used on trucks.

Inventor: Charles E Robinson
State : CO

Contact:
Brad L Pfeifley
CAMACAN, Inc.
7730 Belleview
Suite #204
Englewood CO 80111
303-850-0404

Status: Complete Status Date: 04/10/86 OERI No.: 009459

Patent Status : Patent # - 4305353 and others
Development Stage : Limited Production/Marketing
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 02/03/83
Recom. by NIST : 09/29/83
Award Date : 09/11/84 Award Amount: $ 51,655 Grant No: FG01-84CE15194
Contract Period: 09/11/84 - 04/10/86

Summary: A grant of $51,655 was awarded to build and test a prototype.

DOE No: 0245 DOE Coord: J.Aellen

Title: Improved Oil Well Pumping Unit

Description: A vector force balanced oil well pumping assembly.

Inventor: Thomas Neil Parker, Junior
State : OK

Contact:
Thomas Neil Parker, Junior
Thomas Parker Insurance
P O Box #356
Boswell OK 74727
405-566-2535

Status: Complete Status Date: 06/30/86 OERI No.: 009241

Patent Status : Disclosure Document Program
Development Stage : Working Model
Technical Category: Fossil Fuels

Recv. by NIST : 11/23/82
Recom. by NIST : 09/29/83
Award Date : 06/25/84 Award Amount: $ 61,801 Grant No: FG01-84CE15177
Contract Period: 06/25/84 - / /

Summary: A grant of $59,121 was awarded on June 25th, 1984 to build and test a prototype. Work to be conducted in cooperation with Rural Enterprises Inc. Potential exists for cost sharing in development and marketing. A supplemental grant of $2,680 was awarded on April 8th, 1985. Testing indicates that the pump is very efficient.

****

DOE No: 0246 DOE Coord: D.G.Mello

Title: Maximum Cruise Performance

Description: Maximum cruise performance of jet powered aircraft is achieved by maintaining the ratio of "fuel flow to ground speed" to a minimum by using a closed loop feedback system and a software algorithm package connected into the aircraft's avionic mission computer network.

Inventor: Juan M Garcia, Junior
State : MO

Contact:
Juan M Garcia, Junior

Status: No DOE Support Status Date: 07/01/85 OERI No.: 008733

Patent Status : Not Applied For
Development Stage : Engineering Design
Technical Category: Transportation Systems, Vehicles & Components

Recv. by NIST : 11/09/81
Recom. by NIST : 10/31/83

Summary: Preliminary proposal received from inventor. Coordinator seeking private sector assistance. Grantee unable to define suitable test program leading to marketable product.

DOE No: 0247 DOE Coord: D.G.Mello

Title: Energy Conservation by Improved Control of Bulk Power Transfers on Interconnected Systems

Description: In an interconnected electric power system, the parameters' system time deviation and area inadvertent interchange can be decomposed into components respectively caused by regulating deficiencies in each of the individual control areas. These components can serve as the basis for an equitable payment technique for unscheduled transfers to replace the present practice of "repayment in kind".

Inventor: Nathan Cohn
State : PA

Contact:
Nathan Cohn
8033 Via de Viva
Scottsdale AZ 85258
602-991-7063

Status: Complete Status Date: 10/30/86 OERI No.: 009342

Patent Status : Patent # - 4267571
Development Stage : Prototype Development
Technical Category: Miscellaneous

Recv. by NIST : 01/19/83
Recom. by NIST : 11/18/83
Award Date : 09/05/84 Award Amount: $ 60,000 Grant No: FG01-84CE15187
Contract Period: 09/05/84 - 02/15/86

Summary: A grant of $60,000 was awarded to study the uneconomical inadvertent interchange of electric power between a number of cooperating electric utility companies, and to recommend a method to correct the resulting energy losses. Grantee will license method to interested utilities.

****

DOE No: 0248 DOE Coord: J.Aellen

Title: Dyna-Bite Traction Intensifier, Model Agri, for Agricultural Tractors or the Like

Description: A device consisting of individual tire segments that are strapped to the driving wheels of a tractor or similar vehicle to improve traction and minimize the need for adding weight to get better traction.

Inventor: Thorvald G Granryd
State : IL

Contact:
Thorvald G Granryd
P O Box #258
1260 North Western Avenue
Apartment #109
Lake Forest IL 60045
312-234-8250

Status: Complete Status Date: 12/31/85 OERI No.: 008617

Patent Status : Patent # - 4225082 and others
Development Stage : Production Engineering
Technical Category: Industrial Processes

Recv. by NIST : 08/12/81
Recom. by NIST : 11/22/83
Award Date : 09/18/84 Award Amount: $ 70,189 Grant No: FG01-84CE15186
Contract Period: 09/18/84 - 12/31/85

Summary: A grant of $32,064 was awarded on September 18, 1985 to build and test prototype traction intensifiers. Tests performed for traction were successful, but the device had minor durability problems. A phase two grant of $35,525 was awarded to develop design modifications capable of overcoming problems.

DOE No: 0249 DOE Coord: G.K.Ellis

Title: Subsurface Flow Control (Gas Wells) and High Gas- Oil-Ratio Oil Wells

Description: Subsurface gas well flow control and purge valve.

Inventor: Patrick S Swihart, Senior
State : NM

Contact:
Patrick S Swihart, Senior
Box #262
Timberon NM 88350
505-987-2449

Status: Complete Status Date: 08/19/85 OERI No.: 009220

Patent Status : Patent # - 4036297 and others
Development Stage : Prototype Test
Technical Category: Fossil Fuels

Recv. by NIST : 11/16/82
Recom. by NIST : 12/30/83
Award Date : 08/19/85 Award Amount: $ 16,074 Grant No: FG01-85CE15202
Contract Period: 08/19/85 - 08/18/87

Summary: An award was granted for $16,074 on August 19, 1985 to build and test a prototype. Grantee experienced various problems trying to get valid tests. Project has been completed.

****

DOE No: 0250 DOE Coord: P.M.Hayes

Title: A System to Adapt Diesel Engines to the Use of Crude Oils

Description: A three-part system for converting conventional diesel engines so they can be operated on either No. 2 diesel fuel or heavy fuels such as crude oil or vegetable oils.

Inventor: Hugh Edwin Whitted III
State : NC

Contact:
Hugh Edwin Whitted III
Route #2, Box #444-A
East Bend NC 27018

Status: Complete Status Date: 05/26/89 OERI No.: 009458

Patent Status : Not Applied For
Development Stage : Prototype Test
Technical Category: Combustion Engines & Components

Recv. by NIST : 03/14/83
Recom. by NIST : 12/30/83
Award Date : 08/27/86 Award Amount: $ 82,057 Grant No: FG01-86CE15284
Contract Period: 08/27/86 - 05/26/89

Summary: A fifteen month, $82,057 grant was awarded to modify both a direct and indirectly injected Diesel engine to operate directly on crude oil. Preliminary results have shown no deterioration in critical engine components, and acceptable emission levels. The engines will find application in multi-fuel trucks and stationary engines.

SECTION 3 RECOMMENDED INVENTIONS CROSS REFERENCE LISTS

3.0 Introduction

This section provides four tables for use in locating specific recommended inventions. Table 3-1 is ordered by inventor name and contains the inventor name, DOE number, and invention title. Table 3-2 is ordered by contact name and contains the contact name, DOE number, and invention title. Table 3-3 is ordered by inventor state and contains Inventor name, DOE number, and invention title. Table 3-4 is ordered by invention classification and lists the DOE number, inventor name, and titles associated with each invention classification.

TABLE 3-1
RECOMMENDED INVENTIONS BY INVENTOR NAME

INVENTOR	DOE NO.	TITLE
Den M Acres	0175	A Low-Energy Carpet Backing System
Joe Agar	0072	Utilization of Waste Gas for Boilers and Furnaces in Refineries and Petrochemical Plants
Henry E Allen	0089	Continuous Casting Process and Apparatus
Floyd R Anderson	0096	Leavell, Vibrationless, Low Noise, High Efficiency, Pneumatic Percussion Tools and Air Compressor Systems
Frank L Anderson	0207	Glass Sheet Manufacturing Method and Apparatus
William F Armitage, Jr.	0041	Fabrication of Photovoltaic Devices by Solid Phase Growth of Semi-conductors from Metal Layers
Robert M Arthur	0047	Wastewater Aeration Power Control Device
Eldon L Asher	0119	Air Ratio Controller (AERTROL)
George C Austin	0005	Diesel Engine Conversion System for Gasoline Engines
James Allen Bagby	0091	Mine Brattice
Frank W Bailey	0125	The Turbulator Burner System
Edward L Barrett	0195	Proportional Current Battery
Karakian Bedrosian	0171	A Method of Preserving Fruits and Vegetables without Refrigeration
Richard B Bentley	0051	Thermal Efficiency Construction
John T Benton	0050	Scotsman Fuel Energizer
Karl H. Bergey	0110	Improved Windpower Generating System
Frank C Bernhard	0102	Method of Burning Residual Fuel Oil in Distillate Fuel Oil Burners
Val O Bertoia	0095	Omni-Horizontal Axis-Wind Turbine
Charles James Bier	0083	Vertical Solar Louvers
Lawrence E Bissell	0037	Hotwater Engine
Leroy M Bissett	0068	Under Compression and Over Compression Free Helical Screw Rotary Compressor
Wayne S Boals	0049	Automatic Control System for Water Heaters
Ranendra K Bose	0013	Anti-Pollution System
William P Boulet	0056	Flexaflo-The Wet Fuel Dryer
Ronald E Brandon	0236	Steam Turbine Packing Ring
James A Browning	0067	Windmill Using Hydraulic System for Energy Transfer and Speed Control
John W Bruce	0016	Method and Apparatus for Vacuum Drying of Commodities
Bill Burley	0173	Thermal Ice Cap
Patsie C Campana	0080	Improved Unfired Refractory Brick
Vincent E Carman	0008	Inertial Storage Transmission
John L Carroll	0092	Tri-Water, A Combination Air Conditioning and Fire Protection System for a Building.
Robert A Caughey	0032	Wood Gas Reactor
Forrest E Chancellor	0154	Rotating Horsehead for Pumping Units
Wu-Chi Chen	0165	Process for Recovering Hydrogen and Elemental Sulfur from Hydrogen Sulfide and/or Mercaptans-Containing Hydrogen
James L Chill	0098	Process Development to Conserve Energy and Material- --(in the manufacture of)---Bearings
Robert A Clay	0143	Oil Well Pump Jack
James M Cleary	0155	Slip Mining
Nathan Cohn	0247	Energy Conservation by Improved Control of Bulk Power Transfers on Interconnected Systems
William H Cone	0060	Electric Transport Refrigerator
Edward B Connors	0167	Vaned Pipe for Pipeline Transport of Solids
Paul J Cromwell	0108	Processing Recovery of Aluminum
Albert B Csonka	0006	Micro-Carburetor

TABLE 3-1 (cont.)

INVENTOR	DOE NO.	TITLE
Richard E Dame	0180	Adjustable Solar Concentrator (ASC)
Sharad M Dave	0101	Controlled Combustion Engine
Gilbert W Didion	0028	Ultraflo
Oscar Leonard Doellner	0194	Radiant Energy Power Source for Jet Aircraft
James J Dolan	0156	Direct-Current Electrical Heat-Treatment of Continuous Metal Sheets in a Protective Atmosphere.
David W Doyle	0017	Osmotic-Hydro Power Generation
Anthony A duPont	0161	duPont Connell Energy Coal Gasification Process
Enoch J Durbin	0069	Ionic Fuel Control System for the Internal Combustion Engine
Leonard A Duval	0148	Reclamation of Oil and High-Grade Iron Concentrates from Steel Mill Wastes
John A Eastin	0196	Manufacturing and Using Nitrogen Fertilizer Solutions on a Farm
Gerald Eastman	0189	Pump Jack
Edwin E Eckberg	0103	Low Voltage Ionic Fluorescent Light Bulb
Charles E Edwards	0179	Development and Commercialization of Low Cost, Non- Metallic, Solar Systems
Thomas C Edwards	0225	ROVAC High Efficiency Low Pressure Air Conditioning System
Guy R B Elliott	0231	Natural Gas from Deep-Brine Solutions
Hal Ellis	0034	Delphic Thermogenic Paint (Heat Film)
Donald C Erickson	0003	Hydrogen Generation from Producer Gas by Oxidation- Reduction of Tin
Donald C Erickson	0025	Sulfur Removal from Producer Gas-High Temperature
Donald C Erickson	0230	Absorption Heat Pump Augmented Separation Process
Robert F Evans	0166	Borehole Angle Control
Robert F Evans	0182	Improved Seal for Geothermal Drill Bit
Robert F Evans	0211	Shock Mounted Stratapax Bit
Norman C Fawley	0208	CNG Automotive Fuel Cylinders/Gas Transport Modules
Norman C Fawley	0227	CRM Pipe
John D. Finnegan	0176	Self-Contained, Water Proof, Stoker Fired, Fully Automatic, Portable Solid Fuel Furnaces
William M FioRito	0094	Lantz Converter
G R Fitterer	0018	The Control of the Analysis of Low Carbon Aluminum Steels Using Oxygen Sensors and Iron-Aluminum Alloy
G R Fitterer	0074	A Solid Electrolyte Galvanic Solar Energy Conversion Cell
Lloyd Flatland	0210	Ultra High Speed Drilling Device for Use in Hard Rock Formations
Willing B Foulke	0061	Fuel Preparation Process
Joe W Fowler	0045	Bulk Cure Tobacco Barn with Improvements
Jonathan Gabel	0206	Method and Apparatus for High Efficiency Operation of Electromechanical Energy Conversion
Juan M Garcia, Junior	0246	Maximum Cruise Performance
Richard J Gay	0241	Polysulfide Oil Field Corrosion Control System
John D Gill	0164	Elastomer Energy Recovery Elements and Vehicle Component Applications
Richard P Gingras	0036	Computerstat
Nathan Gold	0184	Coasting Fuel Shutoff
Meredith C Gourdine	0228	EGD Fog Dispersal System
Louis E Govear	0212	Water Warden
William D Gramling	0159	Non-Tubing Type Lift Device, Described as the NTT Rabbit
Thorvald G Granryd	0248	Dyna-Bite Traction Intensifier, Model Agri, for Agricultural Tractors or the Like

TABLE 3-1 (cont.)

INVENTOR	DOE NO.	TITLE
Willard Graves	0001	Demand Metering System for Electric Energy
Jack D Haile	0224	Haile Alternate Fuel Grain Dryer
Ogden H Hammond	0149	SCOTCH - (Simple, Cost-Effective, Optimum Temperature Control for Housing)
John C Haspert	0111	Haspert Mining System
John C Haspert	0188	Remote Controlled Underground Mining System for Horizontal or Pitching Seams
Walter J Hasselman, Jr	0019	Phenol Methylene Foam Rigid Board Insulation
Louis A Hausknecht	0201	Hydraulic, Variable, Engine Valve Actuation System
Spencer Kim Haws	0168	The Hot Water Saver
Lee A Henningsen	0065	WattVendor
David E Hicks	0237	Hicks Alter-Brake System/Electric Charging Apparatus for Ground Vehicles
Raymond P Holland Jr	0204	The Induction Propeller
Thomas P Hopper	0020	Thermal Shade
Werner E Howald	0048	Howald Combustor
Dennis D Howard	0163	Thermotropic Plastic Films
John Hunter	0199	Rotary Coal Combustor and Heat Exchangers
Int'l MGD Companies	0023	Microgas Dispersions
Rudolf O Iverson	0221	Strainercycle
Richard Jablin	0075	Coke Quenching Steam Generator
Richard Jablin	0215	Slag Waste Heat Boiler
Gulab Chand Jain	0035	Utilization of Solar Energy by Solar Pond System
Charles B James	0205	Energy Efficient Solid State Multiple Operator Metallic Arc Welding System
Seymour Jarmul	0026	Compact Energy Reservoir
Morris R Jeppson	0203	Microwave Methods and Apparatus for Paving and Paving Maintenance
R J Jones	0027	Waste Heat Utilization for Commercial Cooking Equipment
Edgar R Jordon	0131	Valve Deactuator for Internal Combustion Engines
Charles G Kalt	0085	Dielectric Windowshade
Robert F Karlicek	0197	Frequency Regulator and Protective Devices for Synchronous Generators
Eskil L Karlson	0104	Low Continuous Energy Mass Separation System
Eskil L Karlson	0181	The Karlson Ozone Sterilizer
Clyde F Kaunitz	0213	The Kaunitz Process for Welding Pipe
Henry Keep, Junior	0147	Railroad Switch Heater
H. W. Kennick	0109	Hydrostatic Meat Tenderizer
James E Kessler	0129	Super U System - Snap Strap
M Hossein Khorsand	0135	Point Focus Parabolic Solar Collector
Richard F Kiley	0216	Method and Assembly for Mounting a Semiconductor Element
Charles M Kirk	0058	A Multiple Spark System Using Inductive Storage
Michael Knezevich	0132	Process for Reclaiming and Upgrading Thin-Walled Malleable Waste Material
Kenneth R Kurple	0232	Method of Separating Lignin and Making Epoxide-Lignin
Robert G Landry	0052	Air Wedge
James H Lawler	0039	Lawler Steam Generator and Lawler System of Thermal Oil Recovery
W N Lawless	0190	Oxygen-Conducting Material and Oxygen-Sensing Method
Leon Lazare	0044	New Working Fluids for Increasing the Cycle Efficiencies of Thermal
Leon Lazare	0160	High Efficiency Absorption Refrigeration Cycle
Herbert G Lehmann	0022	Fuel Burner Attachment
Ervin Leshner	0122	Lean Limit Controller

TABLE 3-1 (cont.)

INVENTOR	DOE NO.	TITLE
Donald C Lewis	0192	Closed Cycle Dehumidification Clothes Dryer
Yao Tzu Li	0151	Film Type Storm Window
Yao Tzu Li	0202	Wobbling Type Distillation Apparatus
Ping-Wha Lin	0107	Waste Products Reclamation Process
Daniel A Lockie	0233	Mounted Steerable Ripper for Deep Soil Ripping and Subsoil Operations
Thomas LoGiudice	0063	Fluorobulb
Douglas MacGregor	0086	Coke Desulfurization
Shalom Mahalla	0064	The Mahalla Process--A Hydrometallurgical Method for Extracting Copper
David S Majkrzak	0152	Vehicle Exhaust Gas Warm-up System
Alvin M Marks	0009	Heat/Electric Power Conversion via Charged Aerosols
Mervin W Martin	0169	MIRAFOUNT
Louis L Marton	0139	Transformer With Heat Dissipator
John Mattson	0117	"Solarspan" Prism Trap
W E Mattson	0140	Counter Flow Dual Tube Heat Exchanger
Kenneth E Mayo	0029	Tuned Sphere Stable Ocean Platforms
John McCallum	0038	Reduction Volatilizations
James W McCord	0077	Variable Heat Refrigeration System
James W McCord	0097	Water Drying System
Robert McNeill	0078	System for High Efficiency Power Generation from Low Temperature Sources
Albert L McQuillen, Jr	0157	Magnaseal Method and Means for Sealing Steel Ingot Casting Molds to Stools
Thomas R Mee	0170	Fog System - Low Energy Freeze Protection for Agriculture
Thomas M Meshbesher	0219	Method for Making Acetaldehyde from Ethanol
Anatol Michelson	0142	Process for Heatless Production of Hollow Items
Edward W Midlam	0150	The Use of Solid Waste Material from a Lubricating Oil and/or Vegetable Oil Refining Operation.
E. Stephen Miliaras	0183	Increased Vapor Generator Feature for a Reheat Vapor Generator
Everett Millard	0042	Flue Baffle Assembly
Renato Monzini	0114	New Energy-Saving Tire for Motor Vehicles
Drew W Morris	0024	Can and Bottle Crushing Apparatus
E O Nathaniel	0174	Skate on Plastic Ice Skating System
Robert H Nealy	0198	The Thermatreat System
Edward A Griswold	0172	GEM Electrostatic Filtration System
Robert S Norris	0021	Waste Oil Utilization System
John W North	0178	Process and Apparatus for Producing Cellulated Vitreous Refractory Material
Kenneth W Odil	0084	Kinetic Energy Type Pumping System
Jay E Ort	0235	Single Stage Anaerobic Digestion Process
Rita Paleschuck	0002	Fuel Miser
Richard D & Chester Palone	0055	Electrically Heated Sucker-Rod
C Richard Panico	0081	Flash Polymerization
Thaddeus Papis	0062	Tapered Plate Annular Matrix
Louis W Parker	0187	Variable Field Induction Motor
Sidney A Parker	0043	Thermal Gradient Utilization Cycle
Thomas Neil Parker, Junior	0245	Improved Oil Well Pumping Unit
Carl E Pearl	0153	A New Equipment Design Concept for Storage of Hot Foods
J Paul Pemsler	0123	Comminution of Ores by a Low-Energy Process
F J Perhats	0133	AUTOTHERM Car Comfort System
Leopold Pessel	0030	Method of Removing Sulfur Dioxide from Flue Gases
Clyde G Phillips	0115	Refrigeration System

TABLE 3-1 (cont.)

INVENTOR	DOE NO.	TITLE
Sylvain J Pirson	0146	Line Integral Method of Magneto-Electric Exploration
Sylvain J Pirson	0186	Oil Recovery by In-Situ Exfoliation Drive
Lemuel Leslie Ply	0162	Tubular Pneumatic Conveyor Pipeline
Arnold R Post	0130	Furnace Input Capacity Trimming Switch
Milton Pravda	0191	Rotary Heat Pump Air Conditioner, Heater and Ventilator for Automotive, Mobile and Stationary Use.
Paul F Pugh	0158	Energy Conservative Electric Cable System
James L Ramer	0106	Deep Shaft Hydro-Electric Power
Dante A Raponi	0015	Estacron
Albert S Richardson, Jr.	0136	Windamper
Charles E Robinson	0244	CHARLIE - Trademark - Federally Registered 1123957
Donald R Ross	0076	The Ross Furnace
Jay R Royston	0240	All Steam Heated Sadiron for Commercial Use
John C Rupert	0134	Expanded Polystyrene Bead Insulation System
Alex Rutshein, et al	0088	System-100
Stewart Ryan	0226	An Electronic Anemometer System for Locating Air-Infiltration Heat Leaks in Buildings
Melvin H Sachs	0073	INTECH
Charlton Sadler	0124	Solar Collector
Robert E Salomon	0145	Solar Conversion by Concentration Cells with Hydrides
Nicholas Archer Sanders	0193	Engine Heating Device
Robert C Saunders, Junior	0144	SpaCirc Space Circulation Fan
Karl D Scheffer	0126	Vaclaim
Daniel J Schneider	0014	Aerodynamic Lift Translator
Charles A Schwartz	0220	Deep Throat Resistance Welder
Paul H Schweitzer	0054	Optimizer
J D Seader	0127	Process and Apparatus to Produce Crude Oil from Tar Sands
J D Seader	0128	Continuous Distillation Apparatus and Method
David J Secunda	0046	Thexon Dehydration
Gerald R Seeman	0138	Phantom Tube
Edward H Shelander	0093	Shelander-Burrows Process for Recovery of Metallic Values from Smelter Emissions
Samuel Shiber	0141	New Hydrostatic Transmission
Donald Shuler	0242	New Petersburg Beam Trawl
Roderick L Smith	0118	Energy Adaptive Control of Precision Grinding
Ronald H Smith	0011	Solar Collector
Edward J Sommer, Junior	0243	An Electronic/Pneumatic Ejector System for Producing an Aluminum Rich Concentrate from Municipal Waste
Roland P Soule	0040	Improved Equipment and Process for Production of Blue Water Gas
Robert John Starr	0177	The Solar I Option
Kenneth A Stofen	0070	Air Cooled Compressor Heat Recovery and Heat Circulation System plus Ambient Air Filter and Air Cleaner
Frank R Summa	0012	High Frequency Energy Saving Device
Patrick S Swihart, Senior	0249	Subsurface Flow Control (Gas Wells) and High Gas-Oil-Ratio Oil Wells
Wilford Dean Tannehill	0218	Behemoth
Curtis J Tanner	0217	Jointless Advanced Composite Material Tape for Operating Lift Pumps in Oil Wells
Ruel Carlton Terry	0087	Recovering Uranium From Coal in Situ
Ruel Carlton Terry	0223	Minimizing Subsidence Effects during Production of Coal In Situ

TABLE 3-1 (cont.)

INVENTOR	DOE NO.	TITLE
Donald R Thomas	0222	Louver Trombe Solar Storage Unit
Edward M Tourtelot	0229	Contoured Finger Follower Variable Valve-Timing Mechanism for Internal Combustion Engines
Shao-E Tung	0200	Removal of Sulfur Dioxide from the Stack Gas of Combustors Burning High Sulfur Fuel
Robert L Ullrich	0082	Cool Air Induction
Clinton Van Winkle	0090	Grain Dryer
David Virley	0007	Hydraulically Powered Waste Disposal Device
Joseph B Vogt	0033	Temperature Indicating Device
Marvin L Wahrman	0079	Oil Well Bit Insert (Tooth), Cutting Article, Ablative
Henry J Wallace	0113	Wallace Mold Additive System
Arleigh Wangler	0071	Knight Guard
H Roy Weber	0137	A Portable Pollution Free Automobile Incinerator
Roy J Weikert	0116	Model 5000 ASEPAK System
Oscar Weingart	0099	Light Weight Composite Trailer Tubes
James B Whitmore	0121	Solar Space Heating for both Retrofit and New Construction
Hugh Edwin Whitted III	0250	A System to Adapt Diesel Engines to the Use of Crude Oils
Robert H Wieken	0057	X-5 Smoke Eliminator
Jack Winnick	0239	Electrochemical Separation and Concentration of Sulfur-Containing Gases from Gas Mixtures
Donald E Wise	0214	Convertible Flat/Drop Trailer
James C Withers	0031	Ceramic Rotors and Vanes
Cecil H Wolf	0185	Insulated Garage Door
Douglas E Wood	0234	Geodesic Solar Paraboloid
Harry E Wood	0053	High Efficiency Water Heater
Harry E Wood	0238	Industrial and Residential Clothes Dryer Automatic Shut-Off at Dryness
Harrison Robert Woolworth	0010	Scrap Metal Preheating Method and Apparatus
Joseph C Yater	0004	Power Conversion of Energy Fluctuations
John W Yount	0209	Reclaiming Process for Resin Treated Fiberglass
Philip Zacuto	0066	Heat Extractor
Paul Zanoni	0112	Pump
Robert Zartarian	0120	Vapor Heat Transfer Commercial Griddle
Bernard Zimmern	0059	The Volumetric Gas Turbine
Michael F Zinn	0100	Solaroll
Allen D Zumbrunnen	0105	High Frequency Furnace

TABLE 3-2

RECOMMENDED INVENTIONS BY CONTACT NAME

CONTACT	DOE NO.	TITLE
Henry E Allen	0089	Continuous Casting Process and Apparatus
Amar Amancharla	0143	Oil Well Pump Jack
Floyd R Anderson	0096	Leavell, Vibrationless, Low Noise, High Efficiency, Pneumatic Percussion Tools and Air Compressor Systems
Frank L Anderson	0207	Glass Sheet Manufacturing Method and Apparatus
William F Armitage Jr	0041	Fabrication of Photovoltaic Devices by Solid Phase Growth of Semi-conductors from Metal Layers
Robert M Arthur	0047	Wastewater Aeration Power Control Device
George C Austin	0005	Diesel Engine Conversion System for Gasoline Engines
Charles Bach	0185	Insulated Garage Door
Frank W Bailey	0125	The Turbulator Burner System
Basil W Balls	0072	Utilization of Waste Gas for Boilers and Furnaces in Refineries and Petrochemical Plants
A. D. Barrett, VP	0147	Railroad Switch Heater
Charlie Baziel	0068	Under Compression and Over Compression Free Helical Screw Rotary Compressor
N. John Beck	0131	Valve Deactuator for Internal Combustion Engines
Karakian Bedrosian	0171	A Method of Preserving Fruits and Vegetables without Refrigeration
Daniel Ben-Shmuel	0066	Heat Extractor
Richard B Bentley	0051	Thermal Efficiency Construction
Karl H. Bergey	0110	Improved Windpower Generating System
Frank C Bernhard	0102	Method of Burning Residual Fuel Oil in Distillate Fuel Oil Burners
Val O Bertoia	0095	Omni-Horizontal Axis-Wind Turbine
Charles James Bier	0083	Vertical Solar Louvers
Lawrence E Bissell	0037	Hotwater Engine
Wayne S Boals	0049	Automatic Control System for Water Heaters
Ranendra K Bose	0013	Anti-Pollution System
Howard Bovars	0086	Coke Desulfurization
Ronald E Brandon	0236	Steam Turbine Packing Ring
James A Browning	0067	Windmill Using Hydraulic System for Energy Transfer and Speed Control
John W Bruce	0016	Method and Apparatus for Vacuum Drying of Commodities
Mario Bruno	0114	New Energy-Saving Tire for Motor Vehicles
James L Bullock	0015	Estacron
Bill Burley	0173	Thermal Ice Cap
Uwe H Butenhoff	0240	All Steam Heated Sadiron for Commercial Use
John C Calhoun, President	0032	Wood Gas Reactor
Robert Cameron	0050	Scotsman Fuel Energizer
Patsie C Campana	0080	Improved Unfired Refractory Brick
Forrest E Chancellor	0154	Rotating Horsehead for Pumping Units
Wu-Chi Chen	0165	Process for Recovering Hydrogen and Elemental Sulfur from Hydrogen Sulfide and/or Mercaptans-Containing Hydrogen
James L. Chill, President	0098	Process Development to Conserve Energy and Material- --(in the manufacture of)---Bearings
James M Cleary	0155	Slip Mining
Nathan Cohn	0247	Energy Conservation by Improved Control of Bulk Power Transfers on Interconnected Systems
William H Cone	0060	Electric Transport Refrigerator
Edward B Connors	0167	Vaned Pipe for Pipeline Transport of Solids
Robert J Cromwell	0108	Processing Recovery of Aluminum
Albert B Csonka	0006	Micro-Carburetor

TABLE 3-2 (cont.)

CONTACT	DOE NO.	TITLE
Harry Curtin	0235	Single Stage Anaerobic Digestion Process
Richard E Dame	0180	Adjustable Solar Concentrator (ASC)
Sharad M Dave	0101	Controlled Combustion Engine
Alex DeFonso	0034	Delphic Thermogenic Paint (Heat Film)
Gilbert W Didion	0028	Ultraflo
Lawrence A Dobson	0425	High Temperature Condensing Biomass Combustion System
Oscar Leonard Doellner	0194	Radiant Energy Power Source for Jet Aircraft
James J Dolan	0156	Direct-Current Electrical Heat-Treatment of Continuous Metal Sheets in a Protective Atmosphere.
Jay Dornier	0056	Flexaflo-The Wet Fuel Dryer
David W. Doyle, V.P.	0017	Osmotic-Hydro Power Generation
Anthony A duPont	0161	duPont Connell Energy Coal Gasification Process
Enoch J Durbin	0069	Ionic Fuel Control System for the Internal Combustion Engine
Leonard A Duval	0148	Reclamation of Oil and High-Grade Iron Concentrates from Steel Mill Wastes
John A Eastin	0196	Manufacturing and Using Nitrogen Fertilizer Solutions on a Farm
Gerald Eastman	0189	Pump Jack
Edwin E Eckberg	0103	Low Voltage Ionic Fluorescent Light Bulb
Charles E Edwards	0179	Development and Commercialization of Low Cost, Non- Metallic, Solar Systems
Guy R B Elliott	0231	Natural Gas from Deep-Brine Solutions
Richard E Engdahl	0031	Ceramic Rotors and Vanes
James V Enright	0133	AUTOTHERM Car Comfort System
Donald C Erickson	0003	Hydrogen Generation from Producer Gas by Oxidation- Reduction of Tin
Donald C Erickson	0025	Sulfur Removal from Producer Gas-High Temperature
Donald C Erickson	0230	Absorption Heat Pump Augmented Separation Process
Robert F Evans	0166	Borehole Angle Control
Robert F Evans	0182	Improved Seal for Geothermal Drill Bit
Robert F Evans	0211	Shock Mounted Stratapax Bit
Norman C Fawley	0208	CNG Automotive Fuel Cylinders/Gas Transport Modules
Norman C Fawley	0227	CRM Pipe
William M FioRito	0094	Lantz Converter
G R Fitterer	0018	The Control of the Analysis of Low Carbon Aluminum Steels Using Oxygen Sensors and Iron-Aluminum Alloy
G. R. Fitterer, President	0074	A Solid Electrolyte Galvanic Solar Energy Conversion Cell
Lloyd Flatland	0210	Ultra High Speed Drilling Device for Use in Hard Rock Formations
Dale Flickinger	0176	Self-Contained, Water Proof, Stoker Fired, Fully Automatic, Portable Solid Fuel Furnaces
Joe W Fowler	0045	Bulk Cure Tobacco Barn with Improvements
Fuel Injection Dev. Corp.	0122	Lean Limit Controller
Jonathan Gabel	0206	Method and Apparatus for High Efficiency Operation of Electromechanical Energy Conversion
Juan M Garcia, Junior	0246	Maximum Cruise Performance
Richard J Gay	0241	Polysulfide Oil Field Corrosion Control System
John D Gill	0164	Elastomer Energy Recovery Elements and Vehicle Component Applications
Richard P Gingras	0036	Computerstat
Paul Ginouves	0221	Strainercycle
Nathan Gold	0184	Coasting Fuel Shutoff
Meredith C Gourdine	0228	EGD Fog Dispersal System

TABLE 3-2 (cont.)

CONTACT	DOE NO.	TITLE
William D Gramling	0159	Non-Tubing Type Lift Device, Described as the NTT Rabbit
Thorvald G Granryd	0248	Dyna-Bite Traction Intensifier, Model Agri, for Agricultural Tractors or the Like
Gwyer Grimminger, Pres.	0224	Haile Alternate Fuel Grain Dryer
John Hair, III	0191	Rotary Heat Pump Air Conditioner, Heater and Ventilator for Automotive, Mobile and Stationary Use.
Ogden H Hammond	0149	SCOTCH - (Simple, Cost-Effective, Optimum Temperature Control for Housing)
John C. Haspert	0111	Haspert Mining System
John C Haspert	0188	Remote Controlled Underground Mining System for Horizontal or Pitching Seams
Louis A Hausknecht	0201	Hydraulic, Variable, Engine Valve Actuation System
Spencer Kim Haws	0168	The Hot Water Saver
Rhey Hedges	0187	Variable Field Induction Motor
Lester Hendrickson	0064	The Mahalla Process--A Hydrometallurgical Method for Extracting Copper
Lee A Henningsen	0065	WattVendor
H N Hensley	0217	Jointless Advanced Composite Material Tape for Operating Lift Pumps in Oil Wells
Ronald Hertzfeld	0186	Oil Recovery by In-Situ Exfoliation Drive
Ronald M Hertzfeld	0146	Line Integral Method of Magneto-Electric Exploration
David E Hicks	0237	Hicks Alter-Brake System/Electric Charging Apparatus for Ground Vehicles
Raymond P Holland Jr	0204	The Induction Propeller
Thomas P Hopper	0020	Thermal Shade
Werner E Howald	0048	Howald Combustor
Dennis D Howard	0163	Thermotropic Plastic Films
Hugh Huislander	0212	Water Warden
Richard Jablin	0075	Coke Quenching Steam Generator
Richard Jablin	0215	Slag Waste Heat Boiler
Gulab Chand Jain	0035	Utilization of Solar Energy by Solar Pond System
Seymour Jarmul	0026	Compact Energy Reservoir
Sherman R Jenney	0052	Air Wedge
Morris R Jeppson	0203	Microwave Methods and Apparatus for Paving and Paving Maintenance
R J Jones	0027	Waste Heat Utilization for Commercial Cooking Equipment
Charles G Kalt	0085	Dielectric Windowshade
Robert F Karlicek	0197	Frequency Regulator and Protective Devices for Synchronous Generators
Eskil L Karlson	0104	Low Continuous Energy Mass Separation System
Eskil L Karlson	0181	The Karlson Ozone Sterilizer
Clyde F Kaunitz	0213	The Kaunitz Process for Welding Pipe
H. W. Kennick	0109	Hydrostatic Meat Tenderizer
Garry R Kenny	0243	An Electronic/Pneumatic Ejector System for Producing an Aluminum Rich Concentrate from Municipal Waste
James E Kessler	0129	Super U System - Snap Strap
M Hossein Khorsand	0135	Point Focus Parabolic Solar Collector
Richard F Kiley	0216	Method and Assembly for Mounting a Semiconductor Element
Rees Kinney, Atty.	0091	Mine Brattice
Charles M Kirk	0058	A Multiple Spark System Using Inductive Storage
Michael Knezevich	0132	Process for Reclaiming and Upgrading Thin-Walled Malleable Waste Material

TABLE 3-2 (cont.)

CONTACT	DOE NO.	TITLE
Kenneth R Kurple	0232	Method of Separating Lignin and Making Epoxide-Lignin
Lawrence Ladin	0088	System-100
Murry S. Laskey	0061	Fuel Preparation Process
James H Lawler	0039	Lawler Steam Generator and Lawler System of Thermal Oil Recovery
W N Lawless	0190	Oxygen-Conducting Material and Oxygen-Sensing Method
Leon Lazare	0044	New Working Fluids for Increasing the Cycle Efficiencies of Thermal
Leon Lazare	0160	High Efficiency Absorption Refrigeration Cycle
Herbert G Lehmann	0022	Fuel Burner Attachment
Edward Levi	0199	Rotary Coal Combustor and Heat Exchangers
Donald C Lewis	0192	Closed Cycle Dehumidification Clothes Dryer
Yao Tzu Li	0202	Wobbling Type Distillation Apparatus
Ping-Wha Lin	0107	Waste Products Reclamation Process
Daniel A Lockie	0233	Mounted Steerable Ripper for Deep Soil Ripping and Subsoil Operations
Thomas LoGiudice	0063	Fluorobulb
Murray G Lowenthal	0001	Demand Metering System for Electric Energy
James E Luber	0023	Microgas Dispersions
David S Majkrzak	0152	Vehicle Exhaust Gas Warm-up System
Bernard Joseph Margowsky	0138	Phantom Tube
Alvin M Marks	0009	Heat/Electric Power Conversion via Charged Aerosols
Louis L Marton	0139	Transformer With Heat Dissipator
George E Mattson	0117	"Solarspan" Prism Trap
Kenneth E Mayo	0029	Tuned Sphere Stable Ocean Platforms
John McCallum	0038	Reduction Volatilizations
James W McCord	0077	Variable Heat Refrigeration System
James W McCord	0097	Water Drying System
Robert McNeill	0078	System for High Efficiency Power Generation from Low Temperature Sources
Albert L McQuillen, Jr	0157	Magnaseal Method and Means for Sealing Steel Ingot Casting Molds to Stools
Thomas R Mee	0170	Fog System - Low Energy Freeze Protection for Agriculture
Thomas M Meshbesher	0219	Method for Making Acetaldehyde from Ethanol
Anatol Michelson	0142	Process for Heatless Production of Hollow Items
Edward W Midlam	0150	The Use of Solid Waste Material from a Lubricating Oil and/or Vegetable Oil Refining Operation.
E. Stephen Miliaras	0183	Increased Vapor Generator Feature for a Reheat Vapor Generator
Everett Millard	0042	Flue Baffle Assembly
Drew W Morris	0024	Can and Bottle Crushing Apparatus
Ed Morris, President	0099	Light Weight Composite Trailer Tubes
Robert H Nealy	0198	The Thermatreat System
Edward A Griswold	0172	GEM Electrostatic Filtration System
Robert S Norris	0021	Waste Oil Utilization System
John W North	0178	Process and Apparatus for Producing Cellulated Vitreous Refractory Material
Kenneth W Odil	0084	Kinetic Energy Type Pumping System
Rita Paleschuck	0002	Fuel Miser
Richard D Palone	0055	Electrically Heated Sucker-Rod
C Richard Panico	0081	Flash Polymerization
Thaddeus Papis	0062	Tapered Plate Annular Matrix
Sidney A Parker	0043	Thermal Gradient Utilization Cycle
Thomas Neil Parker, Junior	0245	Improved Oil Well Pumping Unit

TABLE 3-2 (cont.)

CONTACT	DOE NO.	TITLE
Carl E Pearl	0153	A New Equipment Design Concept for Storage of Hot Foods
J. Paul Pemsler, President	0123	Comminution of Ores by a Low-Energy Process
Brad L Pfeifley	0244	CHARLIE - Trademark - Federally Registered 1123957
Clyde G Phillips	0115	Refrigeration System
Gene Plattner	0174	Skate on Plastic Ice Skating System
Lemuel Leslie Ply	0162	Tubular Pneumatic Conveyor Pipeline
Arnold R Post	0130	Furnace Input Capacity Trimming Switch
Mark Pridmore	0195	Proportional Current Battery
Paul F Pugh	0158	Energy Conservative Electric Cable System
James L Ramer	0106	Deep Shaft Hydro-Electric Power
Mister Raymo	0205	Energy Efficient Solid State Multiple Operator Metallic Arc Welding System
Clair H Reinbergen, Pres.	0019	Phenol Methylene Foam Rigid Board Insulation
Albert S Richardson, Jr.	0136	Windamper
Donald R Ross	0076	The Ross Furnace
John C Rupert	0134	Expanded Polystyrene Bead Insulation System
Thomas J Russo	0012	High Frequency Energy Saving Device
Stewart Ryan	0226	An Electronic Anemometer System for Locating Air-Infiltration Heat Leaks in Buildings
Melvin H Sachs	0073	INTECH
Charlton Sadler	0124	Solar Collector
Robert E Salomon	0145	Solar Conversion by Concentration Cells with Hydrides
Nicholas Archer Sanders	0193	Engine Heating Device
Robert C Saunders, Junior	0144	SpaCirc Space Circulation Fan
Karl D Scheffer	0126	Vaclaim
Daniel J Schneider	0014	Aerodynamic Lift Translator
Charles A Schwartz	0220	Deep Throat Resistance Welder
J D Seader	0127	Process and Apparatus to Produce Crude Oil from Tar Sands
J D Seader	0128	Continuous Distillation Apparatus and Method
David J Secunda	0046	Thexon Dehydration
SETRA Systems, Inc.	0151	Film Type Storm Window
W W Seward	0175	A Low-Energy Carpet Backing System
Raymond E. Shea, Jr	0225	ROVAC High Efficiency Low Pressure Air Conditioning System
Edward H Shelander	0093	Shelander-Burrows Process for Recovery of Metallic Values from Smelter Emissions
Samuel Shiber	0141	New Hydrostatic Transmission
Donald Shuler	0242	New Petersburg Beam Trawl
Edward Perry Sikes, Jr.	0054	Optimizer
Otis W Smith	0119	Air Ratio Controller (AERTROL)
Roderick L Smith	0118	Energy Adaptive Control of Precision Grinding
Ronald H Smith	0011	Solar Collector
Roland P Soule	0040	Improved Equipment and Process for Production of Blue Water Gas
Len Spelber	0007	Hydraulically Powered Waste Disposal Device
Roger Stamper	0092	Tri-Water, A Combination Air Conditioning and Fire Protection System for a Building.
Robert John Starr	0177	The Solar I Option
Kenneth A Stofen	0070	Air Cooled Compressor Heat Recovery and Heat Circulation System plus Ambient Air Filter and Air Cleaner
Patrick S Swihart, Senior	0249	Subsurface Flow Control (Gas Wells) and High Gas-Oil-Ratio Oil Wells
Wilford Dean Tannehill	0218	Behemoth
Ruel Carlton Terry	0087	Recovering Uranium From Coal in Situ

TABLE 3-2 (cont.)

CONTACT	DOE NO.	TITLE
Ruel Carlton Terry	0223	Minimizing Subsidence Effects during Production of Coal In Situ
Donald R Thomas	0222	Louver Trombe Solar Storage Unit
Carter Thompson	0169	MIRAFOUNT
Edward M Tourtelot	0229	Contoured Finger Follower Variable Valve-Timing Mechanism for Internal Combustion Engines
Shao-E Tung	0200	Removal of Sulfur Dioxide from the Stack Gas of Combustors Burning High Sulfur Fuel
Fred Tunmore	0008	Inertial Storage Transmission
Robert L Ullrich	0082	Cool Air Induction
Clinton Van Winkle	0090	Grain Dryer
Joseph B Vogt	0033	Temperature Indicating Device
Marvin L Wahrman	0079	Oil Well Bit Insert (Tooth), Cutting Article, Ablative
Henry J Wallace	0113	Wallace Mold Additive System
Ken Walmer	0030	Method of Removing Sulfur Dioxide from Flue Gases
Arleigh Wangler	0071	Knight Guard
H Roy Weber	0137	A Portable Pollution Free Automobile Incinerator
Roy J Weikert	0116	Model 5000 ASEPAK System
James B Whitmore	0121	Solar Space Heating for both Retrofit and New Construction
Hugh Edwin Whitted III	0250	A System to Adapt Diesel Engines to the Use of Crude Oils
Robert H Wieken	0057	X-5 Smoke Eliminator
Tony Wilhelm	0140	Counter Flow Dual Tube Heat Exchanger
Jack Winnick	0239	Electrochemical Separation and Concentration of Sulfur-Containing Gases from Gas Mixtures
Donald E Wise	0214	Convertible Flat/Drop Trailer
Douglas E Wood	0234	Geodesic Solar Paraboloid
Harry E Wood	0053	High Efficiency Water Heater
Harry E Wood	0238	Industrial and Residential Clothes Dryer Automatic Shut-Off at Dryness
Harrison Robert Woolworth	0010	Scrap Metal Preheating Method and Apparatus
Joseph C Yater	0004	Power Conversion of Energy Fluctuations
John W Yount	0209	Reclaiming Process for Resin Treated Fiberglass
Paul Zanoni	0112	Pump
Robert Zartarian	0120	Vapor Heat Transfer Commercial Griddle
Bernard Zimmern	0059	The Volumetric Gas Turbine
Michael F Zinn	0100	Solaroll
Allen D Zumbrunnen	0105	High Frequency Furnace

Table 3-3

RECOMMENDED INVENTIONS BY INVENTOR STATE

State/Inventor	DOE No.	Title
ALASKA		
Donald Shuler	0242	New Petersburg Beam Trawl
ARKANSAS		
Richard D & Chester Palone	0055	Electrically Heated Sucker-Rod
Floyd R Anderson	0096	Leavell, Vibrationless, Low Noise, High Efficiency, Pneumatic Percussion Tools and Air Compressor Systems
ARIZONA		
Shalom Mahalla	0064	The Mahalla Process--A Hydrometallurgical Method for Extracting Copper
Oscar Leonard Doellner	0194	Radiant Energy Power Source for Jet Aircraft
CALIFORNIA		
George C Austin	0005	Diesel Engine Conversion System for Gasoline Engines
David Virley	0007	Hydraulically Powered Waste Disposal Device
Ronald H Smith	0011	Solar Collector
R J Jones	0027	Waste Heat Utilization for Commercial Cooking Equipment
Lawrence E Bissell	0037	Hotwater Engine
James H Lawler	0039	Lawler Steam Generator and Lawler System of Thermal Oil Recovery
Wayne S Boals	0049	Automatic Control System for Water Heaters
Thaddeus Papis	0062	Tapered Plate Annular Matrix
Arleigh Wangler	0071	Knight Guard
Robert McNeill	0078	System for High Efficiency Power Generation from Low Temperature Sources
Marvin L Wahrman	0079	Oil Well Bit Insert, Cutting Article, Ablative
William M FioRito	0094	Lantz Converter
Oscar Weingart	0099	Light Weight Composite Trailer Tubes
John C Haspert	0111	Haspert Mining System
M Hossein Khorsand	0135	Point Focus Parabolic Solar Collector
Gerald R Seeman	0138	Phantom Tube
Louis L Marton	0139	Transformer With Heat Dissipator
Robert A Clay	0143	Oil Well Pump Jack
Carl E Pearl	0153	A New Equipment Design Concept for Storage of Hot Foods
Forrest E Chancellor	0154	Rotating Horsehead for Pumping Units
Paul F Pugh	0158	Energy Conservative Electric Cable System
Anthony A duPont	0161	duPont Connell Energy Coal Gasification Process
Thomas R Mee	0170	Fog System - Low Energy Freeze Protection for Agriculture
Edward A Griswold	0172	GEM Electrostatic Filtration System
Robert F Evans	0182	Improved Seal for Geothermal Drill Bit
Nathan Gold	0184	Coasting Fuel Shutoff
John C Haspert	0188	Remote Controlled Underground Mining System for Horizontal or Pitching Seams
Robert F Karlicek	0197	Frequency Regulator and Protective Devices for Synchronous Generators
Morris R Jeppson	0203	Microwave Methods and Apparatus for Paving and Paving Maintenance

TABLE 3-3 (cont.)

State/Inventor	DOE No.	Title
CALIFORNIA (cont.)		
Jonathan Gabel	0206	Method and Apparatus for High Efficiency Operation of Electromechanical Energy Conversion
Norman C Fawley	0208	CNG Automotive Fuel Cylinders/Gas Transport Modules
Lloyd Flatland	0210	Ultra High Speed Drilling Device for Use in Hard Rock Formations
Louis E Govear	0212	Water Warden
Curtis J Tanner	0217	Jointless Advanced Composite Material Tape for Operating Lift Pumps in Oil Wells
Norman C Fawley	0227	CRM Pipe
Daniel A Lockie	0233	Mounted Steerable Ripper for Deep Soil Ripping and Subsoil Operations
Jay R Royston	0240	All Steam Heated Sadiron for Commercial Use
COLORADO		
Ruel Carlton Terry	0087	Recovering Uranium From Coal in Situ
Ruel Carlton Terry	0223	Minimizing Subsidence Effects during Production of Coal In Situ
David E Hicks	0237	Hicks Alter-Brake System/Electric Charging Apparatus for Ground Vehicles
Charles E Robinson	0244	CHARLIE - Trademark - Federally Registered 1123957
CONNECTICUT		
Herbert G Lehmann	0022	Fuel Burner Attachment
Richard P Gingras	0036	Computerstat
Leon Lazare	0044	New Working Fluids for Increasing the Cycle Efficiencies of Thermal
Henry E Allen	0089	Continuous Casting Process and Apparatus
Paul Zanoni	0112	Pump
Henry Keep, Junior	0147	Railroad Switch Heater
Leon Lazare	0160	High Efficiency Absorption Refrigeration Cycle
DELAWARE		
Willing B Foulke	0061	Fuel Preparation Process
Clyde G Phillips	0115	Refrigeration System
Thomas M Meshbesher	0219	Method for Making Acetaldehyde from Ethanol
FLORIDA		
Hal Ellis	0034	Delphic Thermogenic Paint (Heat Film)
Charles M Kirk	0058	A Multiple Spark System Using Inductive Storage
Eldon L Asher	0119	Air Ratio Controller (AERTROL)
Charlton Sadler	0124	Solar Collector
Anatol Michelson	0142	Process for Heatless Production of Hollow Items
James J Dolan	0156	D-C Electrical Heat-Treatment of Continuous Metal Sheets in a Protective Atmosphere.
Louis W Parker	0187	Variable Field Induction Motor
Thomas C Edwards	0225	ROVAC High Efficiency Low Pressure Air Conditioning System

TABLE 3-3 (cont.)

State/Inventor	DOE No.	Title
GEORGIA		
Edward H Shelander	0093	Shelander-Burrows Process for Recovery of Metallic Values from Smelter Emissions
Den M Acres	0175	A Low-Energy Carpet Backing System
John W North	0178	Process and Apparatus for Producing Cellulated Vitreou Refractory Material
Jack Winnick	0239	Electrochemical Separation and Concentration of Sulfur-Containing Gases from Gas Mixtures
HAWAII		
H Roy Weber	0137	A Portable Pollution Free Automobile Incinerator
IDAHO		
Edwin E Eckberg	0103	Low Voltage Ionic Fluorescent Light Bulb
Edward B Connors	0167	Vaned Pipe for Pipeline Transport of Solids
IOWA		
William H Cone	0060	Electric Transport Refrigerator
Alex Rutshein, et al	0088	System-100
ILLINOIS		
Everett Millard	0042	Flue Baffle Assembly
John T Benton	0050	Scotsman Fuel Energizer
Roderick L Smith	0118	Energy Adaptive Control of Precision Grinding
F J Perhats	0133	AUTOTHERM Car Comfort System
Samuel Shiber	0141	New Hydrostatic Transmission
Cecil H Wolf	0185	Insulated Garage Door
Edward L Barrett	0195	Proportional Current Battery
Edward M Tourtelot	0229	Contoured Finger Follower Variable Valve-Timing Mechanism for Internal Combustion Engines
Thorvald G Granryd	0248	Dyna-Bite Traction Intensifier, Model Agri, for Agricultural Tractors or the Like
INDIANA		
Ping-Wha Lin	0107	Waste Products Reclamation Process
Michael Knezevich	0132	Process for Reclaiming and Upgrading Thin-Walled Malleable Waste Material
KENTUCKY		
James W McCord	0077	Variable Heat Refrigeration System
James Allen Bagby	0091	Mine Brattice
John L Carroll	0092	Tri-Water, A Combination Air Conditioning and Fire Protection System for a Building.
James W McCord	0097	Water Drying System
LOUISIANA		
Harry E Wood	0053	High Efficiency Water Heater
William P Boulet	0056	Flexaflo-The Wet Fuel Dryer
Edward W Midlam	0150	The Use of Solid Waste Material from a Lubricating Oil and/or Vegetable Oil Refining Operation.
Harry E Wood	0238	Industrial and Residential Clothes Dryer Automatic Shut-Off at Dryness

TABLE 3-3 (cont.)

State/Inventor	DOE No.	Title
MASSACHUSETTS		
Joseph C Yater	0004	Power Conversion of Energy Fluctuations
Robert S Norris	0021	Waste Oil Utilization System
William F Armitage, Jr.	0041	Fabrication of Photovoltaic Devices by Solid Phase Growth of Semi-conductors from Metal Layers
C Richard Panico	0081	Flash Polymerization
Charles G Kalt	0085	Dielectric Windowshade
John Mattson	0117	"Solarspan" Prism Trap
J Paul Pemsler	0123	Comminution of Ores by a Low-Energy Process
Albert S Richardson, Jr.	0136	Windamper
Ogden H Hammond	0149	SCOTCH - (Simple, Cost-Effective, Optimum Temperature Control for Housing)
Yao Tzu Li	0151	Film Type Storm Window
James M Cleary	0155	Slip Mining
Charles E Edwards	0179	Development and Commercialization of Low Cost, Non-Metallic, Solar Systems
E. Stephen Miliaras	0183	Increased Vapor Generator Feature for a Reheat Vapor Generator
Shao-E Tung	0200	Removal of Sulfur Dioxide from the Stack Gas of Combustors Burning High Sulfur Fuel
Yao Tzu Li	0202	Wobbling Type Distillation Apparatus
Richard F Kiley	0216	Method and Assembly for Mounting a Semiconductor Element
MARYLAND		
Willard Graves	0001	Demand Metering System for Electric Energy
Donald C Erickson	0003	Hydrogen Generation from Producer Gas by Oxidation-Reduction of Tin
Donald C Erickson	0025	Sulfur Removal from Producer Gas-High Temperature
Arnold R Post	0130	Furnace Input Capacity Trimming Switch
Robert C Saunders, Junior	0144	SpaCirc Space Circulation Fan
William D Gramling	0159	Non-Tubing Type Lift Device, Described as the NTT Rabbit
John D Gill	0164	Elastomer Energy Recovery Elements and Vehicle Component Applications
Richard E Dame	0180	Adjustable Solar Concentrator (ASC)
Milton Pravda	0191	Rotary Heat Pump A-C, Heater and Ventilator for Automotive, Mobile and Stationary Use.
Donald C Erickson	0230	Absorption Heat Pump Augmented Separation Process
MAINE		
Robert G Landry	0052	Air Wedge
Donald C Lewis	0192	Closed Cycle Dehumidification Clothes Dryer
MICHIGAN		
Int'l MGD Companies	0023	Microgas Dispersions
Joseph B Vogt	0033	Temperature Indicating Device
Melvin H Sachs	0073	INTECH
Sharad M Dave	0101	Controlled Combustion Engine
James B Whitmore	0121	Solar Space Heating for both Retrofit and New Construction
Edgar R Jordon	0131	Valve Deactuator for Internal Combustion Engines
Clyde F Kaunitz	0213	The Kaunitz Process for Welding Pipe
Kenneth R Kurple	0232	Method of Separating Lignin and Making Epoxide- Lignin

TABLE 3-3 (cont.)

State/Inventor	DOE No.	Title
MINNESOTA		
Robert H Wieken	0057	X-5 Smoke Eliminator
John C Rupert	0134	Expanded Polystyrene Bead Insulation System
W E Mattson	0140	Counter Flow Dual Tube Heat Exchanger
John D. Finnegan	0176	Self-Contained, Water Proof, Stoker Fired, Fully Automatic, Portable Solid Fuel Furnaces
MISSOURI		
Frank C Bernhard	0102	Method of Burning Residual Fuel Oil in Distillate Fuel Oil Burners
James L Ramer	0106	Deep Shaft Hydro-Electric Power
James E Kessler	0129	Super U System - Snap Strap
Mervin W Martin	0169	MIRAFOUNT
E O Nathaniel	0174	Skate on Plastic Ice Skating System
Charles B James	0205	Energy Efficient Solid State Multiple Operator Metallic Arc Welding System
Juan M Garcia, Junior	0246	Maximum Cruise Performance
NORTH CAROLINA		
Dante A Raponi	0015	Estacron
Joe W Fowler	0045	Bulk Cure Tobacco Barn with Improvements
Richard Jablin	0075	Coke Quenching Steam Generator
John W Yount	0209	Reclaiming Process for Resin Treated Fiberglass
Richard Jablin	0215	Slag Waste Heat Boiler
Hugh Edwin Whitted III	0250	A System to Adapt Diesel Engines to the Use of Crude Oils
NORTH DAKOTA		
David S Majkrzak	0152	Vehicle Exhaust Gas Warm-up System
NEBRASKA		
Clinton Van Winkle	0090	Grain Dryer
John A Eastin	0196	Manufacturing and Using Nitrogen Fertilizer Solutions on a Farm
Jack D Haile	0224	Haile Alternate Fuel Grain Dryer
NEW HAMPSHIRE		
Thomas P Hopper	0020	Thermal Shade
Kenneth E Mayo	0029	Tuned Sphere Stable Ocean Platforms
Robert A Caughey	0032	Wood Gas Reactor
James A Browning	0067	Windmill Using Hydraulic System for Energy Transfer and Speed Control
NEW JERSEY		
David J Secunda	0046	Thexon Dehydration
Enoch J Durbin	0069	Ionic Fuel Control System for the Internal Combustion Engine
Robert Zartarian	0120	Vapor Heat Transfer Commercial Griddle
Ervin Leshner	0122	Lean Limit Controller
Frank W Bailey	0125	The Turbulator Burner System
Karakian Bedrosian	0171	A Method of Preserving Fruits and Vegetables without Refrigeration

TABLE 3-3 (cont.)

State/Inventor	DOE No.	Title
NEW MEXICO		
Robert L Ullrich	0082	Cool Air Induction
Raymond P Holland Jr	0204	The Induction Propeller
Guy R B Elliott	0231	Natural Gas from Deep-Brine Solutions
Patrick S Swihart, Senior	0249	Subsurface Flow Control (Gas Wells) and High Gas-Oil-Ratio Oil Wells
NEW YORK		
Rita Paleschuck	0002	Fuel Miser
Albert B Csonka	0006	Micro-Carburetor
Alvin M Marks	0009	Heat/Electric Power Conversion via Charged Aerosols
Frank R Summa	0012	High Frequency Energy Saving Device
Walter J Hasselman, Jr	0019	Phenol Methylene Foam Rigid Board Insulation
Seymour Jarmul	0026	Compact Energy Reservoir
Roland P Soule	0040	Improved Equipment and Process for Production of Blue Water Gas
Richard B Bentley	0051	Thermal Efficiency Construction
Thomas LoGiudice	0063	Fluorobulb
Philip Zacuto	0066	Heat Extractor
Michael F Zinn	0100	Solaroll
Paul J Cromwell	0108	Processing Recovery of Aluminum
Karl D Scheffer	0126	Vaclaim
Rudolf O Iverson	0221	Strainercycle
Ronald E Brandon	0236	Steam Turbine Packing Ring
OHIO		
Gilbert W Didion	0028	Ultraflo
John McCallum	0038	Reduction Volatilizations
Werner E Howald	0048	Howald Combustor
Patsie C Campana	0080	Improved Unfired Refractory Brick
James L Chill	0098	Process Development to Conserve Energy and Material-(in the manufacture of)---Bearings
Roy J Weikert	0116	Model 5000 ASEPAK System
Leonard A Duval	0148	Reclamation of Oil and High-Grade Iron Concentrates from Steel Mill Wastes
W N Lawless	0190	Oxygen-Conducting Material and Oxygen-Sensing Method
Louis A Hausknecht	0201	Hydraulic, Variable, Engine Valve Actuation System
Charles A Schwartz	0220	Deep Throat Resistance Welder
OKLAHOMA		
Karl H. Bergey	0110	Improved Windpower Generating System
Gerald Eastman	0189	Pump Jack
Stewart Ryan	0226	An Electronic Anemometer System for Locating Air-Infiltration Heat Leaks in Buildings
Thomas Neil Parker, Junior	0245	Improved Oil Well Pumping Unit
OREGON		
Vincent E Carman	0008	Inertial Storage Transmission
H. W. Kennick	0109	Hydrostatic Meat Tenderizer
Donald E Wise	0214	Convertible Flat/Drop Trailer

TABLE 3-3 (cont.)

State/Inventor	DOE No.	Title
PENNSYLVANIA		
G R Fitterer	0018	The Control of the Analysis of Low Carbon Aluminum Steels Using Oxygen Sensors and Iron-Aluminum Alloy
Leopold Pessel	0030	Method of Removing Sulfur Dioxide from Flue Gases
Paul H Schweitzer	0054	Optimizer
Lee A Henningsen	0065	WattVendor
G R Fitterer	0074	A Solid Electrolyte Galvanic Solar Energy Conversion Cell
Val O Bertoia	0095	Omni-Horizontal Axis-Wind Turbine
Eskil L Karlson	0104	Low Continuous Energy Mass Separation System
Henry J Wallace	0113	Wallace Mold Additive System
Robert E Salomon	0145	Solar Conversion by Concentration Cells with Hydrides
Albert L McQuillen, Jr	0157	Magnaseal Method and Means for Sealing Steel Ingot Casting Molds to Stools
Dennis D Howard	0163	Thermotropic Plastic Films
Bill Burley	0173	Thermal Ice Cap
Eskil L Karlson	0181	The Karlson Ozone Sterilizer
Robert H Nealy	0198	The Thermatreat System
Jay E Ort	0235	Single Stage Anaerobic Digestion Process
Nathan Cohn	0247	Energy Conservation by Improved Control of Bulk Power Transfers on Interconnected Systems
SOUTH DAKOTA		
John W Bruce	0016	Method and Apparatus for Vacuum Drying of Commodities
TENNESSEE		
Edward J Sommer, Junior	0243	An Electronic/Pneumatic Ejector System for Producing an Aluminum Rich Concentrate from Municipal Waste
TEXAS		
Daniel J Schneider	0014	Aerodynamic Lift Translator
Sidney A Parker	0043	Thermal Gradient Utilization Cycle
Joe Agar	0072	Utilization of Waste Gas for Boilers and Furnaces in Refineries and Petrochemical Plants
Donald R Ross	0076	The Ross Furnace
Kenneth W Odil	0084	Kinetic Energy Type Pumping System
Sylvain J Pirson	0146	Line Integral Method of Magneto-Electric Exploration
Lemuel Leslie Ply	0162	Tubular Pneumatic Conveyor Pipeline
Wu-Chi Chen	0165	Process for Recovering Hydrogen and Elemental Sulfur from Hydrogen Sulfide and/or Mercaptans-Containing Hydrogen
Robert F Evans	0166	Borehole Angle Control
Sylvain J Pirson	0186	Oil Recovery by In-Situ Exfoliation Drive
Robert F Evans	0211	Shock Mounted Stratapax Bit
Wilford Dean Tannehill	0218	Behemoth
Meredith C Gourdine	0228	EGD Fog Dispersal System
Richard J Gay	0241	Polysulfide Oil Field Corrosion Control System
UTAH		
Douglas MacGregor	0086	Coke Desulfurization
Allen D Zumbrunnen	0105	High Frequency Furnace
J D Seader	0127	Process and Apparatus to Produce Crude Oil from Tar Sands
J D Seader	0128	Continuous Distillation Apparatus and Method

TABLE 3-3 (cont.)

State/Inventor	DOE No.	Title
VIRGINIA		
Ranendra K Bose	0013	Anti-Pollution System
David W Doyle	0017	Osmotic-Hydro Power Generation
James C Withers	0031	Ceramic Rotors and Vanes
Leroy M Bissett	0068	Under Compression and Over Compression Free Helical Screw Rotary Compressor
Charles James Bier	0083	Vertical Solar Louvers
VERMONT		
Robert John Starr	0177	The Solar I Option
Nicholas Archer Sanders	0193	Engine Heating Device
Donald R Thomas	0222	Louver Trombe Solar Storage Unit
WASHINGTON		
Harrison Robert Woolworth	0010	Scrap Metal Preheating Method and Apparatus
Spencer Kim Haws	0168	The Hot Water Saver
Douglas E Wood	0234	Geodesic Solar Paraboloid
WISCONSIN		
Robert M Arthur	0047	Wastewater Aeration Power Control Device
Kenneth A Stofen	0070	Air Cooled Compressor Heat Recovery and Heat Circulation System plus Ambient Air Filter and Air Cleaner
WEST VIRGINIA		
Frank L Anderson	0207	Glass Sheet Manufacturing Method and Apparatus
		FOREIGN COUNTRIES
Drew W Morris	0024	Can and Bottle Crushing Apparatus
INDIA		
Gulab Chand Jain	0035	Utilization of Solar Energy by Solar Pond System
FRANCE		
Bernard Zimmern	0059	The Volumetric Gas Turbine
ITALY		
Renato Monzini	0114	New Energy-Saving Tire for Motor Vehicles
SCOTLAND		
John Hunter	0199	Rotary Coal Combustor and Heat Exchangers

Table 3-4

RECOMMENDED INVENTIONS BY INVENTION CLASSIFICATION

CLASSIF.	DOE NO.	TITLE
1.00000		FUELS AND LUBRICANTS ACQUISITION, PRODUCTION, DISTRIBUTION
	0032	Wood Gas Reactor
1.01000		GEOPHYSICAL PROSPECTING
	0210	Ultra High Speed Drilling Device for Use in Hard Rock Formations
1.11000		COAL
	0086	Coke Desulfurization
	0091	Mine Brattice
	0111	Haspert Mining System
	0155	Slip Mining
	0188	Remote Controlled Underground Mining System for Horizontal or Pitching Seams
1.11300		GREATER RESOURCE RECOVERY METHODS (COAL)
	0223	Minimizing Subsidence Effects during Production of Coal In Situ
1.12000		OIL
	0029	Tuned Sphere Stable Ocean Platforms
	0055	Electrically Heated Sucker-Rod
	0079	Oil Well Bit Insert (Tooth), Cutting Article, Ablative
	0127	Process and Apparatus to Produce Crude Oil from Tar Sands
	0128	Continuous Distillation Apparatus and Method
	0143	Oil Well Pump Jack
	0146	Line Integral Method of Magneto-Electric Exploration
	0154	Rotating Horsehead for Pumping Units
	0159	Non-Tubing Type Lift Device, Described as the NTT Rabbit
	0166	Borehole Angle Control
	0186	Oil Recovery by In-Situ Exfoliation Drive
	0211	Shock Mounted Stratapax Bit
	0217	Jointless Advanced Composite Material Tape for Operating Lift Pumps in Oil Wells
	0241	Polysulfide Oil Field Corrosion Control System
	0249	Subsurface Flow Control (Gas Wells) and High Gas- Oil-Ratio Oil Wells
1.14000		NATURAL GAS
	0088	System-100
	0208	CNG Automotive Fuel Cylinders/Gas Transport Modules
	0231	Natural Gas from Deep-Brine Solutions
1.20000		ALTERNATE FUELS
	0023	Microgas Dispersions
	0039	Lawler Steam Generator and Lawler System of Thermal Oil Recovery
	0040	Improved Equipment and Process for Production of Blue Water Gas
	0161	duPont Connell Energy Coal Gasification Process
	0224	Haile Alternate Fuel Grain Dryer
1.23000		HYDROGEN
	0003	Hydrogen Generation from Producer Gas by Oxidation- Reduction of Tin
	0165	Process for Recovering Hydrogen and Elemental Sulfur from Hydrogen Sulfide and/or Mercaptans-Containing Hydrogen

TABLE 3-4 (cont.)

CLASSIF.	DOE NO.	TITLE
1.26000		FUEL CELLS
	0276	Gas Concentration Cells as Converters of Heat into Electrical Energy
1.28000		BIOENGINEERING AND MEDICAL
	0235	Single Stage Anaerobic Digestion Process
2.00000		ENERGY CONVERSION FROM NATURAL SOURCES(NOT INCLUDED IN SUBS. 2 SERIES)
	0017	Osmotic-Hydro Power Generation
	0078	System for High Efficiency Power Generation from Low Temperature Sources
2.10000		SOLAR COLLECTORS
	0004	Power Conversion of Energy Fluctuations
	0011	Solar Collector
	0035	Utilization of Solar Energy by Solar Pond System
	0041	Fabrication of Photovoltaic Devices by Solid Phase Growth of Semi-conductors from Metal Layers
	0074	A Solid Electrolyte Galvanic Solar Energy Conversion Cell
	0100	Solaroll
	0117	"Solarspan" Prism Trap
	0121	Solar Space Heating for both Retrofit and New Construction
	0124	Solar Collector
	0135	Point Focus Parabolic Solar Collector
	0145	Solar Conversion by Concentration Cells with Hydrides
	0177	The Solar I Option
	0179	Development and Commercialization of Low Cost, Non- Metallic, Solar Systems
	0180	Adjustable Solar Concentrator (ASC)
	0222	Louver Trombe Solar Storage Uni
	0234	Geodesic Solar Paraboloid
2.20000		GEOTHERMAL
	0182	Improved Seal for Geothermal Drill Bit
2.40000		WIND
	0014	Aerodynamic Lift Translator
	0067	Windmill Using Hydraulic System for Energy Transfer and Speed Control
	0095	Omni-Horizontal Axis-Wind Turbine
	0110	Improved Windpower Generating System
2.50000		WATER POWER PROCESSES (INLAND)
	0197	Frequency Regulator and Protective Devices for Synchronous Generators
3.00000		ENERGY CONVERSION FROM SECONDARY SOURCES
	0043	Thermal Gradient Utilization Cycle
	0009	Heat/Electric Power Conversion via Charged Aerosols
	0037	Hotwater Engine
	0062	Tapered Plate Annular Matrix
	0077	Variable Heat Refrigeration System
3.10000		COMBUSTION ENGINES AND COMPONENTS THEREOF
	0048	Howald Combustor
3.11000		RECIPROCAL ENGINES, MECHANICAL
	0005	Diesel Engine Conversion System for Gasoline Engines
	0054	Optimizer
	0101	Controlled Combustion Engine
	0122	Lean Limit Controller
	0131	Valve Deactuator for Internal Combustion Engines
	0229	Contoured Finger Follower Variable Valve-Timing Mechanism for Internal Combustion Engines

TABLE 3-4 (cont.)

CLASSIF.	DOE NO.	TITLE
3.13000		TURBINE ENGINES, MECHANICAL
	0031	Ceramic Rotors and Vanes
	0059	The Volumetric Gas Turbine
3.14000		FUEL SYSTEMS, MECHANICAL
	0006	Micro-Carburetor
	0069	Ionic Fuel Control System for the Internal Combustion Engine
	0250	A System to Adapt Diesel Engines to the Use of Crude Oils
3.14100		CARBURETORS AND MODIFICATIONS THEREOF
	0050	Scotsman Fuel Energizer
	0184	Coasting Fuel Shutoff
3.20000		STEAM ENGINES AND TURBINES, MECHANICAL
	0096	Leavell, Vibrationless, Low Noise, High Efficiency, Pneumatic Percussion Tools and Air Compressor Systems
	0236	Steam Turbine Packing Ring
3.30000		AIR COMPRESSORS AND MOTORS
	0070	Air Cooled Compressor Heat Recovery and Heat Circulation System plus Ambient Air Filter and Air Cleaner
3.40000		HYDRAULIC PUMPS AND MOTORS
	0112	Pump
	0189	Pump Jack
	0245	Improved Oil Well Pumping Unit
3.50000		ELECTRIC MOTORS AND GENERATORS
	0060	Electric Transport Refrigerator
	0106	Deep Shaft Hydro-Electric Power
	0187	Variable Field Induction Motor
	0206	Method and Apparatus for High Efficiency Operation of Electromechanical Energy Conversion
	0216	Method and Assembly for Mounting a Semiconductor Element
3.60000		CHEMICAL THERMODYNAMICS
	0219	Method for Making Acetaldehyde from Ethanol
3.80000		HEAT PUMPS AND REFRIGERATION
	0044	New Working Fluids for Increasing the Cycle Efficiencies of Thermal
4.00000		ENERGY STORAGE AND DISTRIBUTION
	0227	CRM Pipe
4.11000		ELECTRICAL STORAGE (BATTERIES)
	0195	Proportional Current Battery
4.12000		ELECTRICAL DISTRIBUTION (TRANSFORMERS, SWITCHGEARS, CONTROLS)
	0136	Windamper
	0139	Transformer With Heat Dissipator
	0158	Energy Conservative Electric Cable System
	0247	Energy Conservation by Improved Control of Bulk Power Transfers on Interconnected Systems
4.30000		THERMAL ENERGY STORAGE
	0026	Compact Energy Reservoir

TABLE 3-4 (cont.)

CLASSIF.	DOE NO.	TITLE
5.10000		AIR TRANSPORTATION
	0194	Radiant Energy Power Source for Jet Aircraft
	0228	EGD Fog Dispersal System
	0246	Maximum Cruise Performance
5.20000		WATER TRANSPORTATION
	0204	The Induction Propeller
5.30000		RAIL TRANSPORTATION
	0147	Railroad Switch Heater
5.40000		HIGHWAY VEHICLES AND SYSTEMS
	0099	Light Weight Composite Trailer Tubes
	0214	Convertible Flat/Drop Trailer
5.42000		VEHICULAR POWER SYSTEMS
	0058	A Multiple Spark System Using Inductive Storage
5.42100		COMBUSTION ENGINE VEHICLES
	0013	Anti-Pollution System
5.43000		VEHICULAR COMPONENTS
	0133	AUTOTHERM Car Comfort System
	0152	Vehicle Exhaust Gas Warm-up System
	0193	Engine Heating Device
	0201	Hydraulic, Variable, Engine Valve Actuation System
	0237	Hicks Alter-Brake System/Electric Charging Apparatus for Ground Vehicles
5.43100		VEHICLE TRANSMISSIONS
	0008	Inertial Storage Transmission
	0141	New Hydrostatic Transmission
5.43200		VEHICLE BRAKING SYSTEMS (INCLUDES REGEN. BRAKING SYSTEMS, ETC.)
	0164	Elastomer Energy Recovery Elements and Vehicle Component Applications
	0244	CHARLIE - Trademark - Federally Registered #1123957
5.43300		VEHICLE WHEELS AND TIRES
	0114	New Energy-Saving Tire for Motor Vehicles
5.43500		VEHICLE BODY AND CHASSIS DESIGN
	0052	Air Wedge
5.43800		VEHICLE AIR CONDITIONING
	0225	ROVAC High Efficiency Low Pressure Air Conditioning System
6.10000		DESIGN, CONSTRUCTION AND CONSTRUCTION PRACTICES
	0051	Thermal Efficiency Construction
	0073	INTECH
	0083	Vertical Solar Louvers
6.20000		HEATING, COOLING, VENTILATING
	0068	Under Compression and Over Compression Free Helical Screw Rotary Compressor
	0092	Tri-Water, A Combination A-C and Fire Protection System for a Building.
	0163	Thermotropic Plastic Films
	0174	Skate on Plastic Ice Skating System
	0191	Rotary Heat Pump Air Conditioner, Heater and Ventilator for Automotive, Mobile and Stationary Use.
	0221	Strainercycle

TABLE 3-4 (cont.)

CLASSIF.	DOE NO.	TITLE
6.20100		HEATING, COOLING, AND VENTILATING INSTRUMENTS AND CONTROLS
	0002	Fuel Miser
	0033	Temperature Indicating Device
	0036	Computerstat
	0149	SCOTCH - (Simple, Cost-Effective, Optimum Temperature Control for Housing)
	0226	An Electronic Anemometer System for Locating Air- Infiltration Heat Leaks in Buildings
6.23000		BOILERS AND FURNACES (INDUSTRIAL)
	0053	High Efficiency Water Heater
	0057	X-5 Smoke Eliminator
	0130	Furnace Input Capacity Trimming Switch
	0176	Self-Contained, Water Proof, Stoker Fired, Fully Automatic, Portable Solid Fuel Furnaces
	0199	Rotary Coal Combustor and Heat Exchangers
	0215	Slag Waste Heat Boiler
6.23100		BOILER AND FURNACE FLUE HEAT RECOVERY
	0027	Waste Heat Utilization for Commercial Cooking Equipment
	0042	Flue Baffle Assembly
	0125	The Turbulator Burner System
6.23200		BOILER AND FURNACE AIR AND OXYGEN INDUCTORS AND INJECTORS
	0022	Fuel Burner Attachment
6.23400		BOILER AND FURNACE OIL BURNERS
	0102	Method of Burning Residual Fuel Oil in Distillate Fuel Oil Burners
6.24000		ELECTRIC HEAT
	0034	Delphic Thermogenic Paint (Heat Film)
6.25000		HEAT PUMPS
	0230	Absorption Heat Pump Augmented Separation Process
6.26000		AIR CONDITIONING & REFRIGERATION
	0160	High Efficiency Absorption Refrigeration Cycle
6.27000		VENTILATING SYSTEMS
	0144	SpaCirc Space Circulation Fan
6.30000		HOT WATER SUPPLY
	0168	The Hot Water Saver
6.32000		HOT WATER CONSERVATION DEVICES AND PRACTICES
	0028	Ultraflo
	0049	Automatic Control System for Water Heaters
6.40000		INSULATION AND INSULATING PRACTICES
	0015	Estacron
	0019	Phenol Methylene Foam Rigid Board Insulation
	0020	Thermal Shade
	0085	Dielectric Windowshade
	0129	Super U System - Snap Strap
	0134	Expanded Polystyrene Bead Insulation System
	0151	Film Type Storm Window
	0173	Thermal Ice Cap
	0185	Insulated Garage Door
	0209	Reclaiming Process for Resin Treated Fiberglass

TABLE 3-4 (cont.)

CLASSIF.	DOE NO.	TITLE
6.50000		ELECTRICAL WIRING AND FIXTURES
	0012	High Frequency Energy Saving Device
	0063	Fluorobulb
	0071	Knight Guard
	0103	Low Voltage Ionic Fluorescent Light Bulb
6.60000		PLUMBING AND FIXTURES
	0212	Water Warden
7.00000		INDUSTRIAL PROCESSES
	0010	Scrap Metal Preheating Method and Apparatus
	0016	Method and Apparatus for Vacuum Drying of Commodities
	0018	The Control of the Analysis of Low Carbon Aluminum Steels Using Oxygen Sensors and Iron-Aluminum Alloy
	0021	Waste Oil Utilization System
	0024	Can and Bottle Crushing Apparatus
	0025	Sulfur Removal from Producer Gas-High Temperature
	0030	Method of Removing Sulfur Dioxide from Flue Gases
	0038	Reduction Volatilizations
	0045	Bulk Cure Tobacco Barn with Improvements
	0046	Thexon Dehydration
	0047	Wastewater Aeration Power Control Device
	0056	Flexaflo-The Wet Fuel Dryer
	0061	Fuel Preparation Process
	0064	The Mahalla Process--A Hydrometallurgical Method for Extracting Copper
	0066	Heat Extractor
	0072	Utilization of Waste Gas for Boilers and Furnaces in Refineries and Petrochemical Plants
	0075	Coke Quenching Steam Generator
	0076	The Ross Furnace
	0080	Improved Unfired Refractory Brick
	0081	Flash Polymerization
	0084	Kinetic Energy Type Pumping System
	0087	Recovering Uranium From Coal in Situ
	0089	Continuous Casting Process and Apparatus
	0093	Shelander-Burrows Process for Recovery of Metallic Values from Smelter Emissions
	0094	Lantz Converter
	0097	Water Drying System
	0098	Process Development to Conserve Energy and Material- --(in the manufacture of)---Bearings
	0105	High Frequency Furnace
	0107	Waste Products Reclamation Process
	0108	Processing Recovery of Aluminum
	0113	Wallace Mold Additive System
	0116	Model 5000 ASEPAK System
	0118	Energy Adaptive Control of Precision Grinding
	0119	Air Ratio Controller (AERTROL)
	0123	Comminution of Ores by a Low-Energy Process
	0126	Vaclaim
	0132	Process for Reclaiming and Upgrading Thin-Walled Malleable Waste Material
	0137	A Portable Pollution Free Automobile Incinerator
	0142	Process for Heatless Production of Hollow Items
	0148	Reclamation of Oil and High-Grade Iron Concentrates from Steel Mill Wastes
	0150	The Use of Solid Waste Material from a Lubricating Oil and/or Vegetable Oil Refining Operation.
	0156	Direct-Current Electrical Heat-Treatment of Continuous Metal Sheets in a Protective Atmosphere.
	0157	Magnaseal Method and Means for Sealing Steel Ingot Casting Molds to Stools

TABLE 3-4 (cont.)

CLASSIF.	DOE NO.	TITLE
7.00000		INDUSTRIAL PROCESSES (cont.)
	0162	Tubular Pneumatic Conveyor Pipeline
	0167	Vaned Pipe for Pipeline Transport of Solids
	0172	GEM Electrostatic Filtration System
	0175	A Low-Energy Carpet Backing System
	0178	Process and Apparatus for Producing Cellulated Vitreous Refractory Material
	0183	Increased Vapor Generator Feature for a Reheat Vapor Generator
	0196	Manufacturing and Using Nitrogen Fertilizer Solutions on a Farm
	0198	The Thermatreat System
	0200	Removal of Sulfur Dioxide from the Stack Gas of Combustors Burning High Sulfur Fuel
	0205	Energy Efficient Solid State Multiple Operator Metallic Arc Welding System
	0213	The Kaunitz Process for Welding Pipe
	0220	Deep Throat Resistance Welder
	0232	Method of Separating Lignin and Making Epoxide- Lignin
	0239	Electrochemical Separation and Concentration of Sulfur-Containing Gases from Gas Mixtures
7.01700		MISCELLANEOUS - DESALINIZATION - ELECTROLYSIS
	0243	An Electronic/Pneumatic Ejector System for Producing an Aluminum Rich Concentrate from Municipal Waste
7.03000		FOOD, FEEDS, LEATHER, FURS, FEATHERS, ETC.
	0242	New Petersburg Beam Trawl
7.06000		PETROLEUM, OIL AND NATURAL GAS INDUSTRIES
	0218	Behemoth
7.10000		CIVIL ENGINEERING
	0203	Microwave Methods and Apparatus for Paving and Paving Maintenance
7.20000		AGRICULTURE EQUIPMENT AND FARM EQUIPMENT
	0082	Cool Air Induction
	0090	Grain Dryer
	0140	Counter Flow Dual Tube Heat Exchanger
	0169	MIRAFOUNT
	0170	Fog System - Low Energy Freeze Protection for Agriculture
	0171	A Method of Preserving Fruits and Vegetables without Refrigeration
	0233	Mounted Steerable Ripper for Deep Soil Ripping and Subsoil Operations
	0248	Dyna-Bite Traction Intensifier, Model Agri, for Agricultural Tractors or the Like
8.10000		CONSUMER EDUCATION AND BEHAVIOR
	0001	Demand Metering System for Electric Energy
8.20000		APPLIANCES
	0007	Hydraulically Powered Waste Disposal Device
	0120	Vapor Heat Transfer Commercial Griddle
	0153	A New Equipment Design Concept for Storage of Hot Foods
	0192	Closed Cycle Dehumidification Clothes Dryer
	0238	Industrial and Residential Clothes Dryer Automatic Shut-Off at Dryness
	0240	All Steam Heated Sadiron for Commercial Use
8.40000		LAMPS AND LIGHT BULBS (6.5 FOR LIGHTING FIXTURES)
	0138	Phantom Tube
	0274	Flexible Lighting - Fluorescent Lighting Operating at Radio Frequency

TABLE 3-4 (cont.)

CLASSIF.	DOE NO.	TITLE
9.00000		MISCELLANEOUS
	0104	Low Continuous Energy Mass Separation System
	0109	Hydrostatic Meat Tenderizer
	0115	Refrigeration System
	0181	The Karlson Ozone Sterilizer
	0190	Oxygen-Conducting Material and Oxygen-Sensing Method
	0202	Wobbling Type Distillation Apparatus
9.51000		ELECTRICAL DEMAND, OVERLOAD OR CONSUMPTION INDICATORS
	0065	WattVendor

APPENDIX A

INVENTION CLASSIFICATIONS

CODE	TITLE
1.00000	FUELS AND LUBRICANTS ACQUISITION, PRODUCTION, DISTRIBUTION
1.01000	GEOPHYSICAL PROSPECTING
1.10000	FOSSIL FUELS
1.11000	COAL
1.11100	COAL LIQUIFICATION
1.11200	COAL GASIFICATION
1.11300	GREATER RESOURCE RECOVERY METHODS
1.11400	GREATER RESOURCE RECOVERY EQUIP.
1.12000	OIL
1.12100	GREATER RESOURCE RECOVERY METHODS
1.12200	GREATER RESOURCE RECOVERY EQUIP.
1.12300	OIL AND GAS WELL PUMPS AND DRILLS
1.12400	OIL AND GAS PIPELINES
1.13000	OIL SHALE
1.13100	TAR SANDS
1.14000	NATURAL GAS
1.14100	CHEMICAL CONVERSION OF GAS TO LIQUIDS
1.20000	ALTERNATE FUELS
1.21000	PROPANE
1.22000	METHANE
1.23000	HYDROGEN
1.24000	ALCOHOLS
1.25000	HYBRID FUELS
1.26000	FUEL CELLS
1.27000	FUEL ADDITIVES
1.28000	BIOENGINEERING AND MEDICAL
1.28100	BIOMASS
1.29000	MISCELLANEOUS SYNTHETIC PROCESSES
1.30000	GREASES AND LUBRICANTS
1.40000	REFINED PETROLEUM PRODUCTS AND ADDITIVES
2.00000	ENERGY CONVERSION FROM NATURAL SOURCES (NOT INCLUDED BELOW)
2.10000	SOLAR COLLECTORS
2.11000	SOLAR TO DIRECT MECHANICAL ENERGY
2.12000	SOLAR ELECTRIC POWER GENERATING SYSTEMS
2.13000	PHOTOVOLTAIC DEVICES
2.14000	SOLAR CONCENTRATORS - PHOTOVOLTAIC
2.15000	SOLAR CONCENTRATORS - THERMAL
2.20000	GEOTHERMAL
2.21000	ELECTRICAL POWER GENERATION
2.30000	OCEAN THERMAL
2.40000	WIND
2.41000	WIND DRIVEN MOTORS & COMPONENTS
2.42000	WIND PROCESSES USING ENERGY FROM WIND
2.50000	WATER POWER PROCESSES (INLAND)
2.51000	ELECTRICAL POWER GENERATION BY WATER POWER (INLAND)
2.60000	OCEAN WATER POWER
2.61000	WAVE POWER SYSTEMS
2.62000	TIDAL POWER SYSTEMS
2.63000	OCEAN CURRENT POWER SYSTEMS
3.00000	ENERGY CONVERSION FROM SECONDARY SOURCES (NOT INCLUDED BELOW)
3.01000	ENERGY CONVERSION FROM SECONDARY SOURCES - THERMODYNAMICS
3.10000	COMBUSTION ENGINES AND COMPONENTS
3.10100	STIRLING ENGINES, MECHANICAL
3.10110	STIRLING ENGINES, THERMO
3.11000	RECIPROCAL ENGINES, MECHANICAL
3.11100	RECIPROCAL ENGINES, THERMO
3.12000	ROTARY ENGINES, MECHANICAL
3.12100	ROTARY ENGINES, THERMO
3.13000	TURBINE ENGINES, MECHANICAL
3.13100	TURBINE ENGINES, THERMO
3.14000	FUEL SYSTEMS, MECHANICAL
3.14100	CARBURETORS AND MODIFICATIONS
3.14200	FUEL INJECTORS
3.14300	WATER INJECTORS
3.14400	MULTI-FUEL MIXERS
3.14500	AIR AND OXYGEN INJECTION
3.14600	COMBUSTION ANALYZERS
3.15000	IGNITION SYSTEMS
3.20000	STEAM ENGINES AND TURBINES, MECHANICAL
3.21000	STEAM ENGINES AND TURBINES, THERMO
3.30000	AIR COMPRESSORS AND MOTORS
3.40000	HYDRAULIC PUMPS AND MOTORS
3.50000	ELECTRIC MOTORS AND GENERATORS
3.51000	MISCELLANEOUS ELECTRIC POWER GENERATING SYSTEM
3.60000	CHEMICAL THERMODYNAMICS
3.61000	PHOTO CHEMICAL
3.70000	MECHANICAL THERMODYNAMICS
3.80000	HEAT PUMPS AND REFRIGERATION
3.90000	HIGHWAY POWER GENERATORS
4.00000	ENERGY STORAGE AND DISTRIBUTION (NOT INCLUDED BELOW)
4.10000	ELECTRICAL TRANSMISSION
4.11000	ELECTRICAL STORAGE (BATTERIES)
4.12000	ELECTRICAL DISTRIBUTION (TRANSFORMERS, SWITCHGEARS, CONTROLS)
4.20000	MECHANICAL ELECTRICAL GENERATION, STORAGE, DISTRIBUTION
4.30000	THERMAL ENERGY STORAGE
4.40000	PNEUMATIC ENERGY GENERATION, STORAGE, DISTRIBUTION
4.50000	HYDRAULIC (WATER, PUMPED ENERGY STORAGE, ETC.)
4.60000	MISCELLANEOUS POWER GENERATOR, STORAGE AND TRANSMISSION
5.00000	TRANSPORTATION (NOT INCLUDED BELOW)
5.10000	AIR TRANSPORTATION
5.20000	WATER TRANSPORTATION
5.30000	RAIL TRANSPORTATION
5.40000	HIGHWAY VEHICLES AND SYSTEMS
5.41000	HIGHWAYS, STREETS AND TRAFFIC CONTROL

APPENDIX A

INVENTION CLASSIFICATIONS

CODE	TITLE
5.42000	VEHICULAR POWER SYSTEMS(NOT INCLUDED BELOW)
5.42100	COMBUSTION ENGINE VEHICLES
5.42200	ELECTRIC VEHICLES
5.42300	STEAM VEHICLES
5.42400	HYBRID VEHICLES
5.43000	VEHICULAR COMPONENTS
5.43100	VEHICLE TRANSMISSIONS
5.43200	VEHICLE BRAKING SYSTEMS (INCLUDES REGEN. BRAKING SYSTEMS, ETC.)
5.43300	VEHICLE WHEELS AND TIRES
5.43400	VEHICLE SUSPENSIONS
5.43500	VEHICLE BODY AND CHASSIS DESIGN
5.43600	VEHICLE LUBRICATION SYSTEMS
5.43700	DRIVER AND FUEL ECONOMY CONTROL SYSTEMS
5.43800	VEHICLE AIR CONDITIONING
6.00000	BUILDINGS, STRUCTURES AND COMPONENTS
6.10000	DESIGN, CONSTRUCTION AND CONSTRUCTION PRACTICES
6.20000	HEATING, COOLING, VENTILATING
6.20100	HEATING, COOLING AND VENTILATING INSTRUMENTS AND CONTROLS
6.21000	FIREPLACES
6.22000	SOLAR HEATERS
6.22100	SOLAR HEATERS - HEAT STORAGE
6.23000	BOILERS AND FURNACES (INDUSTRIAL)
6.23010	SMALL BOILERS, FURNACES AND STOVES
6.23100	BOILER AND FURNACE FLUE HEAT RECOVERY
6.23200	BOILER AND FURNACE AIR AND OXYGEN INDUCTORS AND INJECTORS
6.23300	BOILERS AND FURNACES FLUE VENT CONTROL
6.23400	BOILER AND FURNACE OIL BURNERS
6.23500	BOILER AND FURNACE STOKERS (INDUSTRIAL)
6.23600	BOILER AND FURNACE COMBUSTION CONTROLS AND EQUIPMENTS
6.23700	BOILER AND FURNACE COAL-OIL-WATER MIXTURES
6.23800	COMBUSTION, CHEMICAL
6.24000	ELECTRIC HEAT
6.25000	HEAT PUMPS
6.26000	AIR CONDITIONING & REFRIGERATION
6.27000	VENTILATING SYSTEMS
6.28000	HUMIDIFICATION SYSTEMS
6.31000	HEATING SYSTEMS(HOT WATER)
6.31100	SOLAR HEATERS
6.32000	HOT WATER CONSERVATION DEVICES AND PRACTICES
6.40000	INSULATION AND INSULATING PRACTICES
6.50000	ELECTRICAL WIRING AND FIXTURES
6.60000	PLUMBING AND FIXTURES
7.00000	INDUSTRIAL PROCESSES (NOT INCLUDED BELOW)
7.01000	CHEMICAL, CHEMICAL PROCESS INDUSTRIES UNIT OPERATIONS
7.01100	IRON AND STEEL
7.01200	PRIMARY NON-FERROUS METALS
7.01300	FABRICATED METAL PRODUCTS
7.01400	AIR SEPARATION
7.01500	WATER AND WASTE TREATMENT
7.01600	PACKAGING AND CONTAINERS
7.01700	MISC.-DESALINIZATION-ELECTROLYSIS
7.01800	SOLAR DISTILLATION PROCESSES
7.01900	SOLAR EVAPORATION PROCESSES
7.02000	TEXTILES, FABRICS, RUGS, CLOTHING
7.02100	POWDER METALLURGY
7.02200	CERAMICS
7.02300	COMPOSITE MATERIALS
7.02400	STACK GAS SCRUBBERS
7.03000	FOOD, FEEDS, LEATHER, FURS, FEATHERS, ETC.
7.04000	LUMBER, WOOD, WOOD PRODUCTS INDUSTRIAL PROCESSES
7.05000	PAPER AND ALLIED PRODUCTS
7.06000	PETROLEUM, OIL AND NATURAL GAS INDUSTRIES
7.07000	RUBBER AND PLASTICS
7.08000	STONE, CLAY AND GLASS
7.09000	PRIMARY METALS
7.10000	CIVIL ENGINEERING
7.20000	AGRICULTURE EQUIPMENT AND FARM EQUIPMENT
7.30000	OIL SPILL RECOVERY
7.40000	MECHANICAL CONTRIVANCES (NON-VEHICULAR)
7.50000	SOLAR INDUSTRIAL
8.00000	CONSUMER PRODUCTS
8.10000	CONSUMER EDUCATION AND BEHAVIOR
8.20000	APPLIANCES
8.30000	TOOLS
8.40000	LAMPS AND LIGHT BULBS (6.5 FOR LIGHTING FIXTURES)
9.00000	MISCELLANEOUS
9.10000	NOT ENERGY-RELATED
9.20000	NUCLEAR
9.30000	PERPETUAL MOTION
9.40000	UNINTERPRETABLE
9.50000	INSTRUMENTATION
9.50100	CHEMICAL, BIOCHEMICAL SENSORS AND INSTRUMENTATION
9.50200	ELECTRONIC, OPTICAL SENSORS AND INSTRUMENTATION
9.50300	HEAT TRANSFER, FLUID MECHANICS INSTRUMENTATION
9.51000	ELECTRICAL DEMAND, OVERLOAD OR CONSUMPTION INDICATORS
9.60000	COMPUTER - DATA STORAGE AND RETRIEVAL
9.70000	COMMUNICATION SYSTEMS AND EQUIPMENT
9.80000	PRINTING SYSTEMS AND EQUIPMENT

APPENDIX B

TECHNICAL CATEGORIES AND ASSOCIATED INVENTION CLASSIFICATIONS

TECHNICAL CATEGORY
ASSOCIATED INVENTION CLASSIFICATIONS

1. Fossil Fuel Production

1.00000	FUELS AND LUBRICANTS ACQUISITION, PRODUCTION, DISTRIBUTION
1.01000	GEOPHYSICAL PROSPECTING
1.10000	FOSSIL FUELS
1.11000	COAL
1.11100	COAL LIQUIFICATION
1.11200	COAL GASIFICATION
1.11300	GREATER RESOURCE RECOVERY METHODS
1.11400	GREATER RESOURCE RECOVERY EQUIPMENT
1.12000	OIL
1.12100	GREATER RESOURCE RECOVERY METHODS
1.12200	GREATER RESOURCE RECOVERY EQUIPMENT
1.12300	OIL AND GAS WELL PUMPS AND DRILLS
1.12400	OIL AND GAS PIPELINES
1.13000	OIL SHALE
1.13100	TAR SANDS
1.14000	NATURAL GAS
1.14100	CHEMICAL CONVERSION OF GAS TO LIQUIDS

2. Direct Solar

2.10000	SOLAR COLLECTORS
2.11000	SOLAR TO DIRECT MECHANICAL ENERGY
2.12000	SOLAR ELECTRIC POWER GENERATING SYSTEMS
2.13000	PHOTOVOLTAIC DEVICES
2.14000	SOLAR CONCENTRATORS - PHOTOVOLTAIC
2.15000	SOLAR CONCENTRATORS - THERMAL
6.22000	SOLAR HEATERS
6.22100	SOLAR HEATERS - HEAT STORAGE
6.31100	SOLAR HEATERS

3. Other Natural Sources

1.20000	ALTERNATE FUELS
1.21000	PROPANE
1.22000	METHANE
1.23000	HYDROGEN
1.24000	ALCOHOLS
1.25000	HYBRID FUELS
1.26000	FUEL CELLS
1.27000	FUEL ADDITIVES
1.28000	BIOENGINEERING AND MEDICAL
1.28100	BIOMASS
1.29000	MISCELLANEOUS SYNTHETIC PROCESSES
2.00000	ENERGY CONVERSION FROM NATURAL SOURCES(NOT INCLUDED BELOW)
2.20000	GEOTHERMAL
2.21000	ELECTRICAL POWER GENERATION
2.30000	OCEAN THERMAL
2.40000	WIND
2.41000	WIND DRIVEN MOTORS & COMPONENTS THEREOF
2.42000	WIND PROCESSES USING ENERGY FROM WIND

APPENDIX B

TECHNICAL CATEGORIES AND ASSOCIATED INVENTION CLASSIFICATIONS

TECHNICAL CATEGORY
ASSOCIATED INVENTION CLASSIFICATIONS

3. Other Natural Sources (cont.)

2.50000 WATER POWER PROCESSES (INLAND)
2.51000 ELECTRICAL POWER GENERATION BY WATER POWER (INLAND)

2.60000 OCEAN WATER POWER
2.61000 WAVE POWER SYSTEMS
2.62000 TIDAL POWER SYSTEMS
2.63000 OCEAN CURRENT POWER SYSTEMS

3.00000 ENERGY CONVERSION FROM SECONDARY SOURCES(NOT INCLUDED BELOW)
3.01000 ENERGY CONVERSION FROM SECONDARY SOURCES - THERMODYNAMICS

4. Combustion Engines & Components

3.10000 COMBUSTION ENGINES AND COMPONENTS THEREOF
3.10100 STIRLING ENGINES, MECHANICAL
3.10110 STIRLING ENGINES, THERMO
3.11000 RECIPROCAL ENGINES, MECHANICAL
3.11100 RECIPROCAL ENGINES, THERMO
3.12000 ROTARY ENGINES, MECHANICAL
3.12100 ROTARY ENGINES, THERMO
3.13000 TURBINE ENGINES, MECHANICAL
3.13100 TURBINE ENGINES, THERMO
3.14000 FUEL SYSTEMS, MECHANICAL
3.14100 CARBURETORS AND MODIFICATIONS THEREOF
3.14200 FUEL INJECTORS
3.14300 WATER INJECTORS
3.14400 MULTI-FUEL MIXERS
3.14500 AIR AND OXYGEN INJECTION
3.14600 COMBUSTION ANALYZERS
3.15000 IGNITION SYSTEMS

3.20000 STEAM ENGINES AND TURBINES, MECHANICAL
3.21000 STEAM ENGINES AND TURBINES, THERMO

5. Transportation Systems; Vehicles & Components

5.00000 TRANSPORTATION(NOT INCLUDED BELOW)

5.10000 AIR TRANSPORTATION
5.20000 WATER TRANSPORTATION
5.30000 RAIL TRANSPORTATION

5.40000 HIGHWAY VEHICLES AND SYSTEMS
5.41000 HIGHWAYS, STREETS AND TRAFFIC CONTROL
5.42000 VEHICULAR POWER SYSTEMS(NOT INCLUDED BELOW)
5.42100 COMBUSTION ENGINE VEHICLES
5.42200 ELECTRIC VEHICLES
5.42300 STEAM VEHICLES
5.42400 HYBRID VEHICLES
5.43000 VEHICULAR COMPONENTS
5.43100 VEHICLE TRANSMISSIONS
5.43200 VEHICLE BRAKING SYSTEMS (INCLUDES REGEN. BRAKING SYSTEMS, ETC.)
5.43300 VEHICLE WHEELS AND TIRES

APPENDIX B

TECHNICAL CATEGORIES AND ASSOCIATED INVENTION CLASSIFICATIONS

TECHNICAL CATEGORY
ASSOCIATED INVENTION CLASSIFICATIONS

5. Transportation Systems; Vehicles & Components (cont.)
   - 5.43400 VEHICLE SUSPENSIONS
   - 5.43500 VEHICLE BODY AND CHASSIS DESIGN
   - 5.43600 VEHICLE LUBRICATION SYSTEMS
   - 5.43700 DRIVER AND FUEL ECONOMY CONTROL SYSTEMS
   - 5.43800 VEHICLE AIR CONDITIONING

6. Building, Structures & Components

   - 6.00000 BUILDINGS, STRUCTURES AND COMPONENTS
   - 6.10000 DESIGN, CONSTRUCTION AND CONSTRUCTION PRACTICES

   - 6.20000 HEATING, COOLING, VENTILATING
   - 6.20100 HEATING, COOLING AND VENTILATING INSTRUMENTS AND CONTROLS
   - 6.21000 FIREPLACES
   - 6.23000 BOILERS AND FURNACES (INDUSTRIAL)
   - 6.23010 SMALL BOILERS, FURNACES AND STOVES
   - 6.23100 BOILER AND FURNACE FLUE HEAT RECOVERY
   - 6.23200 BOILER AND FURNACE AIR AND OXYGEN INDUCTORS AND INJECTORS
   - 6.23300 BOILERS AND FURNACES FLUE VENT CONTROL
   - 6.23400 BOILER AND FURNACE OIL BURNERS
   - 6.23500 BOILER AND FURNACE STOKERS (INDUSTRIAL)
   - 6.23600 BOILER AND FURNACE COMBUSTION CONTROLS AND EQUIPMENTS
   - 6.23700 BOILER AND FURNACE COAL-OIL-WATER MIXTURES
   - 6.23800 COMBUSTION, CHEMICAL
   - 6.24000 ELECTRIC HEAT
   - 6.25000 HEAT PUMPS
   - 6.26000 AIR CONDITIONING & REFRIGERATION
   - 6.27000 VENTILATING SYSTEMS
   - 6.28000 HUMIDIFICATION SYSTEMS
   - 6.29000 SOLAR AIR CONDITIONING

   - 6.30000 HOT WATER SUPPLY
   - 6.31000 HEATING SYSTEMS(HOT WATER)
   - 6.32000 HOT WATER CONSERVATION DEVICES AND PRACTICES

   - 6.40000 INSULATION AND INSULATING PRACTICES
   - 6.50000 ELECTRICAL WIRING AND FIXTURES
   - 6.60000 PLUMBING AND FIXTURES

7. Industrial Processes

   - 7.00000 INDUSTRIAL PROCESSES(NOT INCLUDED BELOW)
   - 7.01000 CHEMICAL, CHEMICAL PROCESS INDUSTRIES UNIT OPERATIONS
   - 7.01100 IRON AND STEEL
   - 7.01200 PRIMARY NON-FERROUS METALS
   - 7.01300 FABRICATED METAL PRODUCTS
   - 7.01400 AIR SEPARATION
   - 7.01500 WATER AND WASTE TREATMENT
   - 7.01600 PACKAGING AND CONTAINERS
   - 7.01700 MISCELLANEOUS - DESALINIZATION - ELECTROLYSIS
   - 7.01800 SOLAR DISTILLATION PROCESSES
   - 7.01900 SOLAR EVAPORATION PROCESSES
   - 7.02000 TEXTILES, FABRICS, RUGS, CLOTHING
   - 7.02100 POWDER METALLURGY

APPENDIX B

TECHNICAL CATEGORIES AND ASSOCIATED INVENTION CLASSIFICATIONS

TECHNICAL CATEGORY	ASSOCIATED INVENTION CLASSIFICATIONS	
7.	Industrial Processes (cont.)	
	7.02200	CERAMICS
	7.02300	COMPOSITE MATERIALS
	7.02400	STACK GAS SCRUBBERS
	7.03000	FOOD, FEEDS, LEATHER, FURS, FEATHERS, ETC.
	7.04000	LUMBER, WOOD, WOOD PRODUCTS INDUSTRIAL PROCESSES
	7.05000	PAPER AND ALLIED PRODUCTS
	7.06000	PETROLEUM, OIL AND NATURAL GAS INDUSTRIES
	7.07000	RUBBER AND PLASTICS
	7.08000	STONE, CLAY AND GLASS
	7.09000	PRIMARY METALS
	7.10000	CIVIL ENGINEERING
	7.20000	AGRICULTURE EQUIPMENT AND FARM EQUIPMENT
	7.30000	OIL SPILL RECOVERY
	7.40000	MECHANICAL CONTRIVANCES (NON-VEHICULAR)
	7.50000	SOLAR INDUSTRIAL
8.	Miscellaneous	
	1.30000	GREASES AND LUBRICANTS
	1.40000	REFINED PETROLEUM PRODUCTS AND ADDITIVES
	3.30000	AIR COMPRESSORS AND MOTORS
	3.40000	HYDRAULIC PUMPS AND MOTORS
	3.50000	ELECTRIC MOTORS AND GENERATORS
	3.51000	MISCELLANEOUS ELECTRIC POWER GENERATING SYSTEM
	3.60000	CHEMICAL THERMODYNAMICS
	3.61000	PHOTO CHEMICAL
	3.70000	MECHANICAL THERMODYNAMICS
	3.80000	HEAT PUMPS AND REFRIGERATION
	3.90000	HIGHWAY POWER GENERATORS
	4.00000	ENERGY STORAGE AND DISTRIBUTION(NOT INCLUDED BELOW)
	4.10000	ELECTRICAL TRANSMISSION
	4.11000	ELECTRICAL STORAGE (BATTERIES)
	4.12000	ELECTRICAL DISTRIBUTION (TRANSFORMERS, SWITCHGEARS, CONTROLS)
	4.20000	MECHANICAL ELECTRICAL GENERATION, STORAGE, DISTRIBUTION
	4.30000	THERMAL ENERGY STORAGE
	4.40000	PNEUMATIC ENERGY GENERATION, STORAGE, DISTRIBUTION
	4.50000	HYDRAULIC (WATER, PUMPED ENERGY STORAGE, ETC.)
	4.60000	MISCELLANEOUS POWER GENERATOR, STORAGE AND TRANSMISSION
	8.00000	CONSUMER PRODUCTS

APPENDIX B

TECHNICAL CATEGORIES AND ASSOCIATED INVENTION CLASSIFICATIONS

TECHNICAL CATEGORY
ASSOCIATED INVENTION CLASSIFICATIONS

8. Miscellaneous (cont.)

8.10000	CONSUMER EDUCATION AND BEHAVIOR
8.20000	APPLIANCES
8.30000	TOOLS
8.40000	LAMPS AND LIGHT BULBS (6.5 FOR LIGHTING FIXTURES)
9.00000	MISCELLANEOUS
9.50000	INSTRUMENTATION
9.50100	CHEMICAL, BIOCHEMICAL SENSORS AND INSTRUMENTATION
9.50200	ELECTRONIC, OPTICAL SENSORS AND INSTRUMENTATION
9.50300	HEAT TRANSFER, FLUID MECHANICS INSTRUMENTATION
9.51000	ELECTRICAL DEMAND, OVERLOAD OR CONSUMPTION INDICATORS
9.60000	COMPUTER - DATA STORAGE AND RETRIEVAL
9.70000	COMMUNICATION SYSTEMS AND EQUIPMENT
9.80000	PRINTING SYSTEMS AND EQUIPMENT

9. Out of Scope and Unclassifiable

9.10000	NOT ENERGY-RELATED
9.20000	NUCLEAR
9.30000	PERPETUAL MOTION
9.40000	UNINTERPRETABLE

NIST-114A
(REV. 3-90)

U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

BIBLIOGRAPHIC DATA SHEET

1. PUBLICATION OR REPORT NUMBER
NISTIR 4533

2. PERFORMING ORGANIZATION REPORT NUMBER

3. PUBLICATION DATE
MARCH 1991

4. TITLE AND SUBTITLE
Energy Related Inventions Program
A joint program of the Department of Energy and the National Institute of Standards and Technology Status Report for recommendations 1 through 250.

5. AUTHOR(S)

6. PERFORMING ORGANIZATION (IF JOINT OR OTHER THAN NIST, SEE INSTRUCTIONS)
U.S. DEPARTMENT OF COMMERCE
NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
GAITHERSBURG, MD 20899

7. CONTRACT/GRANT NUMBER

8. TYPE OF REPORT AND PERIOD COVERED
Status of last 16 years

9. SPONSORING ORGANIZATION NAME AND COMPLETE ADDRESS (STREET, CITY, STATE, ZIP)
Mr. A. Ray Barnes, Acting Director
Inventions and Innovation Division, CE-521
Conservation and Renewable Energy, Department of Energy
Forrestal Building, 5E-052, Washington, DC 20585

10. SUPPLEMENTARY NOTES
Supercedes NISTIR 4319

11. ABSTRACT (A 200-WORD OR LESS FACTUAL SUMMARY OF MOST SIGNIFICANT INFORMATION. IF DOCUMENT INCLUDES A SIGNIFICANT BIBLIOGRAPHY OR LITERATURE SURVEY, MENTION IT HERE.)
A brief description of the Energy-Related Inventions Program and all inventions recommended by the National Institute of Standards and Technology to the Department of Energy since the inception of the program, including a brief summary of the current status of each.

12. KEY WORDS (6 TO 12 ENTRIES; ALPHABETICAL ORDER; CAPITALIZE ONLY PROPER NAMES; AND SEPARATE KEY WORDS BY SEMICOLONS)
status report; energy; inventions; innovation; new technology; NIST; DOE.

13. AVAILABILITY

X	UNLIMITED
	FOR OFFICIAL DISTRIBUTION. DO NOT RELEASE TO NATIONAL TECHNICAL INFORMATION SERVICE (NTIS).
	ORDER FROM SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, DC 20402.
X	ORDER FROM NATIONAL TECHNICAL INFORMATION SERVICE (NTIS), SPRINGFIELD, VA 22161.

14. NUMBER OF PRINTED PAGES
179

15. PRICE
A09

ELECTRONIC FORM