UNITED STATES DEPARTMENT OF COMMERCE
National Bureau of Standards
Washington, D.C. 20234

STATUS REPORT ON THE ENERGY-RELATED INVENTIONS PROGRAM AS OF SEPTEMBER 30, 1981

INTRODUCTION

The House of Representatives' Science, Research and Technology Subcommittee of the Committee on Science and Technology, in House Report No. 96-949 on Authorizing Appropriations to the National Bureau of Standards (NBS), directed NBS to report quarterly on the progress and status of the Energy-Related Inventions Program at NBS. This is the fifth of such reports and covers the period from July 1, 1981, to September 30, 1981.

AWARDS

During the quarter July 1 to September 30, the Department of Energy (DOE) provided awards to inventors and small businesses totaling nearly $2,000,000 for 21 inventions recommended to them by the Office of Energy-Related Inventions (OERI). Attachment 1 briefly describes the evaluation process and provides complete program performance statistics. Attachment 2 lists and describes each of the inventions recommended.

The following summaries briefly describe the 21 inventions funded this quarter and the purpose of the assistance.

1. A method by which an applied voltage causes a reflective aluminized mylar film to unroll and press flat against a window. In winter the film can be rolled up to let the sunlight in during the day, and rolled down to hold heat in at night. This process could be reversed in summer. An award in the amount of $99,500 was given to design, build, and test a demonstration model of the "Dielectric Windowshade."

2. A furnace for the melting of reactive metals and semi-conductors, both of 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. An award in the amount of $121,554 was given to build and test a prototype high frequency induction furnace for the production of silicon for solar cells.

3. A conventional steam injector to serve as both feedwater pump and direct contact feedwater heater in conventional steam power plants. A grant in the amount of $99,870 was given to design, build, and install at Worchester Poly Tech in Massachusetts a system for field tests. The system will operate in conjunction with existing steam power plant.

12. A method of making low-to-medium Btu gas from coal is described. A key feature is control of retort heat fluxes. An award in the amount of $98,074 was given to design, build, and test a laboratory scale model of the inventor's design.

13. 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. A grant in the amount 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.

14. 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. A grant in the amount of $89,507 was given to design, build, and test a scale model to determine optimum design after which a full scale model will be built and tested.

15. A new process using iodine slurry for recovering hydrogen and elemental-sulfur from the hydrogen sulfide content of refinery off-gas streams or synthetic fuel process streams. A grant in the amount of $70,000 was awarded to investigate the feasibility of the process by performing laboratory and economic studies.

16. 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. An award in the amount of $98,148 was given to design, fabricate, and conduct field tests on the drill bits and control system.

17. 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. A grant in the amount of $97,300 was given 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. Quality and shelf life will be compared with those shipped over the same route in refrigerated trucks.

18. An insulating blanket to reduce refrigeration loads in ice skating rinks during periods of non-use combines with an advance method of applying and removing the 17,000 sq. ft. of thermal insulation. A grant in the amount of $73,000 was given to build and test a prototype model of the thermal ice cap.

5. 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 is bled through a flow control valve.

6. A rotary heat pump which functions as an absorption refrigeration system for heating and cooling the passenger compartments of motor vehicles, mobile homes, and farm equipment. It may also be used for stationary applications.

7. An oxygen sensing device formed by tape casting an oxygen-conducting-material into a dense ceramic body with metal electrodes interdispersed between ceramic layers.

EVALUATION

Evaluation Requests received in the quarter totaled 315. Those accepted for evaluation totaled 184 (58%). During the quarter, 203 inventors were notified (in letters explaining the technical results of our evaluation) that their inventions did not warrant recommendation. Another 119 inventors were notified of our decision not to accept their inventions for evaluation. New inventions in process at the end of the quarter totaled 351. Also in process were approximately 175 inventions being reconsidered at the request of the inventors who had previously had their inventions rejected by OERI. Further details are included in Attachment 1.

The average processing time for first- and second-stage evaluations for the quarter was 19½ weeks, a 25% reduction from the previous quarter and the lowest quarterly average since the program's inception. The average cost of a second-stage evaluation has been reduced this fiscal year by 25% from the previous two fiscal years.

SUPPLEMENTAL ACTIVITIES

During the quarter, National Innovation Workshops, which are jointly sponsored by NBS and DOE were held in Indianapolis, Indiana, (July) and Seattle, Washington, (August). Planning continued for workshops in Daytona Beach, Florida on November 13-14, 1981, and in Knoxville, Tennessee to coincide with the 1982 World's Fair. Plans are also underway for workshops in Albany, NY; New Orleans, LA; Salt Lake City, UT; Albuquerque, NM; and Los Angeles.

In another effort to provide direct technical support to inventors and small businesses, OERI signed a cooperative agreement with the American Association of Engineering Societies (AAES) by which AAES will establish an Office for Support of Technological Innovation (OSTI) in the United Engineering Center in New York. This Center houses one of the world's largest engineering libraries and is supported by the national engineering societies which are also the principal source of support for AAES. The OSTI will operate at a national level to direct inventors and small businesses to specific sources of technical information, including technical experts who are willing to be of assistance where personal interaction and guidance are necessary. The OSTI will also serve as a focal point within the national engineering population to stimulate education and interest in invention and innovation.

Figure 2 represents the statistics for the three steps in the evaluation process for the 6-month period ending September 1981. Figures 3 and 4 show results for groupings of technology subject areas and for each of the fifty states.

Time to process an evaluation request is also a significant measure of performance. This consists of the amount of time which elapses between OERI's receipt of an evaluation request and OERI's mailing a letter to the inventor notifying him of the results of the evaluation. Average processing times are as follows:

	Average Processing Time in Weeks for Letters Mailed in Period:					
	1/79 thru 6/79	7/79 thru 12/79	1/80 thru 9/80	10/80 thru 3/81	4/81 thru 9/81	7/81* thru 9/81
Not accepted for evaluation	3.3	6.0	3.5	3.0	2.5	2.5
Accepted and evaluated	33.4	22.3	23.6	22.6	23.1	19.6

*Quarterly statistics

NBS INVENTION EVALUATION PROCESS STATISTICS

4/1/81 **THRU** 9/30/81

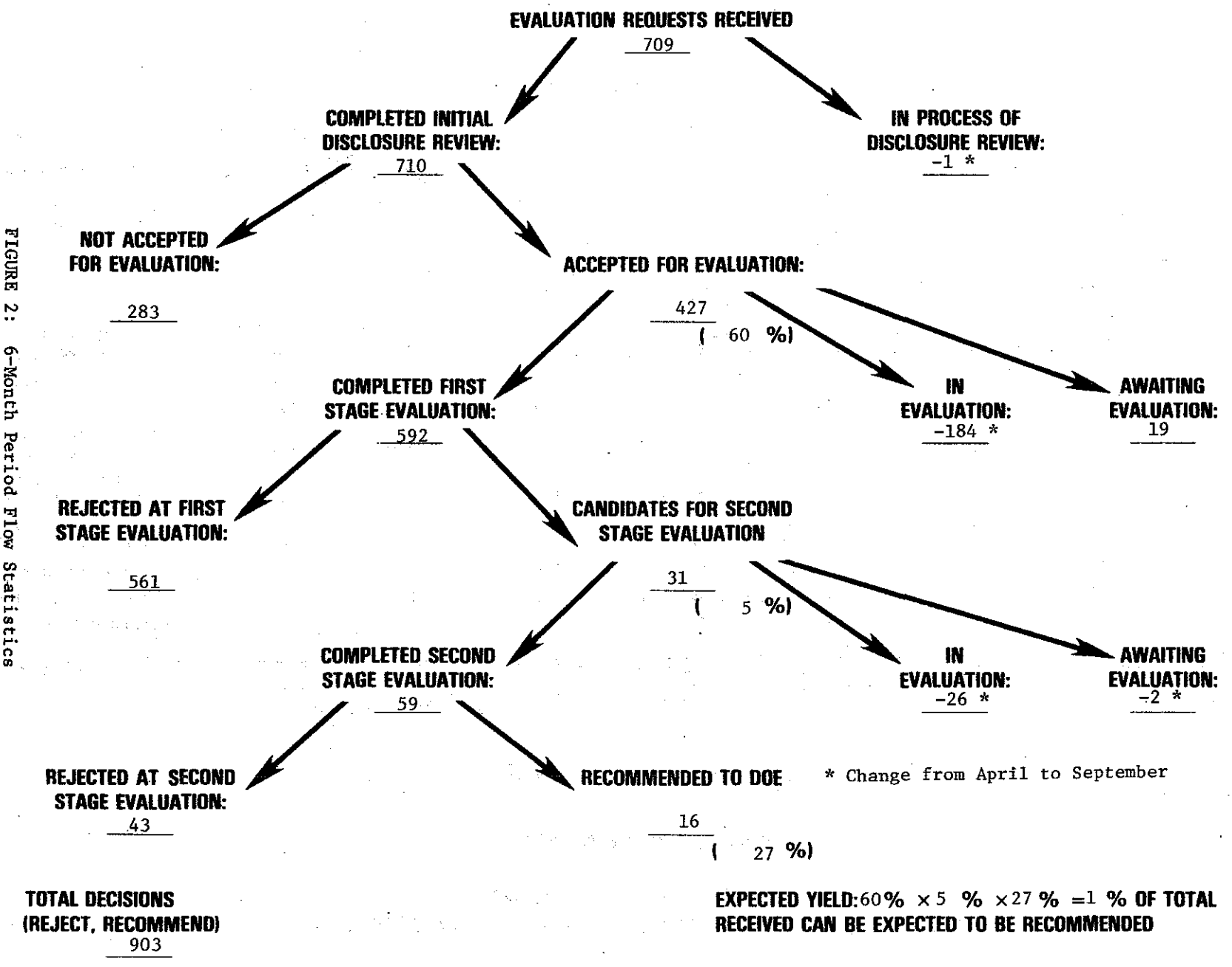


FIGURE 2: 6-Month Period Flow Statistics

EVALUATION PROGRESS REPORT BY STATE AS OF SEPTEMBER 30, 1981

	Evaluation Requests Received	Completed Disclosure Review	Accepted for First-Stage	Completed First-Stage	Accepted for Second-Stage	Completed Second-Stage	Recommended
Alabama	171	170	85	82	0	0	0
Alaska	37	37	20	20	0	0	0
Arizona	253	252	158	153	19	18	1
Arkansas	101	100	43	41	5	5	2
California	2343	2342	1159	1128	98	91	25
Colorado	355	355	237	227	30	30	1
Connecticut	362	361	201	192	17	17	9
Delaware	41	41	25	24	2	2	2
District of Columbia	75	75	37	37	7	7	0
Florida	1002	1001	495	474	20	18	7
Georgia	226	226	107	102	8	8	3
Hawaii	67	67	29	29	1	1	1
Idaho	68	68	44	42	4	3	3
Illinois	586	586	288	276	18	15	6
Indiana	284	284	138	135	8	7	2
Iowa	118	118	62	62	2	2	2
Kansas	208	208	90	88	3	3	1
Kentucky	152	152	64	63	5	4	3
Louisiana	185	185	84	83	8	8	3
Maine	106	106	54	53	4	3	2
Maryland	475	472	288	282	24	24	7

FIGURE 4: State Statistics

Virginia	363	362	179	173	20	18	5
Washington	402	402	186	183	9	8	2
West Virginia	54	54	17	15	1	0	0
Wisconsin	321	321	148	143	9	8	3
Wyoming	34	34	14	13	0	0	0
Territories	37	37	16	15	0	0	0
Foreign Countries	805	803	364	352	26	22	3
TOTALS	17489	17466	8678	8402	679	627	191

FIGURE 4: (Cont.)

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.

Operational Procedures

On receipt of the recommendation from NBS, DOE contacts the inventor, informs him or her on details of the support procedures, and requests him or her to prepare a proposal for funds or other support desired. ID 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. The recommendation is also reviewed by other appropriate DOE programs to insure against duplication and to determine other program interest. Decisions are then made on whether or not support will be provided as well as the nature and extent of the support.

If financial support is to be provided, DOE initiates procurement action. ID monitors progress of the procurement action and helps to expedite until the award is made.

While financial or other support is being provided, ID continues monitoring and maintains a status report for use by both DOE and NBS. The report lists each recommendation and shows its status in accordance with the definitions of Figure 1. The complete list, with status as of March 31, 1981, is included at the end of this Attachment.

Performance Statistics

The chart in Figure 2 depicts progress in processing the recommendations received from NBS/OERI since the inception of the program.

The number of NBS recommendations being supported is 89 percent of those received (127 ÷ 143). Non-support by DOE does not mean rejection of, or disagreement with, the NBS recommendation; in the majority of cases, support was either not feasible or not wanted by the inventor. Reasons are given in the detailed status report.

UNITED STATES DEPARTMENT OF COMMERCE
National Bureau of Standards
Washington, D.C. 20234

PHASES IN DOE's SUPPORT PROCESS

Analysis I	Recommendation received from NBS and processed, file initiated, etc. Inventor requested to submit description of proposed work. Receipt of inventor's preliminary proposal initiates next stage.
Analysis II	Invention Division (ID) formulates options for support, based upon information received from NBS, DOE program staff, and inventor. Determination of options initiates next stage.
Decision Phase	Statement of Work derived from options. Inventor requested to submit supporting documents for procurement action. ID prepares purchase request or makes arrangements for other assistance.
Other Assistance	Laboratory testing or business planning assistance.
Procurement	Step-by-step processing of all documents leading to an award of grant or contract.
Award	Inventor awarded grant or contract. Work commences. Final report due at end of work period.
Complete	Inventor has complied with all the requirements of his Statement of Work, or DOE assistance is terminated. A resume will be inserted in the Recommendation Status Listing summarizing the results.
No Basis For DOE Support	Inventor notified that recommendation will not be supported and given reasons.

Abbreviations for DOE Program Offices as used in the Recommendation Status Listing:

CS Conservation and Solar Energy
ER Energy Research
FE Fossil Energy
ID Invention Division
RA Resource Application

FIGURE 1: Support Process Phases

Recommendation Status Listing

Summary pp i-v - Details pp 1-96

DOE Number	Inventor Name	Invention Title	State or Country	Status	Page
1	Willard Graves	Demand Metering System for Electric Energy	MD	No DOE Support	1
2	Rita Paleschuck	Fuel Mixer	NY	Complete	1
3	Donald C Erickson	Hydrogen Generation by Oxidation-Reduction of Tin	MD	Complete	2
4	Joseph C Yater	Power Conversion of Energy Fluctuations	MA	Complete	2
5	George C Austin	Diesel Engine Conversion System	CA	Complete	3
6	Albert B Csonka	Micro-Carburetor	NY	Complete	3
7	David Virley	Hydraulically Powered Waste Disposal Device	CA	Complete	4
8	Vincent E Carman	Inertial Storage Transmission	OR	Award	4
9	Alvin M Marks	Heat/Electric Power Conversion via Charged Aerosols	NY	Complete	5
10	Harrison Robert Woolworth	Scrap Metal Preheating	WA	Complete	5
11	Ronald H Smith	Solar Collector	CA	Complete	6
12	Frank R Summa	High Frequency Energy Saving Device	NY	Award	6
13	Ranendra K Bose	Anti-Pollution System	VA	Complete	7
14	Daniel J Schneider	Aerodynamic Lift Translator	TX	Complete	7
15	Dante A Raponi	Estacron	NC	Award	8
16	John W Bruce	Vacuum Drying	SD	Complete	8
17	David W Doyle	Osmotic-Hydro Power Generation	VA	Complete	9
18	G R Fitterer	Control of Low Carbon Aluminum Steels	PA	Complete	9
19	Walter J Hasselman, Jr	Rigid Board Insulation	NY	Award	10
20	Thomas P Hopper	Thermal Shade	CT	Complete	10
21	Robert S Norris	Waste Oil Utilization System	MA	Complete	11
22	Herbert G Lehmann	Fuel Burner Attachment	CT	No DOE Support	11
23	Int'l MGD Companies	Microgas Dispersions	MI	No DOE Support	12
24	Drew W Morris	Can and Bottle Crushing Apparatus	NH	Complete	12
25	Donald C Erickson	Sulfur Removal From Producer Gas	MD	Award	13
26	Seymour Jarmul	Compact Energy Reservoir	NY	Complete	13
27	R J Jones	Waste Heat Utilization, Commercial Cooking	CA	Complete	14
28	Gilbert W Didion	Ultraflo	OH	Complete	14
29	Kenneth E Mayo	Tuned Sphere Stable Ocean Platforms	NH	Complete	15
30	Leopold Pessel	Removing Sulfur Dioxide From Flue Gases	PA	Complete	15
31	James C Withers	Ceramic Rotors and Vanes	VA	Award	16
32	Robert A Caughey	Wood Gas Reactor	NH	Complete	16
33	Joseph B Vogt	Temperature Indicating Device	MI	Complete	17
34	Hal Ellis	Delphic Thermogenic Paint	FL	Analysis II	17
35	Gulab Chand Jain	Solar Pond System	India	No DOE Support	18
36	Richard P Gingras	Computerstat	CT	Complete	18
37	Lawrence E Bissell	Hotwater Engine	CA	Analysis I	19
38	John McCallum	Reduction Volatilizations	OH	Complete	19

DOE # 1 DOE Coordinator G. K. Ellis Contact: Murray G Lowenthal

OERI # 19 DOE Program Off: CS

Category: Miscellaneous

Title: Demand Metering System for Electric Energy

Inventor: Willard Graves Patent # 3 683 343
State/Country: MD
Company: Environmentrics, Inc.

Description: The invention provides a means whereby a consumers'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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 23, 1975 Decision Date:

Received by DOE from NBS: Feb 12, 1976 Final Report Accepted: Jul 7, 1977

Status: No DOE Support

Development Stage: Concept Development

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

DOE # 2 DOE Coordinator G. K. Ellis Contact: Rita Paleschuck

OERI # 100 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Fuel Miser

Inventor: Rita Paleschuck
State/Country: NY
Company: Flair Mfg. Corp.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 14, 1975 Completion Date: Jul 15, 1976

Received by DOE from NBS: Feb 19, 1976 Final Report Accepted:

Status: Complete

Development Stage: Production & Marketing

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 # 5 DOE Coordinator G. K. Ellis

OERI # 88 DOE Program Off: CS

Category: Combustion Engines & Components

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

Title: Diesel Engine Conversion System for Gasoline Engines

Inventor: George C Austin
State/Country: CA
Company: Austin Tool Co.

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 30, 1975 Completion Date: Jun 19, 1978

Received by DOE from NBS: Aug 12, 1976 Final Report Accepted: Nov 20, 1978

Status: Complete Award Amount: $18,000

Development Stage: Engineering Design

Summary: An $18,000 grant 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. However, more vehicles would need to be tested, in order to offer substantive proof of reliability.

DOE # 6 DOE Coordinator D. G. Mello

OERI # 225 DOE Program Off: CS

Category: Combustion Engines & Components

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

Title: Micro-Carburetor

Inventor: Albert B Csonka
State/Country: NY
Company: FERRO Technical Company

Patent Applied For

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 15, 1975 Completion Date: Sep 2, 1977

Received by DOE from NBS: Aug 17, 1976 Final Report Accepted: Feb 13, 1980

Status: Complete Award Amount: $193,500

Development Stage: Engineering Design

Summary: A $193,500 fixed price development contract 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.

DOE # 9 DOE Coordinator D. G. Mello

OERI # 151 DOE Program Off: ER

Category: Miscellaneous

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

Title: Heat/Electric Power Conversion via Charged Aerosols

Inventor: Alvin M Marks
State/Country: NY
Company: Marks Polarized Corporation

Patent Applied For

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 4, 1975 Completion Date: Feb 27, 1978

Received by DOE from NBS: Sep 13, 1976 Final Report Accepted: May 9, 1979

Status: Complete Award Amount: $50,000

Development Stage: Laboratory Test

Summary: A grant in the amount 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 is being followed by a three year program to build and test a 10kw laboratory model of the device. First year approved funding is $199,077. Starting date: September 1, 1978.

DOE # 10 DOE Coordinator G. K. Ellis

OERI # 421 DOE Program Off: CS

Category: Industrial Processes

Contact: Harrison Robert Woolworth
International Preheater
P.O. Box #88218
Tukwila Branch
Seattle WA 98188
206/852-9040

Title: Scrap Metal Preheating Method and Apparatus

Inventor: Harrison Robert Woolworth
State/Country: WA
Company: International Preheater

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 11, 1975 Completion Date: Dec 23, 1977

Received by DOE from NBS: Sep 29, 1976 Final Report Accepted: Oct 23, 1978

Status: Complete Award Amount: $170,000

Development Stage: Production Engineering

Summary: A grant in the amount 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, and the inventor has obtained SBA loan assistance to get into production.

DOE # 13 DOE Coordinator D. G. Mello

OERI # 53 DOE Program Off: CS

Contact: Ranendra K Bose
1554 North Danville Street
Arlington VA 22201
703/524-6209

Category: Transportation Systems, Vehicles & Components

Title: Anti-Pollution System

Inventor: Ranendra K Bose
State/Country: VA
Company:

Patent # 3 861 142

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 3, 1975 Completion Date: Apr 4, 1978

Received by DOE from NBS: Sep 30, 1976 Final Report Accepted: Jan 3, 1979

Status: Complete Award Amount: $40,000

Development Stage: Limited Production/Marketing

Summary: A Grant in the amount of $40,000 was awarded. A Prototype was built and tested. Project goals were met. Final Report was accepted. Device works. Inventor plans to seek private assistance for commercialization.

DOE # 14 DOE Coordinator D. G. Mello

OERI # 146 DOE Program Off: CS

Contact: Daniel J Schneider
608 Durango Circle, South
Irving TX 75062
214/252-6338

Category: Other Natural Sources

Title: Aerodynamic Lift Translator

Inventor: Daniel J Schneider
State/Country: TX
Company:

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 very appreciably during the year.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 15, 1975 Completion Date: Sep 21, 1977

Received by DOE from NBS: Sep 30, 1976 Final Report Accepted: Jan 11, 1979

Status: Complete Award Amount: $50,000

Development Stage: Production Engineering

Summary: A $50,000 grant was awarded to develop performance and cost data for the "Schneider Aerodynamic Power Generator" and compare these data with conventional propellor rotor windmills. Final report has been received and accepted.

DOE # 17 DOE Coordinator D. G. Mello

OERI # 619 DOE Program Off: CS

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

Category: Other Natural Sources

Title: Osmotic-Hydro Power Generation

Inventor: David W Doyle
State/Country: VA
Company: InterTechnology Corp.

Patent Applied For

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 21, 1976 Completion Date: Aug 11, 1977

Received by DOE from NBS: Jan 14, 1977 Final Report Accepted: May 1, 1978

Status: Complete Award Amount: $48,950

Development Stage: Laboratory Test

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

DOE # 18 DOE Coordinator G. K. Ellis

OERI # 177 DOE Program Off: CS

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

Category: Industrial Processes

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

Inventor: G R Fitterer
State/Country: PA
Company: Fitterer Engineering Assoc., Inc.

Patent # 3 773 641 & Others

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 1, 1975 Completion Date: Aug 11, 1977

Received by DOE from NBS: Jan 31, 1977 Final Report Accepted: Sep 14, 1978

Status: Complete Award Amount: $99,600

Development Stage: Production & Marketing

Summary: A grant in the amount 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.

DOE # 21 DOE Coordinator G. K. Ellis Contact: Robert S Norris
Energy Conservation Systems
OERI # 613 DOE Program Off: CS 10 Starboard Way - Box #472
West Dennis MA 02670
Category: Industrial Processes 617/398-3430

Title: Waste Oil Utilization System

Inventor: Robert S Norris Patent # 3 002 826 & Others
State/Country: MA
Company: Energy Conservation Systems

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 25, 1975 Completion Date: May 17, 1978

Received by DOE from NBS: Feb 28, 1977 Final Report Accepted: Mar 30, 1981

Status: Complete Award Amount: $50,000

Development Stage: Production & Marketing

Summary: A grant of $50,000 was awarded for the purpose of undertaking a market survey for the use of waste automotive crankcase lubricating oil as a fuel additive to prevent boiler tube deposits, augment energy availability, and minimize environmental pollution.

DOE # 22 DOE Coordinator D. G. Mello Contact: Herbert G Lehmann

OERI # 537 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Fuel Burner Attachment

Inventor: Herbert G Lehmann
State/Country: CT
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 29, 1975 Decision Date:

Received by DOE from NBS: Feb 28, 1977 Final Report Accepted: Sep 19, 1977

Status: No DOE Support

Development Stage: Laboratory Test

Summary: The inventor had his device tested without DOE funding by a private contractor and advised DOE by telephone on September 19 that these tests demonstrated his device to be unsuccessful and that he is withdrawing his device from DOE consideration.

DOE # 25 DOE Coordinator D.R.Craig

OERI # 2 DOE Program Off: FE

Category: Industrial Processes

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

Title: Sulfur Removal from Producer Gas-High Temperature

Inventor: Donald C Erickson
State/Country: MD
Company: Energy Concepts Company

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 7, 1975 Award Date: Jul 9, 1981

Received by DOE from NBS: Apr 6, 1977 Final Report Accepted:

Status: Award Award Amount: $91,032

Development Stage: Laboratory Test

Summary: An award in the amount of $91,032 was given to conduct a research program to establish the technical and economic feasibility of a hot fuel gas desulfurization.

DOE # 26 DOE Coordinator D. G. Mello

OERI # 782 DOE Program Off: CS

Category: Miscellaneous

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

Title: Compact Energy Reservoir

Inventor: Seymour Jarmul
State/Country: NY
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 17, 1976 Completion Date: Aug 2, 1978

Received by DOE from NBS: Apr 12, 1977 Final Report Accepted: Oct 26, 1979

Status: Complete Award Amount: $20,740

Development Stage: Prototype Test

Summary: A grant in the amount 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 # 29 DOE Coordinator D. G. Mello Contact: Kenneth E Mayo
Tuned Sphere Intl., Inc
OERI # 800 DOE Program Off: CS 111 Lock Street
Nashua NH 03060

Category: Fossil Fuels

Title: Tuned Sphere Stable Ocean Platforms

Inventor: Kenneth E Mayo Patent # 3 837 308 & Others
State/Country: NH
Company: Tuned Sphere International, Inc.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 18, 1975 Completion Date: Sep 30, 1977

Received by DOE from NBS: May 10, 1977 Final Report Accepted: Feb 6, 1979

Status: Complete Award Amount: $90,000

Development Stage: Prototype Test

Summary: An award in the amount 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 as meeting all the requirements of the grant.

DOE # 30 DOE Coordinator G. K. Ellis Contact: Leopold Pessel
AEL-EMTEC Corp.
OERI # 482 DOE Program Off: FE P.O. Box #507
Lansdale PA 19446
Category: Industrial Processes 215/368-2440

Title: Method of Removing Sulfur Dioxide from Flue Gases

Inventor: Leopold Pessel Patent Applied For
State/Country: PA
Company: AEL-EMTEC Corp.

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 8, 1975 Completion Date: Jun 19, 1978

Received by DOE from NBS: May 17, 1977 Final Report Accepted: Feb 7, 1980

Status: Complete Award Amount: $94,150

Development Stage: Laboratory Test

Summary: A grant in the amount 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.

DOE # 33 DOE Coordinator D. G. Mello Contact: Joseph B Vogt
5391 Ostrum Road
OERI # 905 DOE Program Off: CS Attica MI 48412
313/724-0106

Category: Buildings, Structures & Components

Title: Temperature Indicating Device

Inventor: Joseph B Vogt Patent Applied For
State/Country: MI
Company:

Description: Device to identify malfunction of steam trap.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 19, 1976 Completion Date: Aug 24, 1979

Received by DOE from NBS: May 31, 1977 Final Report Accepted: Aug 23, 1980

Status: Complete Award Amount: $10,135

Development Stage: Engineering Design

Summary: A one year $10,135 grant to conduct an engineering development project to test and improve the operation of his temperature monitoring device.

DOE # 34 DOE Coordinator R.Bell Contact: Ron Davies

OERI # 1588 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Delphic Thermogenic Paint (Heat Film)

Inventor: Hal Ellis Patent # 3 923 697 & Others
State/Country: FL
Company: Thermal Ventures, Inc.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 11, 1976 Decision Date:

Received by DOE from NBS: Jun 16, 1977 Final Report Accepted:

Status: Analysis II

Development Stage: Production & Marketing

Summary: Preliminary proposal has been received and negotiations are in process.

DOE # 37 DOE Coordinator J.Aellen Contact: Lawrence E Bissell

OERI # 565 DOE Program Off: CS

Category: Miscellaneous

Title: Hotwater Engine

Inventor: Lawrence E Bissell Patent Applied For
State/Country: CA
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 2, 1976 Decision Date:

Received by DOE from NBS: Aug 5, 1977 Final Report Accepted:

Status: Analysis I

Development Stage: Concept Development

Summary: DOE/CS recommended that the inventor be assisted by providing a specialized, highly sophisticated computer analysis of his device. On October 19, 1977, DBP asked the inventor to submit a detailed work statement and cost estimate. The proposal submitted was determined to be too costly. DBP is negotiating a less costly analysis that will yield acceptable data.

DOE # 38 DOE Coordinator D. G. Mello Contact: John McCallum
5926 Beechview Drive
OERI # 558 DOE Program Off: FE Worthington OH 43085
614/885-8416

Category: Industrial Processes

Title: Reduction Volatilizations

Inventor: John McCallum
State/Country: OH
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 2, 1976 Completion Date: Aug 21, 1978

Received by DOE from NBS: Aug 11, 1977 Final Report Accepted: Jul 1, 1979

Status: Complete Award Amount: $49,740

Development Stage: Prototype Development

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

DOE # 41 DOE Coordinator D. G. Mello Contact: William F Armitage Jr

OERI # 580 DOE Program Off: CS

Category: Direct Solar

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

Inventor: William F Armitage, Jr.
State/Ccuntry: MA
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 12, 1976 Decision Date:

Received by DOE from NBS: Aug 30, 1977 Final Report Accepted: Nov 7, 1978

Status: No DOE Support

Develcpment Stage: Concept Development

Summary: Inventor failed to respond to repeated requests for an unsolicited proposal. Inventor did not advise DOE on results of his earlier stated intentions to survey private venture capital market.

DOE # 42 DOE Coordinator D.R.Craig Contact: Everett Millard
4030 Irving Park Road
Chicago IL 60641
312/777-4030

OERI # 347 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Flue Baffle Assembly

Inventor: Everett Millard
State/Country: IL
Company: Temperature Heating Control Systems

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 3, 1975 Award Date: Sep 8, 1979

Received by DOE from NBS: Sep 23, 1977 Final Report Accepted:

Status: Award Award Amount: $30,000

Development Stage: Limited Production/Marketing

Summary: A $30,000 grant 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.

DOE # 45 DOE Coordinator D. G. Mello Contact: Joe W Fowler
Carolina Thermal Company
OERI # 1739 DOE Program Off: CS Iron Works Road
Route #2, Box #39
Category: Industrial Processes Reidsville NC 27320
919/342-0352

Title: Bulk Cure Tobacco Barn with Improvements

Inventor: Joe W Fowler Patent Applied For
State/Country: NC
Company: Carolina Thermal Company

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 19, 1977 Completion Date: May 31, 1978

Received by DOE from NBS: Sep 20, 1977 Final Report Accepted: Jun 1, 1979

Status: Complete Award Amount: $54,980

Development Stage: Limited Production/Marketing

Summary: A grant in the amount 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.

DOE # 46 DOE Coordinator G. K. Ellis Contact: David J Secunda
90 Prospect Hill Avenue
OERI # 679 DOE Program Off: CS Summit NJ 07901
201/277-4475

Category: Industrial Processes

Title: Thexon Dehydration

Inventor: David J Secunda Patent Applied For
State/Country: NJ
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 4, 1976 Completion Date: Dec 29, 1978

Received by DOE from NBS: Sep 23, 1977 Final Report Accepted: Aug 1, 1980

Status: Complete Award Amount: $47,660

Development Stage: Laboratory Test

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 soliciting other support toward commercialization.

DOE # 49 DOE Coordinator D. G. Mello Contact: Wayne S Boals

OERI # 1192 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Automatic Control System for Water Heaters

Inventor: Wayne S Boals
State/Country: CA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 22, 1976 Decision Date:

Received by DOE from NBS: Oct 31, 1977 Final Report Accepted: Sep 1, 1978

Status: No DOE Support

Development Stage: Production Engineering

Summary: Small Scale Technology Office turned down the invention. It determined that the device offered little or not net 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.

DOE # 50 DOE Coordinator T.A.Coultas Contact: Robert Cameron
Scotsman Automotive Corp.
855 Sterling Avenue, Suite #8
Palatine IL 60067
312/991-5770

OERI # 94 DOE Program Off: CS

Category: Combustion Engines & Components

Title: Scotsman Fuel Energizer

Inventor: Robert Cameron Patent # 3 934 569
State/Country: IL
Company: Scotsman Automotive Corporation

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 2, 1975 Award Date: Jul 11, 1978

Received by DOE from NBS: Nov 23, 1977 Final Report Accepted:

Status: Award Award Amount: $74,579

Development Stage: Production & Marketing

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. The applicant's grant is currently the subject of investigation by the Office of the Inspector General.

DOE # 53 DOE Coordinator D.G.Mello

OERI # 2070 DOE Program Off: CS

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

Category: Buildings, Structures & Components

Title: High Efficiency Water Heater

Inventor: Harry E Wood
State/Country: LA
Company: Harry E Wood & Assoc.

Patent Applied For

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 15, 1977 Completion Date: May 1, 1978

Received by DOE from NBS: Dec 23, 1977 Final Report Accepted: Mar 1, 1979

Status: Complete Award Amount: $72,600

Development Stage: Prototype Development

Summary: A grant in the amount of $72,600 was awarded to assist inventor in installing a direct contact, gas fired hot water heater in an existing 210 unit apartment building, and measuring system characteristics, efficiency and reliability. The results assist inventor in further development and commercialization. Apartment owner is buying additional heaters and inventor is negotiating licensing or other arrangements with third parties.

DOE # 54 DOE Coordinator D. G. Mello

OERI # 1355 DOE Program Off: CS

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

Category: Combustion Engines & Components

Title: Optimizer

Inventor: Paul H Schweitzer (Deceased)
State/Country: PA
Company: Optimizer Control Corp.

Patent # 3 974 412 & Others

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 25, 1976 Completion Date: Sep 1, 1978

Received by DOE from NBS: Jan 11, 1978 Final Report Accepted: Jun 15, 1981

Status: Complete Award Amount: $88,895

Development Stage: Working Model

Summary: $88,895 grant for one-year program to design, develop, fabricate and test a pilot model of the Optimizer. Pennsylvania State University will sub-contract electronic design tasks and analytical evaluation. First progress report indicates that prototype performs as predicted. Penn. State Univ. has been assigned greater role in development of instrumentation and additional test units.

DOE # 57 DOE Coordinator G. K. Ellis Contact: Robert H Wieken
411 Betty Lane, West
OERI # 274 DOE Program Off: CS Saint Paul MN 55118
612/457-8227

Category: Buildings, Structures & Components

Title: X-5 Smoke Eliminator

Inventor: Robert H Wieken Patent # 3 812 297
State/Country: MN
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 23, 1975 Award Date: Mar 27, 1979

Received by DOE from NBS: Mar 31, 1978 Final Report Accepted:

Status: Award Award Amount: $55,000

Development Stage: Prototype Development

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 # 58 DOE Coordinator D. G. Mello Contact: Charles M Kirk
1965 Arrowhead Lane, NE
OERI # 1922 DOE Program Off: CS Saint Petersburg FL 33703
813/525-7878

Category: Transportation Systems, Vehicles & Components

Title: A Multiple Spark System Using Inductive Storage

Inventor: Charles M Kirk Patent Applied For
State/Country: FL
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 10, 1977 Award Date: Feb 26, 1979

Received by DOE from NBS: Mar 31, 1978 Final Report Accepted:

Status: Award Award Amount: $59,079

Development Stage: Prototype Test

Summary: $59,079 grant to manufacture ten (10) prototype "MSS" units. Three units will be installed on selected vehicles and dynamometer tested at University of Florida. Final results will be submitted to EPA for verification in EPA drive test cycle.

DOE # 61 DOE Coordinator G. K. Ellis

CERI # 1088 DOE Program Off: FE

Category: Industrial Processes

Title: Fuel Preparation Process

Contact: Murry S. Laskey
2401 Pennsylvania Avenue
Suite #1010
Wilmington DE 19806
302/995-1672

Inventor: Willing B Foulke
State/Country: DE
Company: Fluid Coal Corp.

Patent # 3 932 145

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 14, 1976 Award Date: Jun 15, 1981

Received by DOE from NBS: Apr 26, 1978 Final Report Accepted:

Status: Award Award Amount: $96,421

Development Stage: Concept Development

Summary: A grant in the amount of $96,421 was given 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.

DOE # 62 DOE Coordinator D.R.Craig

CERI # 1029 DOE Program Off: ET

Category: Miscellaneous

Title: Tapered Plate Annular Matrix

Contact: Thaddeus Papis
10115 Victoria Avenue
Riverside CA 92503
714/689-5041

Inventor: Thaddeus Papis
State/Country: CA
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 28, 1976 Award Date: Jun 22, 1979

Received by DOE from NBS: Apr 28, 1978 Final Report Accepted:

Status: Award Award Amount: $79,800

Development Stage: Production Engineering

Summary: Grant of $79,800 has been awarded for the inventor to analyze the potential uses, energy-related benefits, production techniques, and comparative economics of the heat exchanger. The study will culminate in the definition of, and a plan for, a hardware demonstration program.

DOE # 65 DOE Coordinator R.Bell

OERI # 741 DOE Program Off: CS

Category: Miscellaneous

Title: WattVendor

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

Inventor: Lee A Henningsen
State/Country: PA
Company: Firetrol, Inc.

Description: A coin operated device for dispensing electricity.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 18, 1976 Award Date: Sep 10, 1979

Received by DOE from NBS: May 12, 1978 Final Report Accepted:

Status: Award Award Amount: $55,800

Development Stage: Prototype Test

Summary: $55,800 grant 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.

DOE # 66 DOE Coordinator D.G.Mello

OERI # 2277 DOE Program Off: CS

Category: Industrial Processes

Title: Heat Extractor

Contact: Daniel Ben-Shmuel, President
Heat Extractor Corporation
P.O. Box #455
Johnstown NY 12095
518/762-3121

Inventor: Philip Zacuto
State/Country: NY
Company: Heat Extractor Corp.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 20, 1977 Award Date: Sep 29, 1978

Received by DOE from NBS: May 26, 1978 Final Report Accepted:

Status: Award Award Amount: $125,000

Development Stage: Prototype Test

Summary: A $125,000 grant for one year to install, operate and test a heat extractor in an operating paper mill in cooperation with Mohawk Paper Mills Inc. Included in the grant are funds for research and development to determine adaptations required for the heat extractor to be used in coal fired boilers. Operation and tests in the Mohawk Paper Mill are complete. Results confirm significant reduction in primary fuel requirements.

DOE # 69 DOE Coordinator G. K. Ellis

OERI # 844 DOE Program Off: CS

Category: Combustion Engines & Components

Title: Ionic Fuel Control System for the Internal Combustion Engine

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

Inventor: Enoch J Durbin
State/Country: NJ
Company:

Patent # 3 470 741

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 25, 1976 Completion Date: Jan 2, 1979

Received by DOE from NBS: Jun 29, 1978 Final Report Accepted: Jul 1, 1980

Status: Complete Award Amount: $87,051

Development Stage: Prototype Development

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 and is being considered by several automobile manufacturers.

DOE # 70 DOE Coordinator J. Aellen

OERI # 2847 DOE Program Off: CS

Category: Miscellaneous

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

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

Inventor: Kenneth A Stofen
State/Country: WI
Company: Ken Stofen Associates

Patent Applied For

Description: A heat recovery system for large compressors.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Oct 21, 1977 Completion Date: Feb 13, 1979

Received by DOE from NBS: Jun 28, 1978 Final Report Accepted: Aug 6, 1980

Status: Complete Award Amount: $53,000

Development Stage: Limited Production/Marketing

Summary: A grant in the amount 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. Final report received. Inventor is searching for venture capital and marketing assistance.

DOE # 73 DOE Coordinator G. K. Ellis

CERI # 1323 DOE Program Off:

Category: Buildings, Structures & Components

Title: INTECH

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

Inventor: Melvin H Sachs
State/Country: MI
Company: ISTECH, INC

Patent # 3 800 015 & Others

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 9, 1976 Award Date: Jun 22, 1979

Received by DOE from NBS: Aug 10, 1978 Final Report Accepted:

Status: Award Award Amount: $87,230

Development Stage: Production & Marketing

Summary: 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.

DOE # 74 DOE Coordinator D. G. Mello

CERI # 2560 DOE Program Off: ER

Category: Direct Solar

Title: A Solid Electrolyte Galvanic Solar Energy Conversion Cell

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

Inventor: G R Fitterer
State/Country: PA
Company: Scientific Applications, Inc.

Patent Applied For

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 19, 1977 Completion Date: Aug 24, 1979

Received by DOE from NBS: Aug 29, 1978 Final Report Accepted: Oct 30, 1980

Status: Complete Award Amount: $50,000

Development Stage: Limited Production/Marketing

Summary: A $50,000 grant 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.

DOE # 77 DOE Coordinator J. Aellen

OERI # 1173 DOE Program Off: CS

Category: Miscellaneous

Title: Variable Heat Refrigeration System

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

Inventor: James W McCord
State/Country: KY
Company: Corpane Industries, Inc.

Patent Applied For

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 9, 1976 Award Date: Feb 1, 1979

Received by DOE from NBS: Sep 25, 1978 Final Report Accepted:

Status: Award Award Amount: $97,400

Development Stage: Working Model

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

DOE # 78 DOE Coordinator G. K. Ellis

OERI # 1154 DOE Program Off: ER

Category: Other Natural Sources

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

Contact: Robert McNeill

Inventor: Robert McNeill
State/Country: CA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 30, 1976 Decision Date: Mar 11, 1981

Received by DOE from NBS: Sep 28, 1978 Final Report Accepted: Mar 11, 1981

Status: No DOE Support

Development Stage:

Summary: Inventor advised DOE that support is no longer needed.

DOE # 81 DOE Coordinator D. G. Mello

OERI # 2526 DOE Program Off: CS

Category: Industrial Processes

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

Title: Flash Polymerization

Inventor: C Richard Panico
State/Country: MA
Company: Xenon Corp.

Patent # 3 782 889

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 26, 1977 Completion Date: Sep 29, 1979

Received by DOE from NBS: Sep 29, 1978 Final Report Accepted: Feb 3, 1981

Status: Complete Award Amount: $99,990

Development Stage: Prototype Test

Summary: A $99,990 grant to conduct a three-part investigation of the energy-saving, and market penetration potential for this curing technique. United Technologies, Inc., Research Laboratories, as a subcontractor, will conduct a preliminary assessment of the basic mechanism of flash initiated reactions. Development Sciences, Inc. will conduct a comparative energy analysis, and market penetration study.

DOE # 82 DOE Coordinator D. G. Mello

OERI # 3061 DOE Program Off: CS

Category: Industrial Processes

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

Title: Cool Air Induction

Inventor: Robert L Ullrich
State/Country: NM
Company: Ullrich Engineering & Mfg., Inc.

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 23, 1977 Award Date: Sep 24, 1979

Received by DOE from NBS: Oct 27, 1978 Final Report Accepted:

Status: Award Award Amount: $68,402

Development Stage: Limited Production/Marketing

Summary: A two-phase grant in the amount of $99,282 has been requested. The first phase has been awarded ($68,402) and provides 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.

DOE # 85 DOE Coordinator R.Bell

OERI # 3691 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Dielectric Windowshade

Contact: Charles G Kalt
29 Hawthorne Road
Williamstown MA 01267
413/684-6371

Inventor: Charles J Kalt
State/Country: MA
Company:

Patent # 3 989 257

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 12, 1978 Award Date: Aug 18, 1981

Received by DOE from NBS: Oct 31, 1978 Final Report Accepted:

Status: Award Award Amount: $99,500

Development Stage: Concept Development

Summary: An award in the amount of $99,500 was given to design, build, and test a demonstration model of the Dielectric Windowshade.

DOE # 86 DOE Coordinator G. K. Ellis

OERI # 2726 DOE Program Off: CS

Category: Fossil Fuels

Title: Coke Desulfurization

Contact: Stephen H Baum, President
Diamond Energy Corporation
530 Fifth Avenue
New York NY 10036
212/944-5990

Inventor: Couglas MacGregor
State/Country: UT
Company: Diamond Energy Corporation

Patent # 4 011 303

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 21, 1977 Completion Date: Mar 23, 1981

Received by DOE from NBS: Nov 27, 1978 Final Report Accepted: Mar 23, 1981

Status: Complete Award Amount: $82,500

Development Stage: Laboratory Test

Summary: A grant of $82,500 was awarded on Dec 7, 1979 for Diamond West Corporation, exclusive licensee, to perform sufficient additional technical, engineering, and application investigation to ready the technology for the marketplace.

DOE # 89 DOE Coordinator D.R.Craig Contact: Henry E. Allen

OERI # 2648 DOE Program Off: CS

Category: Industrial Processes

Title: Continuous Casting Process and Apparatus

Inventor: Henry E Allen Patent # 3 517 725
State/Country: NY
Company: Technicon Corp.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 22, 1977 Decision Date: May 27, 1981

Received by DOE from NBS: Nov 30, 1978 Final Report Accepted: Feb 28, 1981

Status: Analysis I

Development Stage: Prototype Development

Summary: DOE is considering recommendation.

DOE # 90 DOE Coordinator J.Aellen Contact: Clinton Van Winkle

OERI # 3790 DOE Program Off: CS

Category: Industrial Processes

Title: Grain Dryer

Inventor: Clinton Van Winkle Patent # 4 003 139
State/Country: NE
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 16, 1978 Decision Date:

Received by DOE from NBS: Dec 18, 1978 Final Report Accepted:

Status: Analysis I

Development Stage: Prototype Development

Summary: Recommendation under consideration by DOE

DOE # 93 DOE Coordinator G. K. Ellis Contact: Edward H Shelander
P.O. Box #603
OERI # 1300 DOE Program Off: CS Brunswick GA 31520
912/265-8464

Category: Industrial Processes

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

Inventor: Edward H Shelander Patent # 3 849 121
State/Country: GA
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 9, 1976 Award Date: Mar 29, 1980

Received by DOE from NBS: Jan 24, 1979 Final Report Accepted:

Status: Award Award Amount: $87,742

Development Stage: Prototype Test

Summary: A grant in the amount of $87,742 has been awarded to provide an engineering and economic analysis of the subject process.

DOE # 94 DOE Coordinator J. Aellen Contact: William M FioRito

OERI # 3675 DOE Program Off: CS

Category: Industrial Processes

Title: Lantz Converter

Inventor: William M FioRito Patent # 2 886 122
State/Country: CA
Company: Pan American Resources, Inc.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 2, 1978 Decision Date:

Received by DOE from NBS: Jan 30, 1979 Final Report Accepted:

Status: Analysis II

Development Stage: Concept Development

Summary: After meeting with the invention coordinator, inventor is modifying proposal.

DOE # 97 DOE Coordinator J. Aellen

OERI # 3679 DOE Program Off: CS

Category: Industrial Processes

Title: Water Drying System

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

Inventor: James W McCord
State/Country: KY
Company: Corpane Industries, Inc.

Patent Applied For

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 9, 1976 Award Date: Sep 10, 1980

Received by DOE from NBS: Feb 28, 1979 Final Report Accepted:

Status: Award Award Amount: $93,800

Development Stage: Engineering Design

Summary: An award in the amount of $93,800 has been granted to design and construct demonstration models of a system to dry water from metal parts.

DOE # 98 DOE Coordinator G. K. Ellis

OERI # 3547 DOE Program Off: CS

Category: Industrial Processes

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

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

Inventor: James L Chill
State/Country: OH
Company: Chillcast, Inc.

Patent Applied For

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 17, 1978 Award Date: Dec 31, 1979

Received by DOE from NBS: Mar 14, 1979 Final Report Accepted:

Status: Award Award Amount: $123,994

Development Stage: Prototype Development

Summary: A $123,994 grant 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.

DOE # 101 DOE Coordinator D.R.Craig Contact: Sharad M Dave
27689 Doreen
OERI # 2114 DOE Program Off: CS Farmington Hills MI 48024
313/478-5976

Category: Combustion Engines & Components

Title: Controlled Combustion Engine

Inventor: Sharad M Dave Patent # 3 762 381
State/Country: MI
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 28, 1977 Award Date: May 5, 1981

Received by DOE from NBS: Apr 20, 1979 Final Report Accepted:

Status: Award Award Amount: $85,000

Development Stage: Concept Development

Summary: An award of $85,000 to modify a conventional engine to provide variable valving in a variety of design and test on an engine dynamometer both for efficiency and performance.

DOE # 102 DOE Coordinator G. K. Ellis Contact: Frank C Bernhard
11936 Claychester Drive
OERI # 3205 DOE Program Off: ER St. Louis MO 63131
314/822-3484

Category: Buildings, Structures & Components

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

Inventor: Frank C Bernhard Patent # 3 977 823
State/Country: MO
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 19, 1977 Award Date: Feb 21, 1980

Received by DOE from NBS: Apr 24, 1979 Final Report Accepted:

Status: Award Award Amount: $43,550

Development Stage: Concept Development

Summary: A grant in the amount 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.

DOE # 105 DOE Coordinator J. Aellen Contact: Allen D Zumbrunnen
419 Sherman Avenue
OERI # 2467 DOE Program Off: CS Salt Lake City UT 84115
801/466-2663

Category: Industrial Processes

Title: High Frequency Furnace

Inventor: Allen D Zumbrunnen Patent # 4 133 969
State/Country: UT
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 24, 1977 Award Date: Sep 30, 1981

Received by DOE from NBS: Apr 30, 1979 Final Report Accepted:

Status: Award Award Amount: $121,554

Development Stage: Concept Development

Summary: An award in the amount of $121,554 was given to build and test a prototype high frequency induction furnace for the production of silicon for solar cells.

DOE # 106 DOE Cocrdinator D. G. Mello Contact: James L Ramer

OERI # 2753 DOE Program Off: CS

Category: Miscellaneous

Title: Deep Shaft Hydro-Electric Power

Inventor: James L Ramer
State/Country: WI
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 30, 1977 Decision Date:

Received by DOE from NBS: May 10, 1979 Final Report Accepted: Jul 18, 1979

Status: No DOE Support

Development Stage: Concept Definition

Summary: Material submitted described a concept, but was not an invention. The concept related several well known ideas and proposed to unite them into one vast experiment. Feasibility of this concept was not well enough established to convince DOE to act.

DOE # 109 DOE Coordinator G. K. Ellis Contact: H. W. Kennick
Clark Meat Science Lab
OERI # 3321 DOE Program Off: CS Oregon State University
Corvallis OR 97331
Category: Miscellaneous 503/754-3675

Title: Hydrostatic Meat Tenderizer

Inventor: H. W. Kennick
State/Country: OR
Company: Clark Meat Science Lab.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 11, 1978 Award Date: Jun 24, 1980

Received by DOE from NBS: Jun 19, 1979 Final Report Accepted:

Status: Award Award Amount: $86,000

Development Stage: Prototype Test

Summary: A grant in the amount of $86,000 has been awarded to investigate and develop a feasible commercial process.

DOE # 110 DOE Coordinator D. G. Mello Contact: Karl H. Bergey
Route #1, Box #1518
OERI # 3425 DOE Program Off: CS Norman OK 73069
405/325-7241
Category: Other Natural Sources

Title: Improved Windpower Generating System

Inventor: Karl H. Bergey Patent Applied For
State/Country: OK
Company: Bergey Windpower Company

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 19, 1978 Award Date: Aug 27, 1980

Received by DOE from NBS: Jun 29, 1979 Final Report Accepted:

Status: Award Award Amount: $74,875

Development Stage: Prototype Development

Summary: A one-year grant in the amount of $75,875 has been 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

DOE # 113 DOE Coordinator D.R.Craig Contact: Henry J Wallace

CERI # 3865 DOE Program Off: CS

Category: Industrial Processes

Title: Wallace Mold Additive System

Inventor: Henry J Wallace Patent # 3 871 058 & Others
State/Country: PA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 20, 1978 Decision Date: May 22, 1981

Received by DOE from NBS: Jul 31, 1979 Final Report Accepted: Feb 24, 1981

Status: Analysis II

Development Stage: Prototype Development

Summary: DOE is reconsidering the recommendation.

DOE # 114 DOE Coordinator D.R.Craig Contact: Mario Bruno

CERI # 3863 DOE Program Off: CS

Category: Transportation Systems, Vehicles & Components

Title: New Energy-Saving Tire for Motor Vehicles

Inventor: Renato Monzini
State/Country: Milan, I
Company: ECO Tires Company

Description: An automobile tire of innovative design intended to reduce rolling friction below that of equivalent radial tires. Special rims are required.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 20, 1978 Decision Date:

Received by DOE from NBS: Jul 31, 1979 Final Report Accepted:

Status: Analysis I

Development Stage: Prototype Development

Summary: Recommendation under consideration by DOE.

DOE # 117 DOE Coordinator J. Aellen

OERI # 2189 DOE Program Off: CS

Category: Direct Solar

Title: "Solarspan" Prism Trap

Contact: George E Mattson
361 Moraine Street
Brockton MA 02401
617/589-3598

Inventor: John Mattson
State/Country: MA
Company:

Patent Applied For

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 28, 1977 Award Date: Sep 30, 1980

Received by DOE from NBS: Sep 20, 1979 Final Report Accepted:

Status: Award Award Amount: $98,700

Development Stage: Prototype Test

Summary: An award in the amount of $98,700 has been awarded to design, test and construct low cost plastic solar water heating panels.

DOE # 118 DOE Coordinator R.Bell

OERI # 3876 DOE Program Off: CS

Category: Industrial Processes

Title: Energy Adaptive Control of Precision Grinding

Contact: Roderick L. Smith
Energy Adaptive Grinding, Inc.
29 Airport Drive
Rockford IL 61109
815/399-5614

Inventor: Roderick L Smith
State/Country: IL
Company: Energy Adaptive Grinding, Inc.

Patent # 3 653 855

Description: An otherwise conventional, universal, external cylindrical grinder retrofitted with a computer control to save energy in removing metal.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 24, 1978 Award Date: Sep 15, 1981

Received by DOE from NBS: Sep 27, 1979 Final Report Accepted:

Status: Award Award Amount: $99,328

Development Stage: Prototype Test

Summary: A grant in the amount of $99,328 was given to perform a complete engineering design and testing of the invention prototype equipment.

DOE # 121 DOE Coordinator J. Aellen Contact: James B Whitmore

CERI # 4643 DOE Program Off: CS

Category: Direct Solar

Title: Solar Space Heating for both Retrofit and New Construction

Inventor: James B Whitmore
State/Country: MI
Company: Sunway Heatings Systems, Inc.

Description: Passive solar collector using air as the transfer fluid. Cesigned for vertical south wall of a structure.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 8, 1979 Decision Date:

Received by DOE from NBS: Oct 25, 1979 Final Report Accepted:

Status: Analysis II

Development Stage: Limited Production/Marketing

Summary: Inventor is requesting assistance in developing strategy for marketing. Awaiting revised proposal.

DOE # 122 DOE Coordinator J. Aellen Contact: Michael D Leshner
Fuel Injection Dev. Corp.
110 Harding Avenue
Bellmawr NJ 08030
609/931-3168

CERI # 4035 DOE Program Off: CS

Category: Combustion Engines & Components

Title: Lean Limit Controller

Inventor: Michael D Leshner Patent # 4 015 572
State/Country: NJ
Company: Fuel Injection Development Corp.

Description: A device to apply adaptive control to air-fuel metering in internal conbustion engines.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 12, 1978 Award Date: Sep 24, 1980

Received by DOE from NBS: Nov 23, 1979 Final Report Accepted:

Status: Award Award Amount: $99,500

Development Stage: Prototype Test

Summary: An award in the amount of $99,500 has been granted to design and test a lean limit control device for an internal combustion engine.

DOE # 125 DOE Coordinator G.K.Ellis

OERI # 707 DOE Program Off: CS

Category: Buildings, Structures & Components

Contact: Frank W Bailey
P.O. Box #94
Fourth Avenue
Haskell NJ 07420
201/481-1225

Title: The Turbulator Burner System

Inventor: Frank W Bailey
State/Country: NJ
Company: Bailey Burners, Inc.

Patent Applied For

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 11, 1976 Award Date: Sep 29, 1980

Received by DOE from NBS: Dec 31, 1979 Final Report Accepted:

Status: Award Award Amount: $75,000

Development Stage: Prototype Test

Summary: A grant in the amount of $75,000 has been awarded to design, build, test, and evaluate both an externally and an internally stirred heat exchanger.

DOE # 126 DOE Coordinator J. Aellen

OERI # 4970 DOE Program Off: CS

Category: Industrial Processes

Contact: Karl D Scheffer
121 Governor Drive
Scotia NY 12302
518/399-0016

Title: Vaclaim

Inventor: Karl D Scheffer
State/Country: NY
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 19, 1979 Award Date: Apr 1, 1981

Received by DOE from NBS: Dec 31, 1979 Final Report Accepted:

Status: Award Award Amount: $97,734

Development Stage: Laboratory Test

Summary: A award of $97,734 was given for fabrication and testing heat recovery in vacuum metal casting process using no-bake molds.

DOE # 129 DOE Coordinator J. Aellen Contact: James E Kessler
Box #8115
OERI # 4007 DOE Program Off: CS Leawood KS 66208
913/722-0504

Category: Buildings, Structures & Components

Title: Super U System - Snap Strap

Inventor: James E Kessler Patent # 4 069 636
State/Country: KS
Company: CIS International, Inc.

Description: Super U-Snap strap insulation system which is an innovative application technique.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 24, 1978 Award Date: Nov 28, 1980

Received by DOE from NBS: Jan 31, 1980 Final Report Accepted:

Status: Award Award Amount: $84,642

Development Stage: Prototype Development

Summary: A grant of $84,642 has been awarded to test market of the Super U System and installers.

DOE # 130 DOE Coordinator R.Bell Contact: Arnold R Post

OERI # 4389 DOE Program Off: IS

Category: Buildings, Structures & Components

Title: Furnace Input Capacity Trimming Switch

Inventor: Arnold R Post
State/Country: PA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 11, 1978 Decision Date:

Received by DOE from NBS: Feb 26, 1980 Final Report Accepted:

Status: Analysis I

Development Stage: Laboratory Test

Summary: Awaiting preliminary proposal. Inventor has been informed that he has until August 30, 1981 to submit a preliminary proposal or his invention will no longer be considered by the DOE.

DOE # 133 DOE Coordinator G.K.Ellis

OERI # 4641 DOE Program Off: IS

Category: Transportation Systems, Vehicles & Components

Title: AUTOTHERM Car Comfort System

Contact: James V Enright
Autotherm, Inc.
314 East Main Street
P.O. Box #333
Barrington IL 60010
312/381-6336

Inventor: F J Perhats
State/Country: IL
Company: Autotherm, Inc.

Patent Applied For

Description: It is 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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 27, 1978 Award Date: Jun 19, 1981

Received by DOE from NBS: Mar 26, 1980 Final Report Accepted:

Status: Award Award Amount: $71,039

Development Stage: Limited Production/Marketing

Summary: A grant in the amount of $71,039 was awarded to perform the necessary task to the research and laboratory testing to ready the invention for the marketplace.

DOE # 134 DOE Coordinator G.K.Ellis

OERI # 5239 DOE Program Off: IS

Category: Buildings, Structures & Components

Title: Expanded Polystyrene Bead Insulation System

Contact: John C Rupert
1511 Grantham Street
Saint Paul MN 55108

Inventor: John C Rupert
State/Country: MN
Company: Rupert Insulation Products, Inc.

Patent Applied For

Description: It is a means for retro-insulating housing walls.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 30, 1979 Award Date: Sep 26, 1980

Received by DOE from NBS: Mar 31, 1980 Final Report Accepted:

Status: Award Award Amount: $80,944

Development Stage: Limited Production/Marketing

Summary: A grant in the amount of $80,944 has been 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.

DOE # 137 DOE Coordinator J. Aellen Contact: H Roy Weber
Box #336
OERI # 5130 DOE Program Off: CS Kailua HI 96734
808/262-6348

Category: Industrial Processes

Title: A Portable Pollution Free Automobile Incinerator

Inventor: H Roy Weber Patent Applied For
State/Country: HI
Company: Kailua Auto Wreckers

Description: Portable automobile incinerator

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 17, 1979 Award Date: Jun 20, 1981

Received by DOE from NBS: May 8, 1980 Final Report Accepted:

Status: Award Award Amount: $99,408

Development Stage: Prototype Development

Summary: A grant in the amount of $99,408 was given to fabricate, construct and test, an incinerator to prove the invention is a viable method or reducing scrap cars in satisfactory condition for recycling into the iron and steel industry.

DOE # 138 DOE Coordinator J. Aellen Contact: Gerald R Seeman

OERI # 1994 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Phantom Tube

Inventor: Gerald R Seeman Patent # 3 956 665
State/Country: CA
Company: Developmental Sciences, Inc.

Description: Phantom tube is a non light emitting, low energy device to be paired with a fluorescent tube in rapid or instant start fixtures.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 28, 1977 Decision Date: Jul 1, 1981

Received by DOE from NBS: May 28, 1980 Final Report Accepted:

Status: Decision Phase

Development Stage: Limited Production/Marketing

Summary: A grant request was rejected by procurement and is being renegotiated between DOE and inventor.

DOE # 141 DOE Coordinator R. Bell Contact: Samuel Shiber
P. O. Box #371
OERI # 3673 DOE Program Off: CS Mundelein IL 60060

Category: Transportation Systems, Vehicles & Components

Title: New Hydrostatic Transmission

Inventor: Samuel Shiber Patent Applied For
State/Country: IL
Company:

Description: A continuously variable hydraulic positive displacement transmission with lockup, overdrive, and regenerative braking for automotive and other vehicular uses.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 6, 1978 Award Date: Jul 9, 1981

Received by DOE from NBS: Jun 23, 1980 Final Report Accepted:

Status: Award Award Amount: $95,000

Development Stage: Concept Development

Summary: A grant in the amount of $95,000 was awarded to design, build, and test a Volkswagon Sirocco with a prototype hydrostatic transmission installed.

DOE # 142 DOE Coordinator J. Aellen Contact: Anatol Michelson
3235 Pine Valley Drive
OERI # 5822 DOE Program Off: CS Sarasota FL 33579

Category: Industrial Processes

Title: Process for Heatless Production of Hollow Items

Inventor: Anatol Michelson Patent Applied For
State/Country: FL
Company:

Description: A metal casting method for hollow parts

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 24, 1979 Award Date: Jul 1, 1981

Received by DOE from NBS: Jun 26, 1980 Final Report Accepted:

Status: Award Award Amount: $108,920

Development Stage: Prototype Test

Summary: A grant in the amount of $108,920 was awarded to construct and test a working model to demonstrate the heatless production of hollow casting.

DOE # 145 DOE Coordinator J. Aellen

OERI # 6213 DOE Program Off: IS

Category: Direct Solar

Contact: Robert E Salomon
Chemistry Depertment
Temple University
Philadelphia PA 19122
215/787-7125

Title: Solar Conversion by Concentration Cells with Hydrides

Inventor: Robert E Salomon
State/Country: PA
Company:

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.)

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 26, 1979 Award Date: Jul 1, 1981

Received by DOE from NBS: Jul 29, 1980 Final Report Accepted:

Status: Award Award Amount: $67,868

Development Stage: Concept Development

Summary: An award in the amount of $67,868 was given to build and test a laboratory model of the inventor's system. Testing is to determine efficiency and feasibility.

DOE # 146 DOE Coordinator R.Bell

OERI # 4794 DOE Program Off: IS

Category: Fossil Fuels

Contact: Ronald M Hertzfeld

Title: Line Integral Method of Magneto-Electric Exploration

Inventor: Sylvain J Pirson Patent # 3 943 436
State/Country: TX
Company: Independex Inc - (Sweetwater Oil Co)

Description: A method of exploring for gas and oil deposits by plotting the intensity and polarities of local perturbations in the earths magnetic field. These perturbations are caused by naturally occuring electrotelluric (ET) currents associated with the oil and gas.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 25, 1979 Decision Date: Oct 9, 1981

Received by DOE from NBS: Jul 30, 1980 Final Report Accepted:

Status: Analysis II

Development Stage: Limited Production/Marketing

Summary: Awaiting proposal from Mr. Hertzfeld.

DOE # 149 DOE Coordinator D.R.Craig

OERI # 5610 DOE Program Off: IS

Category: Buildings, Structures & Components

Contact: Ogden H Hammond
Count Digital, Inc.
3565 Massachusetts Avenue
Arlington MA 02174
617/729-9229

Title: SCOTCH - (Simple, Cost-Effective, Optimum Temperature Control for Housing)

Inventor: Ogden H Hammond
State/Country: MA
Company: Count Digital, Ltd.

Description: A system to retrofit residential and other steam heating systems to allow zone heating.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 6, 1979 Award Date: Jan 28, 1981

Received by DOE from NBS: Aug 18, 1980 Final Report Accepted:

Status: Award Award Amount: $91,962

Development Stage: Concept Development

Summary: A grant of $91,962 was awarded to design, build and test prototype installations in a number of residences in the Boston area where steam heated homes are numerous and winters severe.

DOE # 150 DOE Coordinator G.K.Ellis

OERI # 7141 DOE Program Off:

Category: Industrial Processes

Contact: Edward W Midlam
2300 21st Street
Lake Charles LA 70601
318/478-7844

Title: The Use of Solid Waste Material from a Lubricating Oil and/or Vegetable Oil Refining Operation.

Inventor: Edward W Midlam
State/Country: LA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 16, 1980 Award Date: Aug 6, 1981

Received by DOE from NBS: Sep 30, 1980 Final Report Accepted:

Status: Award Award Amount: $64,200

Development Stage: Production Engineering

Summary: A grant in the amount of $64,200 was given to investigate a specific marketing possibility and the resource potential, and intensively investigate two or more potentially interesting selected applications.

DOE # 153 DOE Coordinator R.Bell Contact: Carl E Pearl

CERI # 5553 DOE Program Off:

Category: Miscellaneous

Title: A New Equipment Design Concept for Storage of Hot Foods

Inventor: Carl E Pearl
State/Country: CA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 10, 1979 Decision Date: Oct 19, 1981

Received by DOE from NBS: Sep 30, 1980 Final Report Accepted:

Status: Procurement

Development Stage: Concept Development

Summary: Invention coordinator and inventor have agreed to scope of work for a grant.

DOE # 154 DOE Coordinator J.Aellen Contact: Forrest E Chancellor

CERI # 5750 DOE Program Off:

Category: Fossil Fuels

Title: Rotating Horsehead for Pumping Units

Inventor: Forrest E Chancellor Patent # 4 121 471
State/Country: CA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 7, 1979 Decision Date: May 14, 1981

Received by DOE from NBS: Oct 29, 1980 Final Report Accepted:

Status: Analysis II

Development Stage: Limited Production/Marketing

Summary: Awaiting revised proposal.

DOE # 157 DOE Coordinator R.Bell

CERI # 5968 DOE Program Off:

Contact: Albert L McQuillen, Jr
1701 Partridge Run Road
Pittsburgh PA 15241
412/835-2836

Category: Industrial Processes

Title: Magnaseal Method and Means for Sealing Steel Ingot Casting Molds to Stools.

Inventor: Albert L McQuillen, Jr
State/Country: PA
Company: 33 Hundred, Inc.

Patent # 3 837 393

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 1, 1979 Award Date: Jun 18, 1981

Received by DOE from NBS: Oct 31, 1980 Final Report Accepted:

Status: Award Award Amount: $91,202

Development Stage: Prototype Test

Summary: A grant in the amount of $91,202 has been awarded to build and install a Magneseal system in the U. S. Steel plant in Lorrain, Ohio to be demonstrated and tested.

DOE # 158 DOE Coordinator D.R.Craig

CERI # 2049 DOE Program Off:

Contact: Paul F Pugh
4082 Sequoyah Road
Oakland CA 94605
415/638-5015

Category: Miscellaneous

Title: Energy Conservative Electric Cable System

Inventor: Paul F Pugh
State/Country: CA
Company:

Patent Applied For

Description: A low-loss shielded power cable using a naturally cooled sodium conductor and a pressurized gas insulator.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 13, 1977 Award Date: Jun 11, 1981

Received by DOE from NBS: Oct 31, 1980 Final Report Accepted:

Status: Award Award Amount: $140,000

Development Stage: Limited Production/Marketing

Summary: An award in the amount of $140,000 was given to construct and lay cable from the mainland to Alcatraz Island, California. Inventor will also build and conduct lab tests on high voltage cable for subsequent evaluation by EPRI lab at Waltz Mill.

DOE # 161 DOE Coordinator R.Bell

OERI # 854 DOE Program Off:

Category: Fossil Fuels

Contact: Anthony A duPont
duPont Connell Energy
21515 Hawthorne Boulevard
Torrance CA 90503
213/370-3566

Title: duPont Connell Energy Coal Gasification Process

Inventor: Anthony A duPont
State/Country: CA
Company: duPont Connell Energy

Patent Applied For

Description: A method of making low-to-medium Btu gas from coal is described. A key feature is control of retort heat fluxes.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 31, 1976 Award Date: Aug 5, 1981

Received by DOE from NBS: Nov 28, 1980 Final Report Accepted:

Status: Award Award Amount: $98,074

Development Stage: Working Model

Summary: An award in the amount of $98,074 was given to design, build, and test a laboratory scale model of the inventor's concept.

DOE # 162 DOE Coordinator D.R.Craig

OERI # 6952 DOE Program Off:

Category: Industrial Processes

Contact: Lemuel Leslie Ply

Title: Tubular Pneumatic Conveyor Pipeline

Inventor: Lemuel Leslie Ply
State/Country: TX
Company:

Patent # 4 116 491

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 23, 1980 Decision Date:

Received by DOE from NBS: Nov 28, 1980 Final Report Accepted:

Status: Analysis II

Development Stage: Concept Development

Summary: Awaiting revised proposal.

DOE # 165 DOE Coordinator G.K.Ellis

OERI # 6585 DOE Program Off:

Contact: Wu-Chi Chen
859 Brittmore Road
Houston TX 77079
713/461-6811

Category: Fossil Fuels

Title: Process for Recovering Hydrogen and Elemental Sulfur from Hydrogen Sulfide and/or Mercaptans-Containing Hydrogen

Inventor: Wu-Chi Chen
State/Country: TX
Company:

Patent # 4 066 739

Description: A new process for recovering hydrogen and elemental-sulfur from hydrogen sulfide using iodine slurry

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 16, 1980 Award Date: Jul 15, 1981

Received by DOE from NBS: Dec 29, 1980 Final Report Accepted:

Status: Award Award Amount: $70,000

Development Stage: Concept Development

Summary: A grant in the amount of $70,000 was awarded to investigate the feasibility of the process by performing laboratory and economic studies.

DOE # 166 DOE Coordinator D.R.Craig

OERI # 4656 DOE Program Off: FOSSIL

Contact: Robert F Evans
Box #45674
Dallas TX 75235
214/943-2181

Category: Fossil Fuels

Title: Borehole Angle Control

Inventor: Robert F Evans
State/Country: TX
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 27, 1978 Award Date: Jul 28, 1981

Received by DOE from NBS: Dec 29, 1980 Final Report Accepted:

Status: Award Award Amount: $98,148

Development Stage: Concept Development

Summary: An award in the amount of $98,148 was given to design, fabricate, and conduct field tests on the drill bits and control system.

DOE # 169 DOE Coordinator D.R.Craig Contact: B O Combs

CERI # 6239 DOE Program Off: CS

Category: Industrial Processes

Title: MIRAFOUNT

Inventor: Mervin W Martin Patent # 3 745 977
State/Country: MO
Company: MIRACO Manufacturing

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 27, 1979 Decision Date:

Received by DOE from NBS: Jan 30, 1981 Final Report Accepted:

Status: Analysis I

Development Stage: Limited Production/Marketing

Summary: Recommendation under consideration by DOE.

DOE # 170 DOE Coordinator J.Aellen Contact: Thomas R Mee

CERI # 5622 DOE Program Off: CS

Category: Industrial Processes

Title: Fog System - Low Energy Freeze Protection for Agriculture

Inventor: Thomas R Mee Patent # 4 039 144 & Others
State/Country: CA
Company: Mee Industries Inc

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 22, 1979 Decision Date: Apr 23, 1981

Received by DOE from NBS: Jan 30, 1981 Final Report Accepted:

Status: Analysis II

Development Stage: Prototype Development

Summary: Preliminary proposal has been received and is being reviewed by DOE.

DOE # 173 DOE Coordinator R.Bell Contact: Bill Burley
Peterson Drive
OERI # 6277 DOE Program Off: Johnstown PA 15905
814/288-1750

Category: Buildings, Structures & Components

Title: Thermal Ice Cap

Inventor: Bill Burley
State/Country: PA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 7, 1980 Award Date: Aug 10, 1981

Received by DOE from NBS: Feb 26, 1981 Final Report Accepted:

Status: Award Award Amount: $73,000

Development Stage: Working Model

Summary: A grant in the amount of $73,000 was given to build and test a prototype model of the thermal ice cap.

DOE # 174 DOE Coordinator J.Aellen Contact: Gene Plattner

OERI # 6241 DOE Program Off:

Category: Buildings, Structures & Components

Title: Skate on Plastic Ice Skating System

Inventor: E C Nathaniel Patent # 4 030 729
State/Country: MO
Company: Skate-On, Inc.

Description: A non-refrigerated plastic skating surface to replace energy intensive ice skating surfaces.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 31, 1979 Decision Date: Sep 28, 1981

Received by DOE from NBS: Mar 5, 1981 Final Report Accepted:

Status: Procurement

Development Stage: Limited Production/Marketing

Summary: Invention coordinator and inventor agreed to scope of work for a grant.

DOE # 177 DOE Coordinator R.W.Bell Contact: Robert John Starr

OERI # 6040 DOE Program Off:

Category: Direct Solar

Title: The Solar I Option

Inventor: Robert John Starr
State/Country: VT
Company:

Description: A solar heating system using commercially available collectors and components and a concrete floor slab as a heat storage device and heat exchanger.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 3, 1979 Decision Date: Sep 22, 1981

Received by DOE from NBS: May 7, 1981 Final Report Accepted:

Status: Procurement

Development Stage: Limited Production/Marketing

Summary: Invention coordinator and inventor have agreed to scope of work for a grant.

DOE # 178 DOE Coordinator G.K.Ellis Contact: John W North

OERI # 7726 DOE Program Off:

Category: Industrial Processes

Title: Process and Apparatus for Producing Cellulated Vitreous Refractory Material

Inventor: John W North Patent # 4 212 635 & Others
State/Country: GA
Company: J W North Company

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Oct 30, 1980 Decision Date:

Received by DOE from NBS: Apr 15, 1981 Final Report Accepted:

Status: Analysis I

Development Stage: Engineering Design

Summary: Recommendation under consideration by DOE.

DOE # 181 DOE Coordinator J.Aellen Contact: Eskil L Karlson

OERI # 8061 DOE Program Off:

Category: Out of Scope & Unclassifiable

Title: The Karlson Ozone Sterilizer

Inventor: Eskil L Karlson Patent # 3 719 017 & Others
State/Country: PA
Company:

Description: A mass separation device using small amounts of energy. Elements of electropheresis, column chromotography, and centrifugal separation are used.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 9, 1981 Decision Date: Sep 28, 1981

Received by DOE from NBS: May 29, 1981 Final Report Accepted:

Status: Procurement

Development Stage: Prototype Development

Summary: Invention coordinator and inventor have agreed to scope of work for a grant.

DOE # 182 DOE Coordinator J.Aellen Contact: Robert F Evans

OERI # 7089 DOE Program Off:

Category: Other Natural Sources

Title: Improved Seal for Geothermal Drill Bit

Inventor: Robert F Evans Patent Applied For
State/Country: CA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 3, 1980 Decision Date: Aug 19, 1981

Received by DOE from NBS: May 29, 1981 Final Report Accepted:

Status: Analysis II

Development Stage: Concept Development

Summary: Preliminary proposal has been received and is being reviewed by DOE.

DOE # 185 DOE Coordinator T.A.Coultas Contact: Dwight F Carter

OERI # 2443 DOE Program Off:

Category: Buildings, Structures & Components

Title: Insulated Garage Door

Inventor: Cecil H Wolf Patent Applied For
State/Country: IL
Company:

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 an exterior cavity filled with insulation.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 11, 1977 Decision Date:

Received by DOE from NBS: Jul 27, 1981 Final Report Accepted:

Status: Analysis I

Development Stage: Working Model

Summary: Recommendation under consideration by DOE.

DOE # 186 DOE Coordinator R.W.Bill Contact: Ronald Hertzfeld

OERI # 7361 DOE Program Off:

Category: Fossil Fuels

Title: Oil Recovery by In-Situ Exfoliation Drive

Inventor: Sylvain J Pirson
State/Country: TX
Company: Independex Inc - (Sweetwater Oil Co)

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 31, 1980 Decision Date:

Received by DOE from NBS: Jul 28, 1981 Final Report Accepted:

Status: Analysis I

Development Stage: Concept Development

Summary: Recommendation under consideration by DOE.

DOE # 189 DOE Coordinator T.A.Coultas Contact: Gerald Eastman

CERI # 7658 DOE Program Off:

Category: Miscellaneous

Title: Pump Jack

Inventor: Gerald Eastman
State/Country: OK
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Oct 10, 1980 Decision Date: Oct 17, 1981

Received by DOE from NBS: Aug 31, 1981 Final Report Accepted:

Status: Procurement

Development Stage: Prototype Test

Summary: Invention coordinator and inventor have agreed to scope of work for a grant.

DOE # 190 DOE Coordinator T.A.Coultas Contact: W N Lawless

CERI # 7963 DOE Program Off:

Category: Miscellaneous

Title: Oxygen-Conducting Material and Oxygen-Sensing Method

Inventor: W N Lawless
State/Country: OH
Company: Lake Shore Ceramics, Inc

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 7, 1981 Decision Date:

Received by DOE from NBS: Sep 30, 1981 Final Report Accepted:

Status: Analysis I

Development Stage: Engineering Design

Summary: Recommendation under consideration by DOE.

DOE # 191 DOE Coordinator R.W.Bell Contact: Hans J Schallig

CERI # 4890 DOE Program Off:

Category: Buildings, Structures & Components

Title: Rotary Heat Pump Air Conditioner, Heater and Ventilator for Automotive, Mobile and Stationary Use.

Inventor: Milton Pravda Patent # 3 740 966
State/Country: WA
Company: Manco Corporation

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 hermetric cylinder, which is rotated by an electric motor. Heat is absorbed or rejected by rotating finned surfaces.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 13, 1979 Decision Date:

Received by DOE from NBS: Sep 30, 1981 Final Report Accepted:

Status: Analysis I

Development Stage: Prototype Test

Summary: Recommendation under consideration by DOE.

☆U.S. GOVERNMENT PRINTING OFFICE: 1982-360-997/1920

DOE # 187 DOE Coordinator R.W.Bell Contact: Lewis W Parker

OERI # 3145 DOE Program Off:

Category: Miscellaneous

Title: Variable Field Induction Motor

Inventor: Lewis W Parker Patent Applied For
State/Country: FL
Company: Parker Electronics, Inc.

Description: A means of controlling the field current in an AC induction motor to improve the effiency under partial load conditions.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 7, 1977 Decision Date:

Received by DOE from NBS: Aug 6, 1981 Final Report Accepted:

Status: Analysis I

Development Stage: Prototype Test

Summary: Recommendation under consideration by DOE.

DOE # 188 DOE Coordinator R.W.Bell Contact: John C Haspert

OERI # 7486 DOE Program Off:

Category: Fossil Fuels

Title: Remote Controlled Underground Mining System for Horizontal or Pitching Seams

Inventor: John C Haspert Patent Applied For
State/Country: CA
Company: Underground Systems

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 8, 1980 Decision Date:

Received by DOE from NBS: Aug 28, 1981 Final Report Accepted:

Status: Analysis I

Development Stage: Working Model

Summary: Recommendation under consideration by DOE.

DOE # 183 DOE Coordinator T.A.Coultas Contact: E. Stephen Milliaras

OERI # 5961 DOE Program Off:

Category: Industrial Processes

Title: Increased Vapor Generator Feature. Reheat Vapor Generator

Inventor: E. Stephen Milliaras Patent # 3 826 093 & Others
State/Country: MA
Company: Energotechnology Corp.

Description: A method to provide peak power more economically from a base steam/turbine electric plant.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Oct 16, 1979 Decision Date:

Received by DOE from NBS: Jun 18, 1981 Final Report Accepted:

Status: Analysis I

Development Stage: Engineering Design

Summary: Recommendation under consideration by DOE.

DOE # 184 DOE Coordinator R.W.Bell Contact: Nathan Gold

OERI # 2111 DOE Program Off:

Category: Combustion Engines & Components

Title: Coasting Fuel Shutoff

Inventor: Nathan Gold
State/Country: CA
Company:

Description: A device suitable for new production or retrofit to turn off the fuel during coasting conditions for automobiles as described.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 27, 1977 Decision Date:

Received by DOE from NBS: Jun 23, 1981 Final Report Accepted:

Status: Analysis I

Development Stage: Prototype Test

Summary: Recommendation under consideration by DOE.

DOE # 179 DOE Coordinator T.A.Coultas

CERI # 7158 DOE Program Off:

Category: Direct Solar

Contact: Charles E Edwards
Solex Corporation
187 Billerica Road
Chelmsford MA 01824
617/256-8724

Title: Development and Commercialization of Low Cost, Non-Metallic, Solar Systems

Inventor: Charles E Edwards
State/Country: MA
Company: Solex Corporation

Patent Applied For

Description: A solar hot water heating system consisting of a non-metallic flat plate solar collector made from Ethylene-Propolene-Diene monomer and non-pressurized thermal storage.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 19, 1980 Award Date: Aug 17, 1981

Received by DOE from NBS: Apr 17, 1981 Final Report Accepted:

Status: Award Award Amount: $99,999

Development Stage: Prototype Development

Summary: A grant in the amount of $99,999 was awarded to Solex Corporation to finalize design and manufacturing methods for a low cost solar collector. Prototypes will be manufactured and tested for efficiency, weatherability, and other factors such as ASHRAE Standard Test 93-77.

DOE # 180 DOE Coordinator T.A.Coultas

CERI # 2116 DOE Program Off:

Category: Direct Solar

Contact: Richard E Dame
10701 Harper Avenue
Silver Spring MD 20901
301/622-4030

Title: Adjustable Solar Concentrator (ASC)

Inventor: Richard E Dame
State/Country: MD
Company:

Patent Applied For

Description: A Concentrating Solar Collector using movements and loads on edges of elastic sheets to form cylindrical parabolic reflector.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 27, 1977 Award Date: Aug 31, 1981

Received by DOE from NBS: Apr 20, 1981 Final Report Accepted:

Status: Award Award Amount: $97,066

Development Stage: Working Model

Summary: A grant in the amount of $97,066 was awarded to develop a fabrication technique for a low-cost, high-performance adjustable concentrating solar collector.

DOE # 175 DOE Coordinator J.Aellen

OERI # 6931 DOE Program Off:

Category: Industrial Processes

Contact: W W Seward
c/o DASH, Inc.
207 Rosen Drive
Dalton GA 30720
404/259-8593

Title: A Low-Energy Carpet Backing System

Inventor: Den M Acres
State/Country: GA
Company: DASH, Inc.

Patent Applied For

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 5, 1980 Award Date: Aug 1, 1981

Received by DOE from NBS: Mar 26, 1981 Final Report Accepted:

Status: Award Award Amount: $79,173

Development Stage: Prototype Development

Summary: A grant in the amount of $79,173 was awarded to refit a carpet backing machine with automatic control elements and test on a variety of carpet products.

DOE # 176 DOE Coordinator R.Bell

OERI # 7428 DOE Program Off:

Contact: Dale Flickinger

Category: Buildings, Structures & Components

Title: Self-Contained, Water Proof, Stoker Fired, Fully Automatic, Portable Solid Fuel Furnaces

Inventor: John D. Finnegan
State/Country: MN
Company: Solid Fuel Systems, Inc.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 18, 1980 Decision Date: Sep 22, 1981

Received by DOE from NBS: Apr 3, 1981 Final Report Accepted:

Status: Procurement

Development Stage: Working Model

Summary: Invention coordinator and inventor have agreed to scope of work for a grant.

DOE # 171 DOE Coordinator D.R.Craig

OERI # 6950 DOE Program Off:

Contact: Karakiar Bedrosian
Sherwooc Court
Alpine NJ 07620
201/767-3260

Category: Industrial Processes

Title: A Method of Preserving Fruits and Vegetables without Refrigeration

Inventor: Karakian Bedrosian
State/Country: NJ
Company:

Patent # 4 079 152

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 28, 1980 Award Date: Aug 25, 1981

Received by DOE from NBS: Feb 23, 1981 Final Report Accepted:

Status: Award Award Amount: $97,300

Development Stage: Limited Production/Marketing

Summary: A grant in the amount of $97,300 was given 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. Quality and shelf life will be compared with those shipped over the same route in refrigerated trucks.

DOE # 172 DOE Coordinator

OERI # 4255 DOE Program Off:

Contact: Edward A Griswold

Category: Industrial Processes

Title: GEM Electrostatic Filtration System

Inventor: Edward A Griswold
State/Country: CA
Company: Special Equipment Company

Patent # 3 891 528 & Others

Description: An electrostatic filter for removing suspended particles from fluids such as hydraulic fluids, liquid fuels, engine lubricants and waste oil.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 3, 1978 Decision Date:

Received by DOE from NBS: Feb 26, 1981 Final Report Accepted:

Status: Analysis II

Development Stage: Prototype Test

Summary: Preliminary proposal has been received and being reviewed by DOE.

DOE # 167 DOE Coordinator D.R.Craig Contact: Edward B Connors

OERI # 6483 DOE Program Off:

Category: Industrial Processes

Title: Vaned Pipe for Pipeline Transport of Solids

Inventor: Edward B Connors
State/Country: ID
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 25, 1980 Decision Date: Jul 25, 1981

Received by DOE from NBS: Jan 19, 1981 Final Report Accepted:

Status: Procurement

Development Stage: Engineering Design

Summary: Invention coordinator and inventor have agreed to scope of work for a grant.

DOE # 168 DOE Coordinator T.A.Coultas Contact: Spencer Kim Haws

OERI # 6783 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: The Hot Water Saver

Inventor: Spencer Kim Haws Patent Applied For
State/Country: WA
Company: Alternative Energy Resources Inc

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 back to the water heater thus reducing heat loss and water consumption.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 7, 1980 Decision Date: Sep 21, 1981

Received by DOE from NBS: Jan 28, 1981 Final Report Accepted:

Status: Procurement

Development Stage: Limited Production/Marketing

Summary: Invention coordinator and inventor have agreed to scope of work for a grant.

DOE # 163 DOE Coordinator D.R.Craig

CERI # 6631 DOE Program Off:

Contact: Dennis D Howard
200 West Grandview Boulevard
Erie PA 16512
814/868-3611

Category: Buildings, Structures & Components

Title: Thermotropic Plastic Films

Inventor: Dennis D Howard
State/Country: PA
Company: Hughson Chemicals

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 15, 1980 Award Date: Jul 13, 1981

Received by DOE from NBS: Dec 4, 1980 Final Report Accepted:

Status: Award Award Amount: $99,093

Development Stage: Engineering Design

Summary: A grant in the amount 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.

DOE # 164 DOE Coordinator D.R.Craig

CERI # 6433 DOE Program Off:

Contact: Robert R Larsen
Elastomer Energy Recovery Inc
419 Fourth Street
Annapolis MD 21403
301/263-5735

Category: Transportation Systems, Vehicles & Components

Title: Elastomer Energy Recovery Elements and Vehicle Component Applications

Inventor: Robert R Larsen
State/Country: MD
Company: Elastomer Energy Recovery Inc

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 12, 1979 Award Date: Jul 9, 1981

Received by DOE from NBS: Dec 4, 1980 Final Report Accepted:

Status: Award Award Amount: $89,507

Development Stage: Concept Development

Summary: A grant in the amount of $89,507 was given to design, build, and test a scale model to determine optimum design after which a full scale model will be built and tested.

DOE # 159 DOE Coordinator J.Aellen

OERI # 5380 DOE Program Off:

Contact: William D Gramling
5144 Newport Avenue
Chevy Chase MD 20016
301/686-4125

Category: Fossil Fuels

Title: Non-Tubing Type Lift Device, Described as the NTT Rabbit

Inventor: William D Gramling
State/Country: MD
Company: Gramling Engineering

Patent # 4 113 010 & Others

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 7, 1979 Award Date: Jul 24, 1981

Received by DOE from NBS: Nov 25, 1980 Final Report Accepted:

Status: Award Award Amount: $71,298

Development Stage: Production & Marketing

Summary: An award in the amount of $71,298 was given 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.

DOE # 160 DOE Coordinator D.R.Craig

OERI # 6900 DOE Program Off:

Contact: Leon Lazare
c/o The Purac Company
81 Willow Street
New Haven CT 06511
203/776-0256

Category: Buildings, Structures & Components

Title: High Efficiency Absorption Refrigeration Cycle

Inventor: Leon Lazare
State/Country: CT
Company: The Purac Company

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 22, 1980 Award Date: Apr 30, 1981

Received by DOE from NBS: Nov 25, 1980 Final Report Accepted:

Status: Award Award Amount: $87,537

Development Stage: Engineering Design

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.

DOE # 155 DOE Coordinator J.Aellen Contact: James M Cleary

CERI # 7292 DOE Program Off:

Category: Fossil Fuels

Title: Slip Mining

Inventor: James M Cleary Patent # 4 059 309 & Others
State/Country: MA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 23, 1980 Decision Date:

Received by DOE from NBS: Oct 31, 1980 Final Report Accepted:

Status: Analysis II

Development Stage: Concept Development

Summary: Preliminary proposal has been received and is being evaluated by DOE.

DOE # 156 DOE Coordinator R.Bell Contact: James J Dolan
Valjim Corporation
P. O. Box #5203
Westport CT 06880
CERI # 5375 DOE Program Off: 203/259-1249

Category: Industrial Processes

Title: Direct-Current Electrical Heat-Treatment of Continuous Metal Sheets in a Protective Atmosphere.

Inventor: James J Dolan Patent # 4 154 432 & Others
State/Country: CT
Company: Valjim Corporation

Description: A new application of electrical conduction for the continuous heat treatment of rolled steel strip that uses less energy than conventional methods.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 3, 1979 Award Date: Jul 23, 1981

Received by DOE from NBS: Oct 31, 1980 Final Report Accepted:

Status: Award Award Amount: $99,485

Development Stage: Limited Production/Marketing

Summary: An award in the amount of $99,485 was given to do an in-plant design for Southwest Pipe Company. Also the inventor will prepare a design manual and collect data on energy savings.

DOE # 151 DOE Coordinator J.Aellen Contact: Yao Tzu Li

OERI # 5494 DOE Program Off:

Category: Buildings, Structures & Components

Title: Film Type Storm Window

Inventor: Yao Tzu Li
State/Country: MA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 30, 1979 Decision Date:

Received by DOE from NBS: Sep 30, 1980 Final Report Accepted:

Status: Analysis II

Development Stage: Concept Development

Summary: Awaiting revised proposal.

DOE # 152 DOE Coordinator R.Bell Contact: David S Majkrzak
345 Cherry Court
OERI # 6439 DOE Program Off: West Fargo ND 58078
701/282-5593

Category: Transportation Systems, Vehicles & Components

Title: Vehicle Exhaust Gas Warm-up System

Inventor: David S Majkrzak
State/Country: ND
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 12, 1980 Award Date: Aug 6, 1981

Received by DOE from NBS: Sep 30, 1980 Final Report Accepted:

Status: Award Award Amount: $77,500

Development Stage: Prototype Development

Summary: An award in the amount of $77,500 was given to design, build and test, a prototype model of the vehicle gas warm-up system.

DOE # 147 DOE Coordinator J. Aellen Contact: A. D. Barrett, VP

CERI # 5692 DOE Program Off: IS

Category: Transportation Systems, Vehicles & Components

Title: Railroad Switch Heater

Inventor: Henry Keep, Jr. Patent Applied For
State/Country: CT
Company: Heat Trace Division, Multistress, Inc.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 4, 1979 Decision Date:

Received by DOE from NBS: Jul 31, 1980 Final Report Accepted:

Status: Analysis II

Development Stage: Limited Production/Marketing

Summary: Recommendation under evaluation at DOE.

DOE # 148 DOE Coordinator J. Aellen Contact: Leonard A Duval

CERI # 5418 DOE Program Off: IS

Category: Industrial Processes

Title: Reclaimation of Oil and High-Grade Iron Concentrates from Steel Mill Wastes

Inventor: Leonard A Duval Patent # 3 844 943
State/Country: OH
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 22, 1979 Decision Date: Sep 28, 1981

Received by DOE from NBS: Aug 15, 1980 Final Report Accepted:

Status: Procurement

Development Stage: Working Model

Summary: Invention coordinator and inventor have agreed to scope of work for a grant.

DOE # 143 DOE Coordinator J Aellen Contact: Robert R Hermann

OERI # 5868 DOE Program Off: CS

Category: Fossil Fuels

Title: Oil Well Pump Jack

Inventor: Robert A Clay Patent Applied For
State/Country: CA
Company:

Description: A new design 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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Oct 19, 1979 Decision Date:

Received by DOE from NBS: Jun 27, 1980 Final Report Accepted:

Status: Analysis II

Development Stage: Prototype Test

Summary: Awaiting revised statement of work and cost proposal.

DOE # 144 DOE Coordinator T.A.Coultas Contact: Robert C Saunders, Jr.

OERI # 5852 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: SpaCirc Space Circulation Fan

Inventor: Robert C Saunders, Jr.
State/Country: MD
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Oct 9, 1979 Decision Date:

Received by DOE from NBS: Jul 23, 1980 Final Report Accepted:

Status: Decision Phase

Development Stage: Concept Development

Summary: Statement of work has been received and is under final evaluation by DOE.

DOE # 139 DOE Coordinator D.R.Craig Contact: Louis L Marton

OERI # 3487 DOE Program Off: CS

Category: Miscellaneous

Title: Transformer With Heat Dissipator

Inventor: Louis L Marton Patent # 3 659 239 & Others
State/Country: CA
Company:

Description: An improved method for cooling dry-type transformers, thereby increasing their efficiency without increasing their weight and cost.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 16, 1978 Decision Date:

Received by DOE from NBS: May 29, 1980 Final Report Accepted:

Status: Analysis II

Development Stage: Limited Production/Marketing

Summary: Inventor does not seek grant money but wishes us to exert legislative influence to require more efficient transformers in general. It is not clear whether or not this service can be provided.

DOE # 140 DOE Coordinator G.K.Ellis Contact: W E Mattson

OERI # 3830 DOE Program Off: CS

Category: Industrial Processes

Title: Counter Flow Dual Tube Heat Exchanger

Inventor: W E Mattson
State/Country: MN
Company: VETCON

Description: It is a simple plastic heat exchanger to preheat ventilating air for poultry or livestock barns.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 6, 1978 Decision Date:

Received by DOE from NBS: Jun 20, 1980 Final Report Accepted:

Status: Analysis II

Development Stage: Concept Definition

Summary: A preliminary proposal has been received from the inventor and is being evaluated.

DOE # 135 DOE Coordinator R. Bell Contact: M Hossein Khorsand

OERI # 5216 DOE Program Off: IS

Category: Direct Solar

Title: Point Focus Parabolic Solar Collector

Inventor: M Hossein Khorsand
State/Country: ID
Company:

Description: It is a lightweight parabolic solar collector design which uses prestressed structural members and cables to achieve high rigidity at a low cost.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 29, 1979 Decision Date:

Received by DOE from NBS: Apr 30, 1980 Final Report Accepted:

Status: Analysis II

Development Stage: Working Model

Summary: Inventor's proposal is out of scope of the program; negotiations are continuing along the lines of what the program can support.

DOE # 136 DOE Coordinator J. Aellen Contact: Albert S Richardson, Jr.

OERI # 3225 DOE Program Off: CS

Category: Miscellaneous

Title: Windamper

Inventor: Albert S Richardson, Jr. Patent # 3 440 328
State/Country: MA
Company: Richardson Products, Inc.

Description: Wind damper for high voltage electric transmission line to prevent galloping in wind and ice storms

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 25, 1978 Decision Date: Jun 16, 1981

Received by DOE from NBS: May 8, 1980 Final Report Accepted:

Status: Decision Phase

Development Stage: Limited Production/Marketing

Summary: Grant request was rejected by procurement. Negotiations are continuing.

DOE # 131 DOE Coordinator J. Aellen Contact: N. John Eeck
BKM, Inc.
OERI # 5110 DOE Program Off: CS 1065 Bay Blvd., Suite C
Chula Vista CA 92011
Category: Combustion Engines & Components 714/425-3510

Title: Valve Deactuator for Internal Combustion Engines

Inventor: Edgar R Jordon Patent # 4 114 588
State/Country: MI
Company: LPK, Inc.

Description: A retrofit device that can provide variable displacement operation on existing gasoline engines by one cylinder at a time deactuating.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 1, 1979 Award Date: Sep 25, 1980

Received by DOE from NBS: Feb 29, 1980 Final Report Accepted:

Status: Award Award Amount: $65,972

Development Stage: Prototype Development

Summary: An award in the amount of $65,972 has been granted to develop and test a valve deactivator for internal combustion engines.

DOE # 132 DOE Coordinator D.G.Mello Contact: Michael Knezevich

OERI # 3045 DOE Program Off: IS

Category: Industrial Processes

Title: Process for Reclaiming and Upgrading Thin-Walled Malleable Waste Material

Inventor: Michael Knezevich Patent # 4 119 453
State/Country: IN
Company: M. K. Metals, Inc.

Description: Is a system for mechanically pelletizing ferrous and non-ferrous metals and some plastics, grading according to size and then separation according to density by conventional gravity techniques.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 22, 1977 Decision Date:

Received by DOE from NBS: Mar 25, 1980 Final Report Accepted:

Status: Analysis I

Development Stage: Limited Production/Marketing

Summary: Recommendation under consideration by DOE.

DOE # 127 DOE Coordinator G. K. Ellis Contact: William R Bowen

OERI # 5003 DOE Program Off: FE

Category: Fossil Fuels

Title: Process and Apparatus to Produce Crude Oil from Tar Sands

Inventor: J D Seader
State/Country: UT
Company:

Description: Two vessel fluidized bed system connected by heat pipes to transfer heat between the upper pyrolizer vessel, and the lower combuster 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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 26, 1979 Decision Date:

Received by DOE from NBS: Dec 31, 1979 Final Report Accepted:

Status: Analysis I

Development Stage: Laboratory Test

Summary: Recommendation under consideration by DOE.

DOE # 128 DOE Coordinator G. K. Ellis Contact: William R Bowen

OERI # 5004 DOE Program Off: RA

Category: Fossil Fuels

Title: Continuous Distillation Apperatus and Method

Inventor: J D Seader Patent Applied For
State/Country: UT
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 26, 1979 Decision Date:

Received by DOE from NBS: Dec 31, 1979 Final Report Accepted:

Status: Analysis I

Development Stage: Concept Development

Summary: Recommendation under consideration by DOE.

DOE # 123 DOE Coordinator G. K. Ellis

OERI # 4573 DOE Program Off:

Category: Industrial Processes

Contact: J. Paul Pemsler, President
Castle Technology Corp.
P. O. Box #403
Lexington MA 02133
617/861-7056

Title: Comminution of Ores by a Low-Energy Process

Inventor: J Paul Pemsler
State/Country: MA
Company: Castle Technology Corp.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 6, 1978 Award Date: Sep 25, 1980

Received by DOE from NBS: Nov 29, 1979 Final Report Accepted:

Status: Award Award Amount: $90,394

Development Stage: Laboratory Test

Summary: A grant in the amount of $90,394 has been awarded to explore the technical feasibility and determine the energy input for the process.

DOE # 124 DOE Coordinator R. Bell

OERI # 4352 DOE Program Off: CS

Contact: Charlton Sadler

Category: Direct Solar

Title: Solar Collector

Inventor: Charlton Sadler
State/Country: FL
Company:

Patent # 4 170 983 & Others

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 30, 1978 Decision Date:

Received by DOE from NBS: Nov 30, 1979 Final Report Accepted:

Status: Analysis II

Development Stage: Working Model

Summary: Awaiting a revised statement of work and cost proposal.

DOE # 119 DOE Coordinator D.R.Craig Contact: Otis W Smith

OERI # 4056 DOE Program Off: CS

Category: Industrial Processes

Title: Air Ratio Controller (AERTROL)

Inventor: Eldon L Asher
State/Country: FL
Company: PROTROL, Inc.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 5, 1978 Decision Date: Jul 17, 1981

Received by DOE from NBS: Sep 28, 1979 Final Report Accepted:

Status: Decision Phase

Development Stage: Concept Development

Summary: Proposed grant was rejected by procurement. Negotiations are continuing between DOE and inventor.

DOE # 120 DOE Coordinator R. Bell Contact: Robert Zartarian

OERI # 4562 DOE Program Off: CS

Category: Miscellaneous

Title: Vapor Heat Transfer Commercial Griddle

Inventor: Robert Zartarian Patent Applied For
State/Country: MA
Company: Food Facilities Design

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 2, 1978 Decision Date:

Received by DOE from NBS: Oct 17, 1979 Final Report Accepted:

Status: Analysis II

Development Stage: Limited Production/Marketing

Summary: Process is indefinitely delayed until ownership of invention is out of the bankruptcy assets of Peters and Company, Inc.

DOE # 115 DOE Coordinator D. G. Mello

CERI # 1188 DOE Program Off: CS

Category: Miscellaneous

Contact: Clyde G Phillips
Rural Route #2
Box #148-G, Angola Beach
Lewes DE 19971
302/945-9093

Title: Refrigeration System

Inventor: Clyde G Phillips
State/Country: DE
Company: Phillips Engineering Company

Patent # 3 783 629

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 2, 1976 Completion Date: Dec 7, 1979

Received by DOE from NBS: Jul 31, 1979 Final Report Accepted: Feb 22, 1980

Status: Complete Award Amount: $6,910

Development Stage: Laboratory Test

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.

DOE # 116 DOE Coordinator G. K. Ellis

CERI # 2946 DOE Program Off: CS

Category: Industrial Processes

Contact: Roy J Welkert

Title: Model 5000 ASEPAK System

Inventor: Roy J Welkert
State/Country: OH
Company: General Films, Inc.

Patent # 3 813 845 & Others

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 4, 1977 Decision Date: Oct 4, 1980

Received by DOE from NBS: Aug 30, 1979 Final Report Accepted: Oct 4, 1980

Status: No DOE Support

Development Stage: Prototype Development

Summary: Unable to identify suitable scope of work which was both agreeable to the inventor and supportable by DOE.

DOE # 111 DOE Coordinator D. G. Mello

OERI # 3688 DOE Program Off: FE

Category: Fossil Fuels

Title: Haspert Mining System

Contact: John C. Haspert
P.O. Box #1252
Arcadia CA 91006
213/445-0030

Inventor: John C Haspert
State/Country: CA
Company: Underground Systems

Patent # 4 062 594

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 27, 1978 Completion Date: Mar 27, 1980

Received by DOE from NBS: Jun 29, 1979 Final Report Accepted: Sep 11, 1981

Status: Complete Award Amount: $125,000

Development Stage: Limited Production/Marketing

Summary: A $125,000 grant was awarded to provide a complete set of preliminarry 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.

DOE # 112 DOE Coordinator D.R.Craig

OERI # 548 DOE Program Off: CS

Category: Fossil Fuels

Title: Pump

Contact: Paul Zanoni, President
Boulder Engineering, Inc.
900 North Sixth St., Apt. #38
Renton WA 98055
206/271-8885

Inventor: Paul Zanoni
State/Country: WA
Company: Boulder Engineering, Inc.

Patent # 3 314 236

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 29, 1975 Award Date:

Received by DOE from NBS: Jul 26, 1979 Final Report Accepted:

Status: Award Award Amount: $99,870

Development Stage: Concept Development

Summary: A grant in the amount of $99,870 was given to design, build, and install system for field tests at Worchester Poly Tech in Massachusetts. System will operate in conjunction with existing steam power plant.

DOE # 107 DOE Coordinator J.Aellen Contact: Ping-Wha Lin

OERI # 1416 DOE Program Off: CS

Category: Industrial Processes

Title: Waste Products Reclamation Process

Inventor: Ping-Wha Lin Patent # 3 861 930 & Others
State/Country: NY
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 9, 1976 Decision Date:

Received by DOE from NBS: May 31, 1979 Final Report Accepted:

Status: Analysis I

Development Stage: Laboratory Test

Summary: Recommendation is under consideration by DOE.

DOE # 108 DOE Coordinator G. K. Ellis Contact: Ron Fiddler
Cromwell Metals, Inc.
1895 Sheridan Drive
Buffalo NY 14223
716/876-9105

OERI # 4688 DOE Program Off: CS

Category: Industrial Processes

Title: Processing Recovery of Aluminum

Inventor: Paul J Cromwell Patent # 4 126 673
State/Country: NY
Company: Cromwell Metals Inc.

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 27, 1978 Completion Date: Jun 4, 1981

Received by DOE from NBS: May 31, 1979 Final Report Accepted: Jun 4, 1981

Status: Complete Award Amount: $158,029

Development Stage: Prototype Test

Summary: A grant in the amount of $158,029 has been awarded to develop and optimize the complete design of a practical and economic production facility.

DOE # 103 DOE Coordinator D. G. Mello

OERI # 1446 DOE Program Off: CS

Category: Buildings, Structures & Components

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

Title: Low Voltage Ionic Fluorescent Light Bulb

Inventor: Edwin E Eckberg
State/Country: ID
Company: Ecklux R & D Vacuum Laboratory, Inc.

Patent # 3 447 098 & Others

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 17, 1976 Award Date: Mar 12, 1980

Received by DOE from NBS: Apr 30, 1979 Final Report Accepted:

Status: Award Award Amount: $73,554

Development Stage: Engineering Design

Summary: A grant in the amount 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.

DOE # 104 DOE Coordinator G. K. Ellis

OERI # 2186 DOE Program Off: ER

Category: Miscellaneous

Contact: Eskil L Karlson
4634 State Street
Erie PA 16508
814/871-7000

Title: Low Continuous Energy Mass Separation System

Inventor: Eskil L Karlson
State/Country: PA
Company:

Patent Applied For

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 or different isotopes, either in the gas phase or liquid phase.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 11, 1977 Award Date: Feb 26, 1980

Received by DOE from NBS: Apr 30, 1979 Final Report Accepted:

Status: Award Award Amount: $83,015

Development Stage: Laboratory Test

Summary: A grant in the amount of $83,015 has been awarded to build and test two laboratory models, for the purpose of optimizing the variables and assessing performance including the economics.

DOE # 99 DOE Coordinator D. G. Mello

OERI # 4059 DOE Program Off: CS

Category: Transportation Systems, Vehicles & Components

Title: Light Weight Composite Trailer Tubes

Contact: Robert Gordon, President
Struct. Comp Inc., Inc.
6344 N. Irvindale Avenue
Azusa CA 91702
213/334-8221

Inventor: Oscar Weingart
State/Country: CA
Company: Structural Composites Industries, Inc.

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 5, 1978 Award Date: Jan 14, 1980

Received by DOE from NBS: Mar 30, 1979 Final Report Accepted:

Status: Award Award Amount: $96,000

Development Stage: Engineering Design

Summary: A grant in the amount of $96,000 has been awarded to design, fabricate, and test a large scale model of a new light-weight composite trailor tube for highway transportation of compressed gases. The three phase program will be completed in one year.

DOE # 109 DOE Coordinator J. Aellen

OERI # 3236 DOE Program Off: CS

Category: Direct Solar

Title: Solaroll

Contact: Michael F Zinn
Bio-Energy Systems, Inc.
Mountaindale Road
Spring Glen NY 12483
914/647-6482

Inventor: Michael F Zinn
State/Country: NY
Company: Bio-Energy Systems, Inc.

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 5, 1977 Award Date: Mar 25, 1980

Received by DOE from NBS: Mar 30, 1979 Final Report Accepted: Jul 18, 1979

Status: Award Award Amount: $110,390

Development Stage: Limited Production/Marketing

Summary: A grant in the amount of $110,390 has been awarded to generate, analyze, collate and assemble information in a form usable to others in the trade; construct, maintain, operate and test for different applications; to provide necessary material and labor to cooperate in the testing of Solaroll.

DOE # 95 DOE Coordinator D. G. Mello Contact: Val O Bertola

OERI # 3875 DOE Program Off: CS

Category: Other Natural Sources

Title: Omni-Horizontal Axis-Wind Turbine

Inventor: Val O Bertola
State/Country: PA
Company: Bertola Studio

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 10, 1978 Decision Date:

Received by DOE from NES: Jan 30, 1979 Final Report Accepted: Aug 6, 1980

Status: No DOE Support

Development Stage: Concept Development

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

DOE # 96 DOE Coordinator J. Aellen Contact: Floyd R Anderson
Vast Research Company
Seven Tiffany Lane
Bella Vista AR 72712
501/855-9202

OERI # 1869 DOE Program Off: CS

Category: Combustion Engines & Components

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

Inventor: Floyd R Anderson Patent # 3 266 581 & Others
State/Country: AR
Company: Vast Research Company

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 28, 1977 Completion Date: Sep 12, 1979

Received by DOE from NBS: Feb 28, 1979 Final Report Accepted: Jul 28, 1980

Status: Complete Award Amount: $76,675

Development Stage: Prototype Test

Summary: A grant in the amount 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.

DOE # 91 DOE Coordinator R. Bell Contact: Rees Kinney, Atty.
Bagby Brattices, Inc.
OERI # 3210 DOE Program Off: FE P.O. Box #569
Greenville KY 42345
Category: Fossil Fuels 502/338-5619

Title: Mine Brattice

Inventor: James Allen Bagby Patent # 3 972 272
State/Country: KY
Company: Bagby Brattices, Inc.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 20, 1977 Award Date: Sep 20, 1979

Received by DOE from NBS: Dec 19, 1978 Final Report Accepted:

Status: Award Award Amount: $62,664

Development Stage: Prototype Development

Summary: A grant in the amount of $62,664 has been awarded to fabricate 25 prototype brattices and install them in Peabody Coal Co. Eagle #2 underground coal mine (Southern IL). Data will be collected over a 2 1/2 year period to measure the effects of natural subsidence on the performances of the brattices.

DOE # 92 DOE Coordinator G. K. Ellis Contact: John L Carroll

OERI # 1160 DOE Program Off: CS

Category: Buildings, Structures & Components

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

Inventor: John L Carroll Patent # 3 939 914
State/Country: OR
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 22, 1976 Decision Date:

Received by DOE from NBS: Dec 28, 1978 Final Report Accepted:

Status: Analysis I

Development Stage: Limited Production/Marketing

Summary: Recommendation under consideration by DOE

DOE # 87 DOE Coordinator J. Aellen
OERI # 2224 DOE Program Off: CS
Category: Industrial Processes

Contact: Ruel C Terry
3090 South High Street
Denver CO 80210
303/759-3826

Title: Recovering Uranium From Coal in Situ

Inventor: Ruel C Terry
State/Country: CO
Company:

Patent # 4 113 313

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 17, 1977 Award Date: Feb 6, 1980

Received by DOE from NBS: Nov 29, 1978 Final Report Accepted:

Status: Award Award Amount: $85,240

Development Stage: Laboratory Test

Summary: A grant in the amount of $85,240 has been 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 # 88 DOE Coordinator D. G. Mello
OERI # 1818 DOE Program Off: CS
Category: Fossil Fuels

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

Title: System-100

Inventor: Alex Rutshein, et al
State/Country: IA
Company: Compressor Controls Corp.

Patent Applied For

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 10, 1977 Award Date: Aug 12, 1980

Received by DOE from NBS: Nov 30, 1978 Final Report Accepted:

Status: Award Award Amount: $50,000

Development Stage: Concept Development

Summary: A grant in the amount of $50,000 has been awarded to develop microprocessor for control of compressors in gas transmission pipelines. Major compressor manufacturer will evaluate and test final product for consideration of large-scale utilization.

DOE # 83 DOE Coordinator T.A.Coultas Contact: Charles James Bier

OERI # 2821 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Vertical Solar Louvers

Inventor: Charles James Bier
State/Country: VA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Oct 17, 1977 Decision Date: May 1, 1981

Received by DOE from NBS: Oct 27, 1978 Final Report Accepted: Feb 28, 1981

Status: Analysis I

Development Stage: Concept Development

Summary: Inventor was referred to Chicago office of DOE Passive Solar Technology for consideration of a grant under a competitive solicitation advertised by that office. Inventor did not receive a contract. This office is reconsidering possible alternatives to assist the inventor with a grant.

DOE # 84 DOE Coordinator T.A.Coultas Contact: Kenneth W Odil

OERI # 2032 DOE Program Off: CS

Category: Industrial Processes

Title: Kinetic Energy Type Pumping System

Inventor: Kenneth W Odil Patent # 3 123 009
State/Country: TX
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 11, 1977 Decision Date:

Received by DOE from NBS: Oct 30, 1978 Final Report Accepted:

Status: Analysis II

Development Stage: Prototype Test

Summary: A proposal was received from the inventor which is unacceptable because it is considerably beyond the level of funds support available. Inventor has been so advised and is endeavoring to find a cost sharing arrangement with an interested private industry. A 9/19/80 check with him indicated that he believed he was making some progress in his discussions with others on cost sharing.

DOE # 79 DOE Coordinator G. K. Ellis Contact: Marvin L Wahrman
47 Red Rock
OERI # 1732 DOE Program Off: FOSSIL Irvine CA 92714
714/979-1280

Category: Fossil Fuels

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

Inventor: Marvin L Wahrman Patent Applied For
State/Country: CA
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 21, 1977 Completion Date: Sep 29, 1979

Received by DOE from NBS: Aug 25, 1978 Final Report Accepted: Jan 29, 1981

Status: Complete Award Amount: $57,150

Development Stage: Prototype Test

Summary: A $57,150 grant was awarded to prove the technical feasibility of the new bit inserts as relates to their performance, and to address the repeatability and controlability of the manufacturing process.

DOE # 80 DOE Coordinator D.R.Craig Contact: Patsie C Campana

OERI # 1964 DOE Program Off: CS

Category: Industrial Processes

Title: Improved Unfired Refractory Brick

Inventor: Patsie C Campana
State/Country: OH
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 18, 1977 Decision Date:

Received by DOE from NBS: Sep 28, 1978 Final Report Accepted:

Status: Analysis II

Development Stage: Limited Production/Marketing

Summary: A proposal has been received from the inventor for several million dollars to build a production facility. He was advised the program was unable to fund capital equipment, and potential alternatives of business plan and marketing study were described. But, to date, the inventor has indicated little interest except on the basis of a large grant for capital equipment.

DOE # 75 DOE Coordinator G. K. Ellis
OERI # 2265 DOE Program Off: CS

Contact: Richard Jablin
Station #1, Box #P-1
Wrightsville Beach NC 28480
919/256-4933

Category: Industrial Processes

Title: Coke Quenching Steam Generator

Inventor: Richard Jablin
State/Country: NC
Company:

Patent Applied For

Description: The steam generator is a direct contact heat exchanger for generation of process steam from hot coke.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 6, 1977 Award Date: May 14, 1979

Received by DOE from NBS: Aug 29, 1978 Final Report Accepted:

Status: Award Award Amount: $119,400

Development Stage: Laboratory Test

Summary: A grant of $119,400 was awarded to pursue a program of laboratory scale and pilot plant scale development. Laboratory stage has been successfully completed and the grantee has proceeded to the pilot plant stage.

DOE # 76 DOE Coordinator G.K.Ellis
OERI # 2075 DOE Program Off: CS

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

Category: Industrial Processes

Title: The Ross Furnace

Inventor: Donald R Ross
State/Country: TX
Company: Ross Research Company

Patent Applied For

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Apr 18, 1977 Completion Date: May 5, 1981

Received by DOE from NBS: Sep 18, 1978 Final Report Accepted: May 5, 1981

Status: Complete Award Amount: $82,000

Development Stage: Prototype Test

Summary: A grant in the amount of $82,000 was awarded to build, assemble, operate and test two systems; one for a tilted furnace and one for a rotary furnace. Data analysis will include estimated production scale BTU per ton, production rates, fuel efficiency, energy balance, and material balance.

DOE # 71 DOE Coordinator D. G. Mello Contact: Arleigh Wangler

OERI # 2538 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Knight Guard

Inventor: Arleigh Wangler Patent Applied For
State/Country: CA
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 10, 1977 Decision Date:

Received by DOE from NBS: Jun 29, 1978 Final Report Accepted: Sep 1, 1978

Status: No DOE Support

Development Stage: Limited Production/Marketing

Summary: Inventor is investigating law enforcement agencies' interest. Product is better suited to that field than to energy conservation.

DOE # 72 DOE Coordinator G. K. Ellis Contact: Basil W Balls

OERI # 733 DOE Program Off: ET

Category: Industrial Processes

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

Inventor: Joe Agar
State/Country: TX
Company: Redland Automation

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 8, 1976 Decision Date:

Received by DOE from NBS: Jun 28, 1978 Final Report Accepted: Aug 8, 1980

Status: No DOE Support

Development Stage: Laboratory Test

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 # 67 DOE Coordinator G. K. Ellis Contact: James A Browning
Browning Engineering Corp.
OERI # 799 DOE Program Off: CS P.O. Box #863
Hanover NH 03755
Category: Other Natural Sources 603/298-8400

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

Inventor: James A Browning Patent Applied For
State/Country: NH
Company: Browning Engineering Corp.

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 5, 1976 Award Date: Dec 7, 1979

Received by DOE from NBS: Jun 20, 1978 Final Report Accepted:

Status: Award Award Amount: $39,000

Development Stage: Prototype Development

Summary: A grant in the amount of $39,000 has been awarded to complete the construction of the grantee's 70-ft diameter hydraulic windmill, and then to test it.

DOE # 68 DOE Coordinator R. Bell Contact: Charlie Baziel

OERI # 631 DOE Program Off: CS

Category: Buildings, Structures & Components

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

Inventor: Leroy M Bissett Patent # 3 936 239
State/Country: VA
Company: Dunham Bush, Inc..

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jan 22, 1976 Decision Date: Oct 1, 1979

Received by DOE from NBS: Jun 28, 1978 Final Report Accepted:

Status: Other Assistance

Development Stage: Prototype Development

Summary: As a result of the National Bureau of Standards recommendation, and in consideration of an unsolicited proposal from the grantee, the CS Division of DOE has initiated a procurement leading to a two year contract funded presently $300,000. The Energy-Related Inventions Program will not participate further regarding this invention.

DOE # 63 DOE Coordinator R. Bell

OERI # 1330 DOE Program Off: CS

Contact: Thomas LoGiudice
520 East 72d Street
New York NY 10021
212/737-5703

Category: Buildings, Structures & Components

Title: Fluorobulb

Inventor: Thomas LoGiudice
State/Country: NY
Company:

Patent # 3 953 761

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 13, 1976 Completion Date: Apr 10, 1979

Received by DOE from NBS: May 3, 1978 Final Report Accepted: Aug 18, 1981

Status: Complete Award Amount: $49,500

Development Stage: Prototype Development

Summary: A grant of $49,500 has been awarded for research and product development. Grantee will produce ten prototype bulbs, investigate problems of uniform coating, produce certified data regarding lamp efficiency, luminous efficiency and accurate cost data for predicting production quantity costs.

DOE # 64 DOE Coordinator G. K. Ellis

OERI # 2543 DOE Program Off: CS

Contact: Lester Hendrickson
Arizona State U.
School of Engineering
Tempe AZ 85281
602/965-3427

Category: Industrial Processes

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

Inventor: Shalom Mahalla
State/Country: AZ
Company:

Patent Applied For

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 1, 1977 Award Date: Sep 1, 1979

Received by DOE from NBS: May 8, 1978 Final Report Accepted:

Status: Award Award Amount: $88,933

Development Stage: Laboratory Test

Summary: A grant of $88,933 has been awarded to complete the laboratory-scale development and to optimize the effect of the following process variables: initial concentration of copper in the solution, solution pH, initial area of Fe exposed to the solution, reaction time, and cell configuration. In addition, the grantee will identify any other process variables. Finally, he will process a standard leach liquor to determine the efficiency of copper separation.

DOE # 59 DOE Coordinator G. K. Ellis Contact: Bernard Zimmern

OERI # 1680 DOE Program Off: CS

Category: Combustion Engines & Components

Title: The Volumetric Gas Turbine

Inventor: Bernard Zimmern
State/Country: France
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 15, 1976 Decision Date:

Received by DOE from NBS: Apr 12, 1978 Final Report Accepted:

Status: Analysis I

Development Stage: Concept Development

Summary: Inventor is waiting to submit a statement of work until locating other sources of substantial supplemental support needed to finish development of the concept

---

DOE # 60 DOE Coordinator D. G. Mello Contact: William H Cone
Conoco, Inc.
1151 Meadow Lane, A3
Waterloo IA 50701
319/233-8224

OERI # 1654 DOE Program Off: CS

Category: Miscellaneous

Title: Electric Transport Refrigerator

Inventor: William H Cone Patent # 3 778 651 & Others
State/Country: IA
Company: Conoco, Inc.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 13, 1976 Completion Date: Sep 25, 1978

Received by DOE from NBS: Apr 28, 1978 Final Report Accepted: Apr 9, 1980

Status: Complete Award Amount: $50,000

Development Stage: Prototype Test

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 # 55 DOE Coordinator R.Bell Contact: Richard D Palone

CERI # 2523 DOE Program Off: ET

Category: Fossil Fuels

Title: Electrically Heated Sucker-Rod

Inventor: Richard D & Chester Palone Patent # 3 859 503
State/Country: AR
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 22, 1977 Decision Date:

Received by DOE from NBS: Jan 30, 1978 Final Report Accepted: Dec 29, 1980

Status: No DOE Support

Development Stage: Concept Development

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. Inventor advised on December 29th, 1980 that he no longer needed any grant money.

DOE # 56 DOE Coordinator G.K.Ellis Contact: Jay Dornier
Quality Industries
CERI # 2238 DOE Program Off: CS P. O. Box #406
Thibodeux LA 70301
Category: Industrial Processes 504/447-4021

Title: Flexaflo-The Wet Fuel Dryer

Inventor: William P Boulet Patent # 3 976 018
State/Country: LA
Company: Quality Industries

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 24, 1977 Completion Date: Sep 1, 1978

Received by DOE from NBS: Mar 31, 1978 Final Report Accepted: Apr 1, 1979

Status: Complete Award Amount: $111,220

Development Stage: Prototype Test

Summary: A $111,220 grant for nine months to Quality Industries, Inc. To modify the existing dryer by designing, building, installing, operating, and testing a sealing system and a system to control airborne bagacillic. The design modifications were successfully incorporated and testing indicated a considerable operating economy. Owner is investigating marketing alternatives.

DOE # 51 DOE Coordinator D.R.Craig Contact: Richard B Bentley

OERI # 1116 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Thermal Efficiency Construction

Inventor: Richard B Bentley
State/Country: NY
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 19, 1976 Decision Date:

Received by DOE from NBS: Dec 20, 1977 Final Report Accepted:

Status: Analysis II

Development Stage: Concept Development

Summary: Recommendation under evaluation in DOE. Inventor preparing revised proposal based on discussion with program engineer. In July '78 inventor advised DOE of his intention to prepare a proposal. Nothing has been received to date. Inventor reports he has applied for a grant under the Appropriate Technology Program.

DOE # 52 DOE Coordinator G. K. Ellis Contact: Sherman R Jenney

OERI # 172 DOE Program Off: CS

Category: Transportation Systems, Vehicles & Components

Title: Air Wedge

Inventor: Robert G Landry (Deceased) Patent # 3 740 320
State/Country: ME
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 13, 1975 Decision Date:

Received by DOE from NBS: Dec 21, 1977 Final Report Accepted: Nov 28, 1979

Status: No DOE Support

Development Stage: Concept Development

Summary: On November 28, 1979, the inventors were 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 # 47 DOE Coordinator G.K.Ellis Contact: Robert M Arthur
548 Prairie Road
OERI # 1773 DOE Program Off: CS Fond du Lac WI 54935
414/922-6970

Category: Industrial Processes

Title: Wastewater Aeration Power Control Device

Inventor: Robert M Arthur Patent # 3 740 320 & Others
State/Country: WI
Company: Arthur Technology, Inc.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Feb 7, 1977 Completion Date: Jul 19, 1978

Received by DOE from NBS: Oct 25, 1977 Final Report Accepted: Jun 26, 1981

Status: Complete Award Amount: $58,200

Development Stage: Engineering Design

Summary: A grant in the amount of $58,200 has been awarded to develop a low-cost, less sophisticated model of the grantee's energy-saving on-line respirometer.

DOE # 48 DOE Coordinator D. G. Mello Contact: Werner E Howald

OERI # 197 DOE Program Off: CS

Category: Combustion Engines & Components

Title: Howald Combustor

Inventor: Werner E Howald
State/Country: OH
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 10, 1975 Completion Date:

Received by DOE from NBS: Nov 9, 1977 Final Report Accepted: Feb 8, 1979

Status: Complete

Development Stage: Laboratory Test

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 combuster design.

DOE # 43 DOE Coordinator J. Aellen Contact: Sidney A Parker
5820 Diamond Oaks Dr., S
OERI # 1263 DOE Program Off: CS Fort Worth TX 76117
817/834-5081

Category: Other Natural Sources

Title: Thermal Gradient Utilization Cycle

Inventor: Sidney A Parker Patent # 3 953 971
State/Country: TX
Company: The 21st Century Power Generation Co.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jul 23, 1976 Completion Date: Sep 21, 1978

Received by DOE from NBS: Sep 30, 1977 Final Report Accepted: Aug 4, 1980

Status: Complete Award Amount: $40,000

Development Stage: Limited Production/Marketing

Summary: A $40,000 grant 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 # 44 DOE Coordinator J. Aellen Contact: Leon Lazare
81 Willow Street
OERI # 1357 DOE Program Off: FE New Haven CT 06511
203/776-0256

Category: Miscellaneous

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

Inventor: Leon Lazare
State/Country: CT
Company: Puraq Company

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 24, 1976 Completion Date: May 17, 1978

Received by DOE from NBS: Sep 30, 1977 Final Report Accepted: May 1, 1979

Status: Complete Award Amount: $75,000

Development Stage: Engineering Design

Summary: A grant in the amount 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.

DOE # 39 DOE Coordinator G. K. Ellis Contact: James H Lawler

OERI # 219 DOE Program Off: FE

Category: Fossil Fuels

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

Inventor: James H Lawler Patent # 3 543 732
State/Country: CA
Company:

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 29, 1975 Decision Date:

Received by DOE from NBS: Aug 18, 1977 Final Report Accepted: Feb 1, 1979

Status: No DOE Support

Development Stage: Engineering Design

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.

DOE # 40 DOE Coordinator G. K. Ellis Contact: Roland P Soule

OERI # 734 DOE Program Off: FE

Category: Other Natural Sources

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

Inventor: Roland P Soule
State/Ccuntry: NY
Company:

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 8, 1976 Decision Date: Jun 12, 1981

Received by DOE from NBS: Aug 18, 1977 Final Report Accepted: Jun 12, 1981

Status: No DOE Support

Development Stage: Concept Development

Summary: Options for the support are being considered, a difficulty being that the inventor is not interested in personally pursuing the development of his invention. Tentative expressions of interest in the technology received from others are being made known to the inventor for his consideration. To date, he has declined as he was not interested in dealing with small companies, or he disagreed upon need for establishing economic and technically feasibility.

DOE # 35 DOE Coordinator D. G. Mello Contact: Gulab Chand Jain

CERI # 336 DOE Program Off: CS

Category: Direct Solar

Title: Utilization of Solar Energy by Solar Pond System

Inventor: Gulab Chand Jain
State/Country: India
Company: M/S Metro Rubber Works

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Oct 23, 1975 Decision Date:

Received by DOE from NBS: Jun 23, 1977 Final Report Accepted: Dec 12, 1977

Status: No DOE Support

Development Stage: Concept Development

Summary: Program has declined support of this invention because it does not respond to several significant problems which are inherent in the system that has been proposed.

DOE # 36 DOE Coordinator D. G. Mello Contact: Richard P Gingras
41 Kenoria Avenue
Danbury CT 06810
203/792-3877

CERI # 1283 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Computerstat

Inventor: Richard P Gingras Patent Applied For
State/Country: CT
Company: Dynamic Electronic Control Inc.

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 4, 1976 Completion Date: Feb 24, 1978

Received by DOE from NBS: Jun 24, 1977 Final Report Accepted:

Status: Complete Award Amount: $65,000

Development Stage: Engineering Design

Summary: Program office awarded a $65,000 grant 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 includes the design of a computer program to simulate operation in a small commercial building. Company subsequently has gone bankrupt.

DOE # 31 DOE Coordinator G. K. Ellis
OERI # 275 DOE Program Off: CS
Category: Combustion Engines & Components

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

Title: Ceramic Rotors and Vanes

Inventor: James C Withers
State/Country: VA
Company: Deposits and Composites, Inc.

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 19, 1975 Award Date: May 24, 1978

Received by DOE from NBS: May 24, 1977 Final Report Accepted:

Status: Award Award Amount: $125,000

Development Stage: Engineering Design

Summary: A grant of $125,000 ($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.

DOE # 32 DOE Coordinator D.R.Craig
OERI # 1174 DOE Program Off: CS
Category: Fossil Fuels

Contact: John C Calhoun, President
Forest Fuels, Inc.
P.O. Box #207
Antrim NH 03440
603/588-6773

Title: Wood Gas Reactor

Inventor: Robert A Caughey
State/Country: NH
Company: Forest Fuels, Inc.

Patent Applied For

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 9, 1976 Completion Date: May 1, 1979

Received by DOE from NBS: May 26, 1977 Final Report Accepted: Mar 16, 1981

Status: Complete Award Amount: $49,405

Development Stage: Prototype Development

Summary: $49,405 grant to design and build a gasifier system which will produce gaseous fuel from biomass. The unit will be used to demonstrate the practical use of alternate fuels in existing industrial boiler installations. Unit will be in demonstration service at Forest Fuel Technical Center, Antrim, New Hampshire.

DOE # 27 DOE Coordinator D. G. Mello Contact: R J Jones
2772 Salmon Drive
OERI # 1205 DOE Program Off: CS Los Alamitos CA 90720
213/439-3211

Category: Buildings, Structures & Components

Title: Waste Heat Utilization for Commercial Cooking Equipment

Inventor: R J Jones Patent # 4 084 745
State/Country: CA
Company: Hydrocoil Corporation, Inc.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 13, 1976 Completion Date: Feb 1, 1978

Received by DOE from NBS: Apr 14, 1977 Final Report Accepted: Mar 25, 1980

Status: Complete Award Amount: $65,000

Development Stage: Limited Production/Marketing

Summary: A grant for a 9 month project, in the amount of $65,000 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. Inventor now commercializing product.

DOE # 28 DOE Coordinator D. G. Mello Contact: Gilbert W Didion

OERI # 161 DOE Program Off: CS

Category: Buildings, Structures & Components

Title: Ultraflo

Inventor: Gilbert W Didion Patent # 3 668 884
State/Country: OH
Company: Ultraflo Corporation

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Jun 30, 1975 Completion Date: Aug 1, 1977

Received by DOE from NBS: Apr 27, 1977 Final Report Accepted: Oct 24, 1978

Status: Complete

Development Stage: Limited Production/Marketing

Summary: The invention was tested in California under program auspices. The program has agreed to give marketing assistance by publicizing the results of these tests. At the program's invitation the company has participated in a marketing project in Denver during August 1977.

DOE # 23 DOE Coordinator D. G. Mello Contact: James E Luber

OERI # 951 DOE Program Off: CS

Category: Other Natural Sources

Title: Microgas Dispersions

Inventor: Int'l MGD Companies Patent # 3 900 420
State/Country: MI
Company: Int'l MGD Co.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Dec 22, 1975 Decision Date:

Received by DOE from NBS: Mar 28, 1977 Final Report Accepted: Oct 24, 1978

Status: No DOE Support

Development Stage: Laboratory Test

Summary: Brookhaven National Laboratory agreed to test the burner but advised DBP 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, DBP advised inventor that support was terminated due to lack of response to repeated inquiries.

DOE # 24 DOE Coordinator G. K. Ellis Contact: Drew W Morris
P.O. Box #515
OERI # 819 DOE Program Off: CS Hampton NH 03842
603/926-8703

Category: Industrial Processes

Title: Can and Bottle Crushing Apparatus

Inventor: Drew W Morris Patent Applied For
State/Country: NH
Company: Drew-It-Corp.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 22, 1976 Completion Date: Sep 14, 1977

Received by DOE from NBS: Mar 30, 1977 Final Report Accepted: May 7, 1981

Status: Complete Award Amount: $35,000

Development Stage: Production Engineering

Summary: A grant in the amount 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.

DOE # 19 DOE Coordinator D.R.Craig

CERI # 205 DOE Program Off: CS

Category: Buildings, Structures & Components

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

Title: Phenol Methalol Foam Rigid Board Insulation

Inventor: Walter J Hasselman, Jr
State/Country: NY
Company: C. P. Chemical Co., Inc.

Patent Applied For

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Aug 18, 1975 Award Date: Sep 13, 1978

Received by DOE from NBS: Feb 4, 1977 Final Report Accepted:

Status: Award Award Amount: $29,900

Development Stage: Limited Production/Marketing

Summary: $29,900 one year grant to study physical properties of proprietary insulating material, and to determine the optimum ratios of base chemicals. The result will be a product which maximizes insulating properties while minimizing costs, thereby assuring cost effectiveness in the market.

DOE # 20 DOE Coordinator D. G. Mello

CERI # 839 DOE Program Off: CS

Category: Buildings, Structures & Components

Contact: Thomas P Hopper
RFD #1, Box #689
Durham CT 06422
203/349-8424

Title: Thermal Shade

Inventor: Thomas P Hopper
State/Country: CT
Company: Insulating Shade Co.

Patent Applied For

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Mar 26, 1976 Completion Date: Jun 1, 1978

Received by DOE from NBS: Feb 28, 1977 Final Report Accepted: Jan 6, 1979

Status: Complete Award Amount: $50,707

Development Stage: Production Engineering

Summary: A grant in the amount 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.

DOE # 15 DOE Coordinator R.Bell
OERI # 393 DOE Program Off: CS
Category: Buildings, Structures & Components

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

Title: Estacron

Inventor: Dante A Raponi
State/Country: NC
Company: Estacron International, Inc.

Patent Applied For

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Oct 28, 1975 Award Date: Jul 28, 1979

Received by DOE from NBS: Sep 30, 1976 Final Report Accepted:

Status: Award Award Amount: $101,388

Development Stage: Laboratory Test

Summary: A grant in the amount of $101,388 has been 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.

DOE # 16 DOE Coordinator G. K. Ellis
OERI # 486 DOE Program Off: CS
Category: Industrial Processes

Contact: Fred R Scott
Montana Energy Res & Dev Inst
P. O. Box #3809
Butte MT 59701
605/996-8335

Title: Method and Apparatus for Vacuum Drying of Commodities

Inventor: John W Bruce
State/Country: SD
Company:

Patent # 3 914 874

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Oct 10, 1975 Completion Date: Feb 22, 1978

Received by DOE from NBS: Nov 30, 1976 Final Report Accepted: Mar 30, 1981

Status: Complete Award Amount: $52,917

Development Stage: Engineering Design

Summary: A grant in the amount of $52,917 has been 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.

DOE # 11 DOE Coordinator D. G. Mello

CERI # 233 DOE Program Off: CS

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

Category: Direct Solar

Title: Solar Collector

Inventor: Ronald H Smith
State/Country: CA
Company: Solergy, Inc.

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 9, 1975 Completion Date: May 17, 1978

Received by DOE from NBS: Sep 29, 1976 Final Report Accepted: Nov 19, 1980

Status: Complete Award Amount: $46,884

Development Stage: Production Engineering

Summary: A grant in the amount of $46,884 has been awarded to Solergy, Inc., which will initiate a series of marketing studies to determine the attitudes of Western U.S. manufacturers, distributors, designers, regarding prospects for successful installation of passive solar systems in new buildings. Survey results will be used by Solergy to aid their marketing and manufacturing plans, and will also be useful to DOE.

DOE # 12 DOE Coordinator J.Aellen

CERI # 448 DOE Program Off: CS

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

Category: Buildings, Structures & Components

Title: High Frequency Energy Saving Device

Inventor: Frank R Summa
State/Country: NY
Company: Electrides Corp.

Patent Applied For

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Oct 28, 1975 Award Date: Sep 29, 1979

Received by DOE from NBS: Sep 30, 1976 Final Report Accepted:

Status: Award Award Amount: $30,000

Development Stage: Engineering Design

Summary: A grant in the amount of $30,000 has been 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 # 7 DOE Coordinator G. K. Ellis Contact: Len Spelber
Wastemate Corporation
OERI # 387 DOE Program Off: CS 4830 Viewridge Avenue
San Diego CA 92123
Category: Miscellaneous 714/292-8181

Title: Hydraulically Powered Waste Disposal Device

Inventor: David Virley Patent # 3 700 178
State/Country: CA
Company: Wastemate Corporation

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

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 10, 1975 Completion Date: May 22, 1978

Received by DOE from NBS: Aug 26, 1976 Final Report Accepted: Aug 20, 1979

Status: Complete Award Amount: $28,000

Development Stage: Limited Production/Marketing

Summary: A $28,000 grant was awarded and completed for the grantee to contract with a qualified management consulting firm to assist them in preparing a business and financial plan. The plan is intended to assist the grantee in acquiring the necessary capital funding to get their residential-sized water-powered food waste-disposer unit into full production. The grantee is negotiating with several funding sources, and indicates hope of early success.

DOE # 8 DOE Coordinator R. Bell Contact: Eugene Lucas
Advanced Energy Systems
OERI # 423 DOE Program Off: CS 7011 N.E. 79th Court
Portland OR 97218
Category: Transportation Systems, Vehicles & Components 503/256-1111

Title: Inertial Storage Transmission

Inventor: Vincent E Carman Patent # 3 903 696
State/Country: OR
Company: Advanced Energy Systems

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Nov 12, 1975 Award Date: Jul 23, 1981

Received by DOE from NBS: Sep 3, 1976 Final Report Accepted:

Status: Award Award Amount: $49,541

Development Stage: Prototype Test

Summary: A grant in the amount of $99,541 was awarded for final preparation of vehicle to present to EPA for testing.

DOE # 3 DOE Coordinator D.R.Craig

OERI # 3 DOE Program Off: FE

Category: Other Natural Sources

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

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

Inventor: Donald C Erickson
State/Country: MD
Company: Energy Concepts Co.

Patent Applied For

Description: Patent applied for. 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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: May 7, 1975 Completion Date: Jul 12, 1978

Received by DOE from NBS: May 21, 1976 Final Report Accepted: Mar 18, 1981

Status: Complete Award Amount: $80,820

Development Stage: Laboratory Test

Summary: $80,820 grant, for the grantee to conduct a research program, including laboratory investigation to better identify the optimum operating conditions, modeling and analysis to better identify the achievable efficiencies and economics, plus identification and probing of any potential problems.

DOE # 4 DOE Coordinator G.K.Ellis

OERI # 230 DOE Program Off: ER

Category: Direct Solar

Title: Power Conversion of Energy Fluctuations

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

Inventor: Joseph C Yater
State/Country: MA
Company:

Patent Applied For

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.

Significant Dates, Status and Summary of Developments:

Form 1019 Rec'd by NBS: Sep 18, 1975 Completion Date: Dec 2, 1976

Received by DOE from NBS: Jun 4, 1976 Final Report Accepted: Jun 15, 1977

Status: Complete Award Amount: $40,400

Development Stage: Concept Development

Summary: A $40,400 contract was granted to define an adequate development plan. Final report has been received and reviewed. Letter to inventor advised him of DOE decision not to support further work, as the review has indicated the scheme to be impractical. An updated version in a proposal submitted by Mr. Yater is currently being reviewed by DOE.

DOE Number	Inventor Name	Invention Title	State or Country	Status	Page
39	James H Lawler	Lawler Steam Generator	CA	No DOE Support	20
40	Roland P Soule	Blue Water Gas	NY	No DOE Support	20
41	William F Armitage, Jr.	Photovoltaic Device by Solid Phase Growth	MA	No DOE Support	21
42	Everett Millard	Flue Baffle Assembly	IL	Award	21
43	Sidney A Parker	Thermal Gradient Utilization Cycle	TX	Complete	22
44	Leon Lazare	New Working Fluids for Absorption Heat-Pump	CT	Complete	22
45	Joe W Fowler	Bulk Cure Tobacco Barn	NC	Complete	23
46	David J Secunda	Thexon Dehydration	NJ	Complete	23
47	Robert M Arthur	Wastewater Aeration Power Control Device	WI	Complete	24
48	Werner E Howald	Howald Combustor	OH	Complete	24
49	Wayne S Boals	Automatic Control System for Water Heaters	CA	No DOE Support	25
50	Robert Cameron	Scotsman Fuel Energizer	IL	Award	25
51	Richard B Bentley	Thermal Efficiency Construction	NY	Analysis II	26
52	Robert G Landry (Deceased)	Air Wedge	ME	No DOE Support	26
53	Harry E Wood	High-Efficiency Water Heater	LA	Complete	27
54	Paul H Schweitzer (Deceased)	Optimizer	PA	Complete	27
55	Richard D & Chester Palone	Electrically Heated Sucker-Rod	AR	No DOE Support	28
56	William P Boulet	Flexaflo-The Wet Fuel Dryer	LA	Complete	28
57	Robert H Wieken	X-5 Smoke Eliminator	MN	Award	29
58	Charles M Kirk	A Multiple Spark System Using Inductive Storage	FL	Award	29
59	Bernard Zimmern	Volumetric Gas Turbine	France	Analysis I	30
60	William H Cone	Electric Transport Refrigerator	IA	Complete	30
61	Willing B Foulke	Fuel Preparation Process	DE	Award	31
62	Thaddeus Papis	Tapered Plate Annular Matrix	CA	Award	31
63	Thomas LoGiudice	Fluorobulb	NY	Complete	32
64	Shalom Mahalla	Mahalla Process	AZ	Award	32
65	Lee A Henningsen	Watt Vendor	PA	Award	33
66	Philip Zacuto	Heat Extractor	NY	Award	33
67	James A Browning	Hydraulic Power for Windmills	NH	Award	34
68	Leroy M Bissett	Helical Screw Compressor	VA	Other Assistance	34
69	Enoch J Durbin	Ionic Fuel Control	NJ	Complete	35
70	Kenneth A Stofen	Compressor Heat-Recovery System	WI	Complete	35
71	Arleigh Wangler	Knight Guard	CA	No DOE Support	36
72	Joe Agar	Petro-Plant Waste Gas Boiler	TX	No DOE Support	36
73	Melvin H Sachs	INTECH	MI	Award	37
74	G R Fitterer	Fuel Cell	PA	Complete	37
75	Richard Jablin	Coke Quenching	NC	Award	38
76	Donald R Ross	The Ross Furnace	TX	Complete	38
77	James W McCord	Variable Heat Refrigeration System	KY	Award	39
78	Robert McNeill	System for High Efficiency Power Generation from Low Temperature Sources	CA	No DOE Support	39
79	Marvin L Wahrman	Oil Well Bit Insert	CA	Complete	40

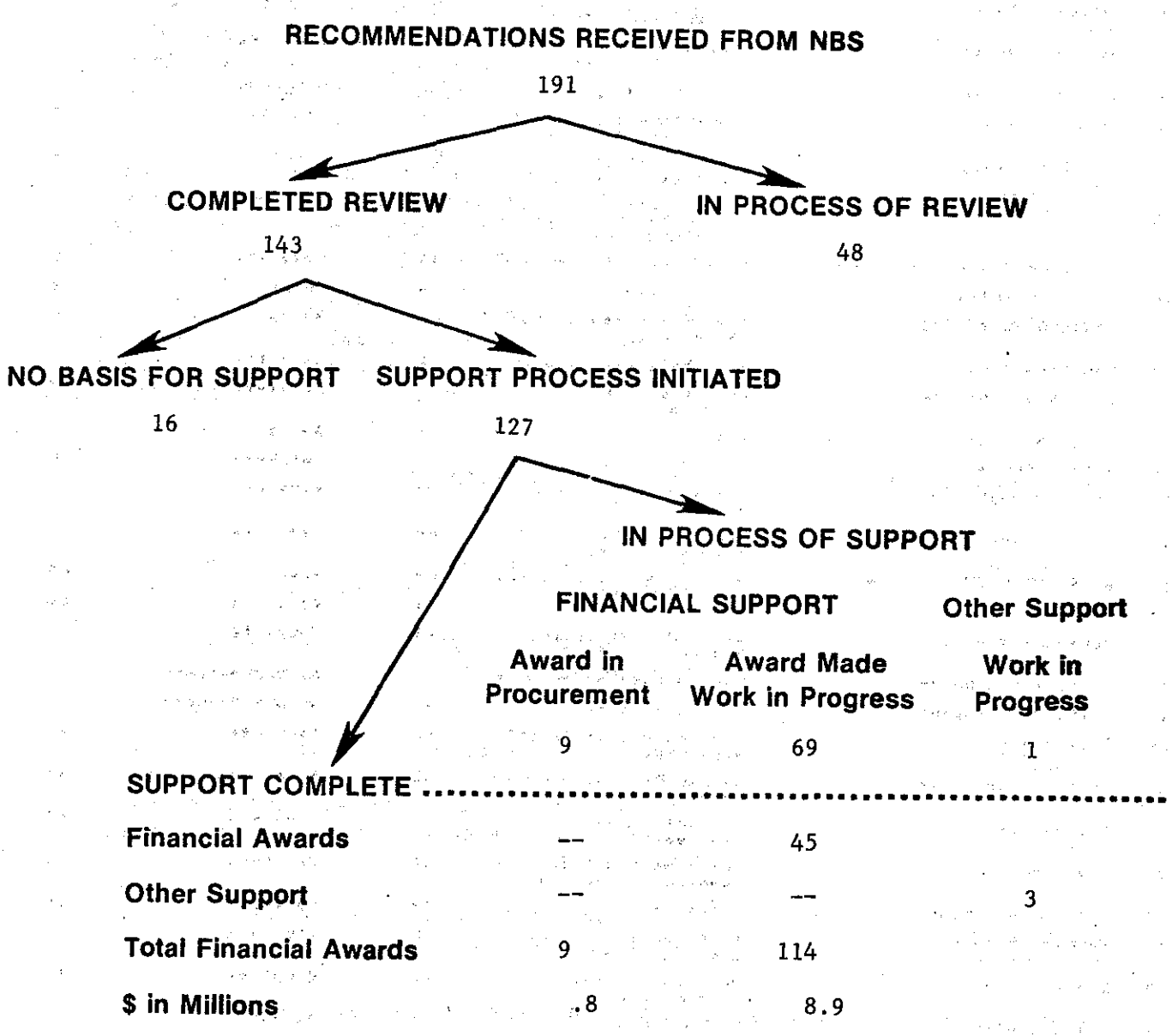


FIGURE 2: Support Statistics as of September 1981

Of the inventions supported, 97 percent (123 ÷ 127) are being supported financially. To date, a total of $9.7 million has been obligated on 123 inventions either by grant or contract. This amounts to an average of approximately $79,000 per award.

ATTACHMENT NO. 2 to: Status Report on the NBS/DOE Inventions Program
As of September 30, 1981

DOE SUPPORT PROCESS DESCRIPTION AND STATISTICS

Introduction

Inventions forwarded by the National Bureau of Standards' (NBS) Office of Energy-Related Inventions (OERI) to the Department of Energy's (DOE), Invention Division (ID) are recommended by OERI as "technically valid and worthy of consideration for Government support" under the NBS/DOE Inventions Program. The OERI report furnished with the letter of recommendation qualifies the recommendation and provides guidance to DOE and the inventor in determining the nature and extent of support to be given.

Inventions recommended by OERI may be at any stage of development; some may be conceptual, others at the laboratory testing stage, while others may be in production or may be in the process of being marketed. Support to 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 where the NBS recommendation is based on data furnished by the inventor and the recommendation is qualified by an expressed need for data validation under controlled testing conditions.

The intent by DOE in each case is to accept the NBS recommendation and provide the appropriate support. However, there will be (and have been) cases in which DOE cannot or will not provide support. The principal considerations which DOE uses in determining support are:

- agreement between inventor and DOE on nature and extent of support.
- capabilities of the inventor and/or the company involved.
- duplication of prior or existing DOE funded efforts.

It should be noted that no further technical evaluation is performed by DOE, beyond that of NBS', and that availability of support funds has not been a problem to date. DOE does reserve the right to question and reject the NBS recommendation and to restrict support because of funding considerations.

Each case is decided on the basis of individual merit and need. If DOE decides to support the inventor, support can include: a grant, a contract,

Massachusetts	704	703	333	323	37	36	13
Michigan	633	632	306	291	21	19	6
Minnesota	305	305	154	153	10	8	4
Mississippi	113	113	33	33	3	2	0
Missouri	347	347	177	170	8	7	3
Montana	53	53	24	23	2	2	0
Nebraska	94	94	45	44	6	6	1
Nevada	85	84	37	37	3	3	0
New Hampshire	107	107	65	60	13	13	4
New Jersey	644	642	347	337	33	30	5
New Mexico	144	144	63	59	4	2	1
New York	1339	1337	718	696	49	48	15
North Carolina	300	299	144	140	5	3	1
North Dakota	30	30	10	10	1	1	1
Ohio	560	559	275	272	25	21	8
Oklahoma	223	223	101	97	11	11	2
Oregon	366	366	162	159	13	13	3
Pennsylvania	768	768	381	370	38	37	14
Rhode Island	59	59	21	21	3	3	0
South Carolina	111	111	49	47	1	1	0
South Dakota	33	33	18	17	2	2	1
Tennessee	277	276	119	114	5	4	0
Texas	752	751	366	349	25	22	11
Utah	147	147	55	51	6	6	4
Vermont	64	64	43	42	7	5	1

FIGURE 4: (Cont.)

EVALUATION PROGRESS REPORT BY INVENTION CLASS AS OF SEPTEMBER 30, 1981

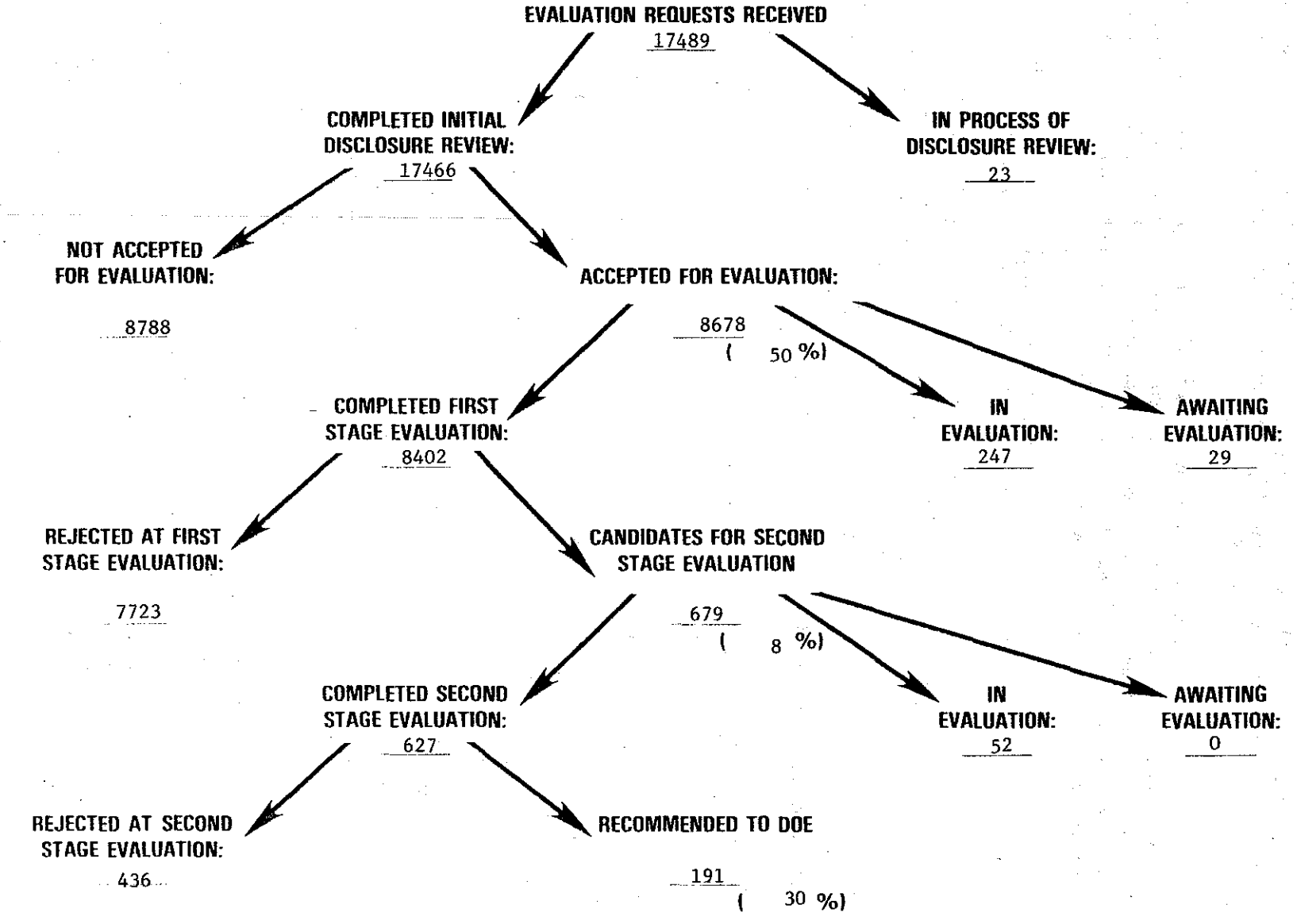
CLASSIFICATION	EVALUATION REQUESTS RECEIVED	ACCEPTED FOR FIRST-STAGE	COMPLETED FIRST-STAGE	ACCEPTED FOR SECOND-STAGE	COMPLETED SECOND-STAGE	RECOMMENDED	% OF TOTAL RECEIVED	% OF TOTAL EXPECTED TO BE RECOMMENDED**
Fossil Fuel Production	365	269	260	61	58	19	2.1	5.7
Direct Solar	2056	1120	1091	68	64	14	11.8	0.7
Other Natural Sources	2555	1011	980	60	54	13	14.6	0.6
Combustion Engines & Components	1977	1212	1177	78	72	13	11.3	0.7
Transportation Systems, Vehicles & Components	1498	887	854	54	47	11	8.6	0.9
Buildings, Structures & Components	2953	2178	2098	125	115	39	16.9	1.5
Industrial Processes	894	688	666	156	147	55	5.1	6.7
Miscellaneous	2116	1222	1193	77	70	27	12.1	1.4
Out of Scope & Unclassifiable	3052	91	83	0	0	0	17.5	0.0
TOTALS	17466*	8678	8402	679	627	191	100.0	1.2

* Excludes 23 not yet classified. (Disclosure Review not completed).

**For Example: Fossil Fuel Production $\frac{269}{365} \times \frac{61}{260} \times \frac{19}{58} \times 100 = 5.78$

FIGURE 3: Subject Area Statistics
A1-5

NBS INVENTION EVALUATION PROCESS STATISTICS
THRU SEPTEMBER 30, 1981



TOTAL DECISIONS
(REJECT, RECOMMEND)
17138

EXPECTED YIELD: 50% × 8 % × 30% = 1.2% OF TOTAL RECEIVED CAN BE EXPECTED TO BE RECOMMENDED

FIGURE 1: Cumulative Flow Statistics as of September 1981

UNITED STATES DEPARTMENT OF COMMERCE
National Bureau of Standards
Washington, D.C. 20234

ATTACHMENT NO. 1 to: Status Report on the NBS/DOE Inventions Program
As of September 30, 1981

NBS EVALUATION PROCESS DESCRIPTION AND STATISTICS

Operational Procedures

There are three principal steps in the evaluation process used by the National Bureau of Standards' Office of Energy-Related Inventions (OERI). 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 two-stage 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, have significant energy conservation or supply potential, and is economically and commercially practical.)

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

Throughout the process, the inventor is kept informed of the status of the evaluation. When evaluation is complete after either first- or second-stage, a letter of notification is sent to the inventor reporting the results of the evaluation. If Second-Stage Evaluation had been conducted, a copy of the formal evaluation report is sent to the inventor.

Performance Statistics

Figure 1 shows OERI's experience to date, namely that 50 percent of disclosures received are acceptable for evaluation; 8 percent of these are found sufficiently promising in first-stage to warrant second-stage evaluation; and 30 percent of the inventions in second-stage are recommended. The "expected yield" of the evaluation process is defined as the product of these three percentages, 1.2 percent. It is assumed that when OERI has processed the 17,489 evaluation requests received as of September 30, 1981, approximately 1.2 percent or 214 will have been recommended. To date, 191 of the 214 have been identified and forwarded to DOE.

19. 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. A grant in the amount of $79,173 was awarded to refit a carpet backing machine with automatic control elements and test on a variety of carpet products.

20. A solar hot water heating system consisting of a non-metallic flat plate solar collector made from ethylene-propolene-diene monomer and non-pressurized thermal storage. A grant in the amount of $99,999 was awarded to finalize design and manufacturing methods for a low cost solar collector. Prototypes will be manufactured and tested for efficiency, weatherability, and other such tests as ASHRAE Standard 93-77.

21. A concentrating solar collector using movements and loads on edges of elastic sheets to form a cylindrical parabolic reflector. A grant in the amount of $97,066 was awarded to develop a fabrication technique for a low-cost, high-performance adjustable concentrating solar collector.

RECOMMENDATIONS

During the quarter, OERI also recommended seven other inventions to DOE as candidates for support. Another 19 inventions were selected by OERI for second-stage evaluation. Historically, one out of three inventions selected for second-stage evaluation are recommended to DOE.

The following summaries briefly describe the 7 inventions that were recommended by OERI during the quarter.

1. An insulated garage door that seals the entire perimeter by cam action seals. In between each insulated section of the door is a seal to further reduce the possibility of air infiltration into a heated building. The door is sectionalized and is comprised of pivotally connected panels each having an interior cavity filled with insulation.

2. A process for recovering oil in-situ from oil-shale which involves alternately heating and cooling a rubble chamber in order to exfoliate the crushed and spalled rocks. The rocks release hydrocarbons which are then pumped in the surface.

3. A means of controlling the field current in an AC induction motor to improve the motor efficiency under partial load conditions.

4. 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.

4. An otherwise conventional, universal, external cylindrical grinder retrofitted with a computer control to save energy in removing metal. A grant in the amount of $99,328 was given to perform a complete engineering design and testing of the invention prototype equipment.

5. A continuously variable hydraulic positive displacement transmission with lockup, overdrive, and regenerative braking for automotive and other vehicular uses. A grant in the amount of $95,000 was awarded to design, build, and test a Volkswagen Sirocco with a prototype hydrostatic transmission installed.

6. A metal casting method for hollow parts. A grant in the amount of $108,920 was awarded to construct and test a working model to demonstrate the heatless production of hollow casting.

7. 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.) An award in the amount of $67,868 was given to build and test a laboratory model of the inventor's system. Testing is to determine efficiency and feasibility.

8. 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. An award in the amount of $77,500 was given to design, build, and test a prototype model of the vehicle gas warm-up system.

9. A new application of electrical conduction for the continuous heat treatment of rolled steel strip that uses less energy than conventional methods. An award in the amount of $99,485 was given to do an in-plant design for Southwest Pipe Company in Houston, Texas. Also the inventor will prepare a design manual and collect data on energy savings.

10. A low-loss shielded power cable using a naturally cooled sodium conductor and a pressurized gas insulator. An award in the amount of $140,000 was given to construct and lay cable from the mainland to Alcatraz Island, California. Inventor will also build and conduct lab tests on high voltage cable for subsequent evaluation by the Electric Power Research Institute (EPRI) laboratory at Waltz Mill.

11. 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. An award in the amount of $71,298 was given 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.