PENNSYLVANIA ENERGY DEVELOPMENT AUTHORITY

1991-92 ANNUAL REPORT

July 1, 1991- June 30, 1992

ROBERT P. CASEY
Governor

MARK S. SINGEL
Lieutenant Governor

ANTHONY T. SOSSONG
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October 1992

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Staff services provided by the Pennsylvania Energy Office.

INTRODUCTION

It was a busy year for the Pennsylvania Energy Development Authority (PEDA). During Fiscal Year 1991-92 (FY 91-92), PEDA allocated nearly $1.5 million to 16 research and development projects throughout Pennsylvania. The Authority also initiated a new program this year. The Pennsylvania Colleges and Universities Program was created to provide grants that focus primarily on fundamental energy research important to Pennsylvania's energy future. Under this new program, the Authority provided financial assistance to nine projects focusing on coal cleaning, solar photovoltaics, energy conservation, oil and gas drilling, and mine safety.

The decade of the nineties will continue to be a very challenging period for the Authority. With the adoption of new environmental legislation such as the Clean Air Act Amendments and the increasing budgetary pressures on state government, the Authority will be positioned to fulfill a vital research and development mission with very limited resources. Over the years the Authority has gained considerable experience in delivering research opportunities to the energy industry. Not only has valuable information been generated concerning a wide range of energy technologies, but the Authority dollars have also generated fourfold its investment in energy development activities in Pennsylvania.

This Annual Report for FY 91-92 is presented to the Governor and General Assembly pursuant to the Pennsylvania Energy Development Authority and Emergency Powers Act of 1982, P.L. 1213, No.280. The Annual Report is for the fiscal year that began on July 1, 1991 and ended on June 30, 1992.

The Authority could not operate successfully without the governance of the committed Board of Directors and the dedication of the members of the Technical Advisory Committee. This Committee, consisting of energy experts throughout the state, has greatly enhanced the Authority's ability to conduct meaningful research and development efforts in Pennsylvania.

SUMMARY OF FINANCIAL ASSISTANCE FOR ENERGY PROJECTS

At the conclusion of FY 91-92 the Authority has completed its eighth year of operation providing financial assistance to private industry, non-profit organizations and the university community. Since 1984 the Authority has allocated nearly $14.53 million to 140 research, development and demonstration (RD&D) projects (Table 2). These allocations have resulted in the disbursement or commitment of about $12.1 million to 121 RD&D projects. The Authority has also supported commercial energy development projects by issuing about $176 in revenue bonds.

The tables and charts on the following pages provide detailed information on Authority projects and financial statistics associated with the cumulative activities to support RD&D in Pennsylvania. Some highlights include:

- Through the eight years of operation the most prevalent research focus has been in the clean coal technology research area. Clean coal technology projects constitute 41% of Authority projects. These projects have received commitments of $6.3 million or 51% of all the dollars allocated by the Authority. Clearly the record indicates that the Authority has determined that reducing coal's adverse impact on the environment is essential to longterm use of coal as a fuel for this state and the nation.

- Overall, the Authority has contributed to coal research by committing nearly 87% or $10.7 million to coal research in Pennsylvania. This commitment is probably a result of both the earmarking of Authority funds for coal research over the years and the keen interest of coal related research issues by Pennsylvanias' universities and energy industry.

- The Authority has been very successful in attracting private dollars to match its funds to advance technical RD&D. The Authority's $12.1 million commitment has attracted an additional $42 million for a total on $54 million invested in RD&D in Pennsylvania's universities, electric utilities and private companies.

- For the first time in many years the co-participants' cost was less than the Authority contribution. This occurred primarily because of the introduction of the new Colleges and Universities Program. This Program had no private match requirements.

- During FY 91-92 the Authority received 46 applications for financial assistance requesting a total of about $5.4 million. The board approved project allocations to 16 projects totalling $1,469,144. These allocated dollars matched a total project cost of approximately $2.5 million. Of the total allocation, $508,484 was attributable to the new Colleges and Universities Program.

- A modest increase in the number of non-coal project awards took place during FY 91-92. While the Authority has never had funds appropriated for this purpose the Authority has tried to make some discretionary funds available for energy conservation, renewable technology and oil and gas research projects.

TABLE 1

PEDA REVENUE BOND PROJECTS

Project Number	Name	Developer	Rev Bond Issue
84061	Humboldt Energy Center	Continental Energy Associates	39,000,000
85033	Piney Creek Project	MidAtlantic Energy Group	45,650,000
85034	Ebensburg Power Company	Babcock & Wilcox Company	77,600,000
87048	Ebensburg Power Company	Babcock & Wilcox Company	4,400,000
90036	Northern Appalachian Project	Northern Appalachian Dev. Corp.	8,500,000
		TOTAL	$175,150,000

TABLE 2

PEDA FUNDED RD&D PROJECTS SUMMARY

FY 84-85

Project Number	Contractor	Purpose	Project Category	PEDA Alloc	Alloc Type	Status
484-002	PA Coal Mining Association	Coal Quality and Marketability Database	Bit. Dev.	411,000	Grant	Complete
484-003	Francis Miller	Coal Preparation Technology Seminars	Bit. Dev.	16,500	Grant	Complete
484-006	PA Coke Technology Inc.	Non-Recovery Coking Process	Bit. Dev.	67,965	Grant	Complete
484-007	Anthracite Industry Assn.	Anthracite Marketing and Demonstrations	Anth. Dev.	453,780	Grant	Complete
484-016	Lehigh University	Improved Coking via Ionic Hydrogenation	Clean Coal	25,000	Grant	Complete
484-017	Lehigh University	Fluidized Bed Coal Cleaning - Phase I	Clean Coal	80,530	Grant	Complete
484-020	Coal Tech Corporation	Advanced Cyclone Combustor - Stage II	Clean Coal	150,000	Grant	Complete
484-024	Erie School District	Enhanced Natural Gas Recovery	Non-Coal	37,500	Ven Cap	Complete
484-025	Johnstown Corporation	Coal and Coal-MSW Cogen Feasibility	Non-Coal	28,715	Grant	Complete
484-026	St Francis College	Coal and MSW Cogeneration Feasibility	Non-Coal	7,500	Grant	Complete
484-034	Council for Labor & Ind.	Conservation Improvements	Non-Coal	15,000	Grant	Complete
484-035	Admiral Perry Vo-Tech Sch.	Cogeneration Feasibility	Non-Coal	6,287	Grant	Rescinded
484-038	CDA International Inc.	Hospital Oper Rm Energy Conservation	Non-Coal	35,000	Grant	Complete
484-041	Bellefield Boiler Plant	Cogeneration Feasibility	Non-Coal	21,000	Grant	Complete
484-042	BCR National Laboratory	Reactive Gas Coal Desulfurization - I	Clean Coal	120,241	Grant	Complete
484-043	BCR National Laboratory	Reichert Spiral Evaluation	Clean Coal	50,000	Grant	Terminated
484-044	Williams & Broome	Hydroelectric Power Barge Demonstration	Non-Coal	200,000	Ven Cap	Complete
484-047	Enerco Associates	Pyrolysis of Waste Tires	Non-Coal	302,268	Ven Cap	Complete
484-049	Allegheny Electric Coop.	Energy Storage in Buildings	Non-Coal	35,000	Grant	Rescinded
484-050	Control Techtronics Inc.	Advanced Combustion Controller Demo	Non-Coal	15,000	Grant	Complete
484-060	Babcock & Wilcox Company	CWF Conversion, Open Hearth Furnace	Bit. Dev.	69,000	Ven Cap	Rescinded

TABLE 2

PEDA FUNDED RD&D PROJECTS SUMMARY
(Continued)

FY 85-86

Project Status	Contractor	Purpose	Project Category	PEDA Alloc	Alloc Type	Status
485-003	Antrim Mining Company	FBC Power Plant Feasibility	Bit. Dev.	10,000	Grant	Complete
485-004	Norton Hambleton Inc.	Reverse Column Flotation Coal Cleaning	Clean Coal	200,000	Ven Cap	Terminated
485-005	Pennsylvania State University	CDS via Steam/Methane Pyrolysis	Clean Coal	35,000	Grant	Complete
485-006	R.A. Systems	Water Jet Assisted Coal Shearer	Bit. Dev.	27,000	Ven Cap	Terminated
485-007	SEDA-COG	Primer on Domestic Anthracite Use	Anth. Dev.	29,000	Grant	Complete
485-009	PA Coal Mining Association	LV Coal in Utility Boilers - Phase I	Bit. Dev.	58,783	Grant	Complete
485-010	Anthracite Industry Assn.	Anthracite Marketing and Conversions	Anth. Dev.	259,380	Grant	Complete
485-011	Continental Cogen Corp.	Anthracite Gasification	Anth. Dev.	35,000	Grant	Complete
485-015	Hess & Fisher Engineering	Acid Mine Drainage Control Structures	Bit. Dev.	31,475	Grant	Complete
485-016	University of Pittsburgh	Liquid CO2 (LICADO) Coal Cleaning	Clean Coal	84,908	Grant	Complete
485-020	SEDA-COG	Heating Systems Conversion Feasibility	Anth. Dev.	10,000	Grant	Complete
485-024	Kipin Industries Inc.	Coal and Waste Co-Processing	Bit. Dev.	200,000	Ven Cap	Terminated
485-025	Meadville Industrial Comm.	Cogeneration Feasibility	Bit. Dev.	10,000	Grant	Complete
485-026	PA Coke Technology, Inc.	Non-Recovery Coke Production	Clean Coal	350,000	Grant	Rescinded
485-027	Coal Tech Corporation	Advanced Cyclone Combustor - Stage III	Clean Coal	200,000	Grant	Complete
485-028	Pennsylvania State University	SO_2 Sorbent Evaluation	Clean Coal	25,000	Grant	Complete
485-030	EXPORTech Company Inc.	Magnetic Coal Cleaning - Phase I	Clean Coal	15,934	Grant	Complete
485-031	Lehigh University	Microbial Coal Desulfurization	Clean Coal	50,000	Grant	Complete
485-032	Pennsylvania State University	Surface Mining Software Development	Bit. Dev.	43,447	Grant	Complete
485-035	Wilkes College ACDI	Anthracite Operators' Assistance	Anth. Dev.	154,685	Grant	Complete

FY 86-87

Project Number	Contractor	Purpose	Project Category	PEDA Alloc	Alloc Type	Status
486-002	BCR National Laboratory	Reactive Gas Coal Desulfurization - II	Clean Coal	114,983	Grant	Complete
486-004	University of Pittsburgh	Controlled Burnout - Coal Refuse Piles	Gen. Coal	149,931	Grant	Complete
486-006	Pennsylvania State University	Mechanical Coal Cleaning Efficiency	Clean Coal	33,727	Grant	Complete
486-007	BCR National Laboratory	LV Coal in Utility Boilers - Phase II	Gen. Coal	198,340	Grant	Complete
863-4008	Pennsylvania Electric Company	Low NOx Burner Demonstration	Clean Coal	400,000	Grant	In Progress
486-009	Pennsylvania Electric Company	CZD SO2 Reduction Demo - Phase I	Clean Coal	100,000	Grant	Complete
486-014	BCR National Laboratory	Ultrasonic Dewatering of Coal	Gen. Coal	40,367	Grant	Terminated
486-018	Anthracite Industry Assn	Anthracite Marketing and Conversions	Anth. Dev.	210,500	Grant	Complete
486-022	Heyl & Patterson Inc.	Micro-Bubble Flotation Coal Cleaning	Clean Coal	150,000	Ven Cap	Terminated
486-026	BCR National Laboratory	Coal/MSW Pyrolysis	Gen. Coal	73,255	Grant	Complete
486-028	Anthracite Industry Assn.	Anthracite Trade Show	Anth. Dev.	26,505	Grant	Complete
486-031	Humenick Wood Products	Wood Waste Combustion and Heat System	Non-Coal	24,108	Grant	Complete
486-033	GRASP	Biothermal Composting Greenhouse	Non-Coal	33,960	Ven Cap	Rescinded
486-035	EDCNP	Anthracite Development and Promotion	Anth. Dev.	15,810	Grant	Complete
486-041	PA Anthracite Dev Corp.	Anth Exploration with Radio Imaging	Anth. Dev.	30,000	Ven Cap	Rescinded
486-043	Pennsylvania State University	Acid Mine Drainage Model	Gen. Coal	142,175	Grant	In Progress
486-046	EXPORTech Company Inc.	Magnetic Coal Cleaning - Phase II	Clean Coal	18,996	Ven Cap	Complete

TABLE 2

PEDA FUNDED RD&D PROJECTS SUMMARY
(Continued)

FY 87-88

Project Number	Contractor	Purpose	Project Category	PEDA Alloc	Alloc Type	Status
487-001	Lehigh University	Fluidized Bed Coal Cleaning - Phase II	Clean Coal	86,405	Grant	Complete
487-003	GE Transportation Systems	CWF-Fired Diesel Elec Locomotive - I	Clean Coal	200,000	Ven Cap	Complete
487-005	CEEP Inc.	Gasoline Vapor Recovery System	Non-Coal	44,959	Ven Cap	Rescinded
487-006	Pennsylvania Electric Company	CZD SO2 Reduction Demo - Phase II	Clean Coal	250,000	Ven Cap	Combined*
487-010	Pennsylvania Electric Company	CWF Combustion Tests and Demonstration	Clean Coal	182,800	Grant	In Progress
487-016	Lehigh University	FGC Catalyst-Sorbent Optimization	Clean Coal	72,912	Ven Cap	Complete
487-022	Anthracite Industry Assn.	Anthracite Promotion to Utilities	Anth. Dev.	230,000	Grant	Terminated
873-4022	Pennsylvania State University	Anthracite Blending for Utilities	Anth. Dev.	147,343	Grant	Complete
487-023	Coal Dynamics Corp.	Controlled Burnout - Deep Mine	Gen. Coal	162,454	Ven Cap	Rescinded
487-024	Control Techtronics Inc.	Combustion Control Software Modification	Clean Coal	25,000	Ven Cap	Terminated
487-030	Pennsylvania State University	Coal Market/Quality Database Update	Gen. Coal	18,028	Grant	Complete
487-033	Rodale Research Center	Reduced Tillage for Energy Efficiency	Non-Coal	55,067	Grant	Complete
487-037	Florence Mining Company	Coal Cleaning (Agglomeration Enhance)	Clean Coal	35,000	Ven Cap	Rescinded
487-038	Good Samaritan Hospital	Hosp Waste Incin in Coal-Fired CFBC	Anth. Dev.	60,000	Grant	Combined**
487-045	EXPORTech Company Inc.	Magnetic Cleaning of Fine Coal	Clean Coal	21,134	Ven Cap	Complete
487-047	Energy Devel Services	Wind Data Acquisition	Non-Coal	14,000	Ven Cap	Rescinded
487-052	Somerset Rural Elec Coop.	Improved Industrial Energy Conservation	Non-Coal	44,934	Loan	Rescinded
487-053	BCR National Laboratory	Coal Desulfur in Rot Kiln Combustor	Clean Coal	172,124	Ven Cap	Terminated
487-055	GRASP	Energy Efficiency Gains in Row Homes	Non-Coal	45,000	Grant	Complete

FY 88-89

Project Number	Contractor	Purpose	Project Category	PEDA Alloc	Alloc Type	Status
488-001	GE Transportation Systems	CWF-Fired Diesel Elec Locomotive - II	Clean Coal	200,000	Ven Cap	Complete
488-003	PA Farmers' Association	Technical Assistance - Ag Energy Appl	Non-Coal	50,000	Loan	Rescinded
488-007	Renewable Energy Inst.	Wind Data Acquisition	Non-Coal	18,000	Ven Cap	In Progress
488-009	Pennsylvania State University	Short Longwall Feasibility	Gen. Coal	36,902	Grant	In Progress
488-015	Coal Tech Corporation	Advanced Cyclone Combustor Demo	Clean Coal	50,000	Ven Cap	Complete
883-4024	Pennsylvania Electric Company	Weathered Coal Combustion Performance	Gen. Coal	70,000	Grant	In Progress
883-4025	Lehigh University	FGC Catalyst-Sorbent Pilot Testing	Clean Coal	40,152	Ven Cap	Complete
883-4030	Pennsylvania State University	Mining Permit Review Software	Gen. Coal	69,546	Grant	Rescinded
883-4033	Good Samaritan Hospital	Hosp Waste Incin in Coal-Fired CFBC	Anth. Dev.	98,682	Grant	Complete
883-4034	Drexel University	RDF Combustion Characterization	Non-Coal	107,054	Grant	In Progress
883-4036	US Department of Energy	Anthracite R&D Needs Assessment	Anth. Dev.	20,000	Grant	Complete

* Allocation combined with Project # 893-4002

** Allocation combined with Project # 883-4033

TABLE 2

PEDA FUNDED RD&D PROJECTS SUMMARY
(Continued)

FY 89-90

Project Number	Contractor	Purpose	Project Category	PEDA Alloc	Alloc Type	Status
893-4002	Pennsylvania Electric Company	CZD SO_2 Reduction Demo - Phase II	Clean Coal	750,000	Ven Cap	In Progress
893-4004	University of Pittsburgh	Liquid CO_2 (LICADO) Coal Cleaning	Clean Coal	58,680	Grant	In Progress
893-4005	GE Transport Systems	CWF-Fired Diesel Elec Locomotive - III	Clean Coal	200,000	Ven Cap	Complete
893-4006	U.S. Steel Mining Company	Coalbed Methane Recovery	Non-Coal	10,000	Grant	Rescinded
893-4008	L.E. Smith Glass Company	Oxy/Gas Burner Development	Gen. Coal	74,447	Loan	Rescinded
893-4013	Pennsylvania State University	Anthracite Institute	Anth. Dev.	108,900	Grant	In Progress
893-4014	Pennsylvania State University	Alkaline Addition Study	Clean Coal	250,000	Grant	In Progress
893-4016	Pennsylvania State University	Sorbent Performance Study	Clean Coal	219,810	Grant	In Progress
893-4018	Pennsylvania State University	Oil Well Brine Treatment	Non-Coal	144,000	Grant	In Progress
893-4021	Lehigh University	Anthracite Waste Erosion Study	Anth. Dev.	153,796	Grant	In Progress
893-4022	Lehigh University	Flue Gas Clean-up w/Zeolite	Clean Coal	41,205	Grant	Complete
893-4023	Production Techniques Inc.	High-Speed Glass Bottle Coating	Non-Coal	74,213	Ven Cap	Complete
893-4029	University of Pittsburgh	Cyclonic Separator Coal Cleaning	Clean Coal	157,633	Grant	In Progress
893-4030	Zurn Industries, Inc.	Rotary Cascading Bed Boiler	Clean Coal	150,000	Grant	In Progress
893-4032	GRASP	Attic Insulation Field Study	Non-Coal	65,000	Grant	In Progress
893-4033	Donlee Technologies	Shredder for Infectious Waste in CFBC	Anth. Dev.	32,169	Grant	Complete
893-4034	B. Datta Research	Anthracite Coal Cleaning Process	Anth. Dev.	150,787	Grant	In Progress
893-4038	BCR National Laboratory	Coal Blends Impact Study	Clean Coal	213,338	Grant	In Progress
893-4043	Miltech Energy Services	Fine Coal Cyclonic Separation	Clean Coal	72,100	Grant	Complete

* Allocation combined with Project # 893-4002

** Allocation combined with Project # 883-4033

FY 90-91

Project Number	Contractor	Purpose	Project Category	PEDA Alloc	Alloc Type	Status
9003-4002	NOXSO Corporation	SO_2/NO_x Flue Gas Clean-up	Clean Coal	188,177	Grant	In Progress
9003-4003	Pennsylvania State University	Short Longwall Mining Devel.: Phase II	Gen. Coal	45,749	Grant	Rescinded
9003-4004	GE Transportation Systems	CWF-Fired Diesel Locomotive: IV	Clean Coal	100,000	Ven Cap	In Progress
9003-4005	Miltech Energy Services, Inc.	Heavy Medium Cyclone Coal Cleaning	Clean Coal	69,232	Grant	In Progress
9003-4008	Pennsylvania Electric Company	Fine Coal Cleaning/CWS Pilot Plant	Clean Coal	249,380	Grant	In Progress
9003-4011	Tampella Power Corporation	Improve SO2 Capture in CFB Boilers	Clean Coal	175,000	Grant	In Progress
9003-4012	Shawmut Development Corp.	Enhanced Recovery of Natural Gas	Non-Coal	221,800	Loan	Rescinded
9003-4013	Rodale Research Center	Energy Efficiency in Agriculture	Non-Coal	10,000	Grant	In Progress
9003-4022	Lehigh University	Flue Gas Clean-up w/Zeolite: Phase II	Clean Coal	71,795	Grant	In Progress
9003-4025	Washington Energy Proc'ing	Use of Ultra Fine Coal in FBC	Clean Coal	155,248	Grant	In Progress
9003-4027	Lehigh University	Dry Coal Purifier (D-CoP) Pilot Plant	Clean Coal	250,000	Grant	Provisional
9003-4029	Pennsylvania State University	Recovery of Low Ash Anthra Tailings	Anth. Dev.	85,227	Grant	In Progress
9003-4030	Pennsylvania State University	Anthracite Institute - Year 2	Anth. Dev.	43,595	Grant	Provisional
9003-4034	BCR National Laboratory	Fine Coal Drying w/Vibrofluidization	Clean Coal	99,961	Grant	In Progress

TABLE 2

PEDA FUNDED RD&D PROJECTS SUMMARY
(Continued)

FY 91-92

Pennsylvania Colleges and Universities Program

Project Number	Contractor	Purpose	Project Category	PEDA Alloc	Alloc Type	Status
9103-4001	Lehigh University	Reactivity of Aromatic Structures/Coal	Clean Coal	48,000	Grant	Draft Contract
9103-4006	University of Pittsburgh	Development of Taylor-Vortex Column	Clean Coal	40,000	Grant	Draft Contract
9103-4010	Drexel University	Heating Efficiency of Air-Source Heat Pumps	Non-Coal	58,568	Grant	Draft Contract
9103-4014	Pennsylvania State University	Electric Vehicle Solar Charging Station	Non-Coal	37,759	Grant	Draft Contract
9103-4017	Pennsylvania State University	Oil and Gas Production Enhancement	Non-Coal	79,942	Grant	Draft Contract
9103-4019	Pennsylvania State University	Production of Graphite from Anthracite	Anth. Dev.	59,875	Grant	Draft Contract
9103-4021	Pennsylvania State University	Analysis of DC Trolley Systems in Mine Fires	Gen. Coal	35,017	Grant	Draft Contract
9103-4023	Pennsylvania State University	Effects of Moisture in Coal Combustion	Anth. Dev.	69,323	Grant	Draft Contract
9103-4024	Pennsylvania State University	Multi-faceted Fine Coal Cleaning	Clean Coal	80,000	Grant	Draft Contract

General Program Solicitation

Project Number	Contractor	Purpose	Project Category	PEDA Alloc	Alloc Type	Status
9103-4031	Pennsylvania Electric Company	Combustion of Coal Water Slurry Fuel	Clean Coal	178,400	Grant	Draft Contract
9103-4035	Pennsylvania State University	Pa. Limestone and Dolomite for Wet FGD	Clean Coal	152,356	Grant	Draft Contract
9103-4036	Lehigh University	Improve Erosion Resistance in CFBBs	Anth. Dev.	124,318	Grant	Draft Contract
9103-4039	BCR National Laboratory	Coal/Gas Co-firing for NO_x Reduction	Clean Coal	107,774	Grant	Draft Contract
9103-4042	Cambria Cogen Company	Bituminous Silt in CFB Boilers	Gen. Coal	127,789	Grant	Draft Contract
9103-4043	GRASP	Heating/Cooling Duct Leakage Evaluation	Non-Coal	59,160	Grant	Draft Contract

ANTHRACITE COMMERCIAL BOILER DESIGN PROJECT

PHASE I

Project Number	Contractor	Project Category	PEDA Alloc	Alloc Type	Status
8931001	Pennsylvania State University	Anth. Dev.	35,000	Grant	Complete
8931002	Bucknell University	Anth. Dev.	29,537	Grant	Complete
8931003	Advanced Waste Treatment Technologies	Anth. Dev.	24,600	Grant	Complete

PHASE II

Project Number	Contractor	Project Category	PEDA Alloc	Alloc Type	Status
9103-1001	Pennsylvania State University	Anth. Dev.	210,863	Grant	Provisional

CATEGORICAL DISTRIBUTION OF PROJECTS
(through eight years of program)

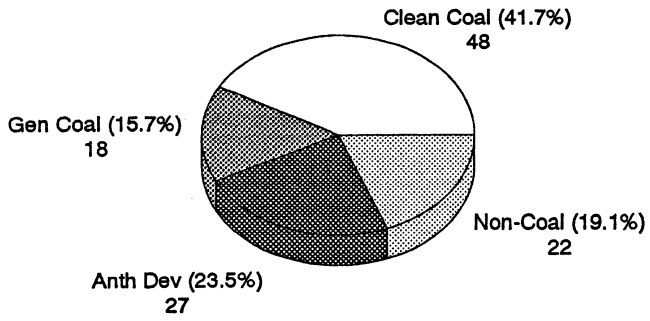


Figure 1

DISTRIBUTION OF PEDA FUNDS
(through eight years of program)

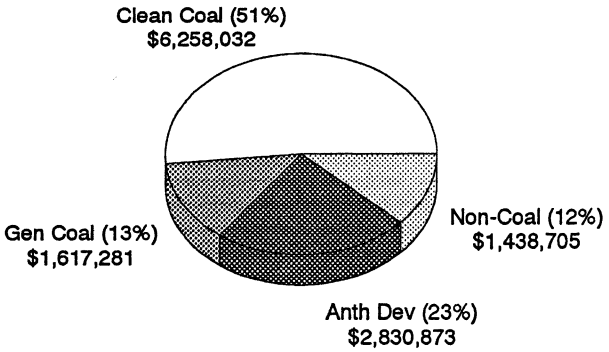


Figure 2

TOTAL COST
(through eight years of program)

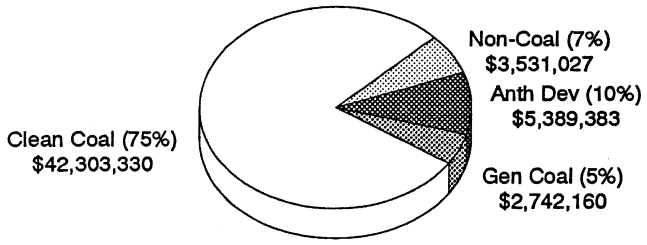


Figure 3

CATEGORICAL DISTRIBUTION OF PROJECTS
(FY 91-92)

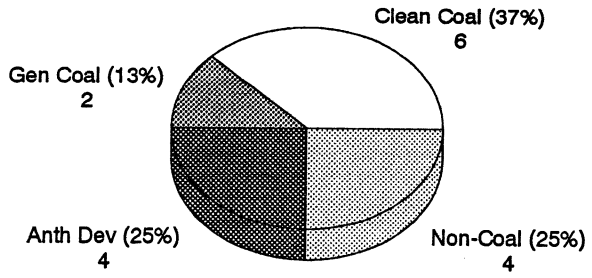


Figure 4

DISTRIBUTION OF PEDA FUNDS
(FY 91-92)

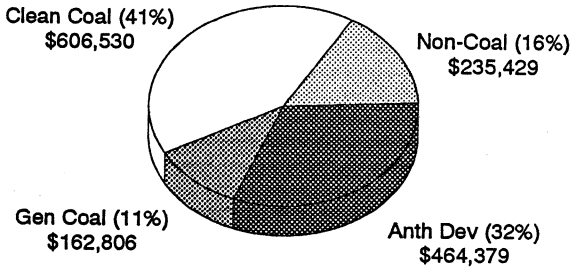


Figure 5

TOTAL COST
(FY 91-92)

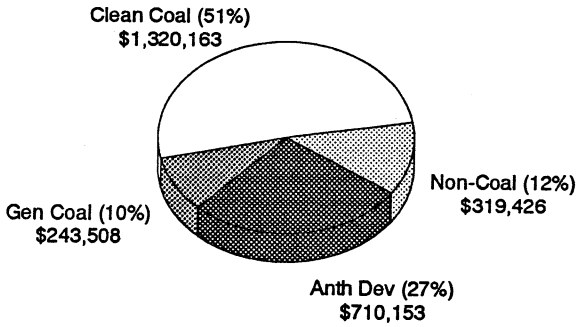


Figure 6

DISTRIBUTION OF PROJECT COSTS

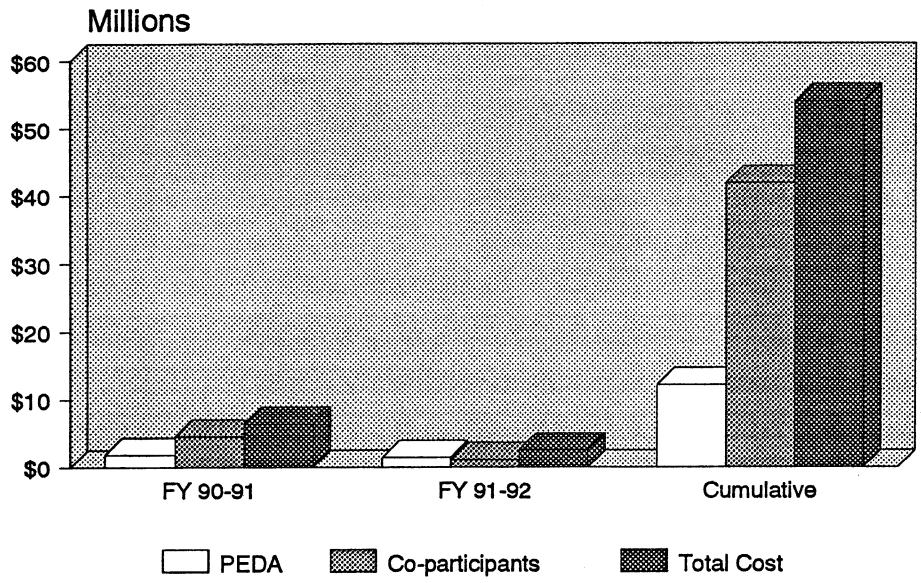


Figure 7

DISTRIBUTION OF PROJECT COSTS

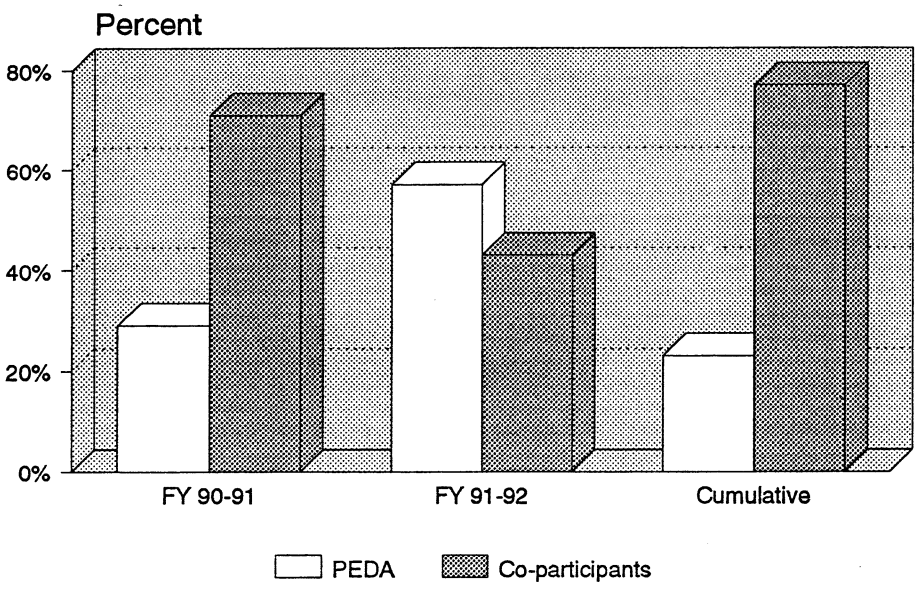
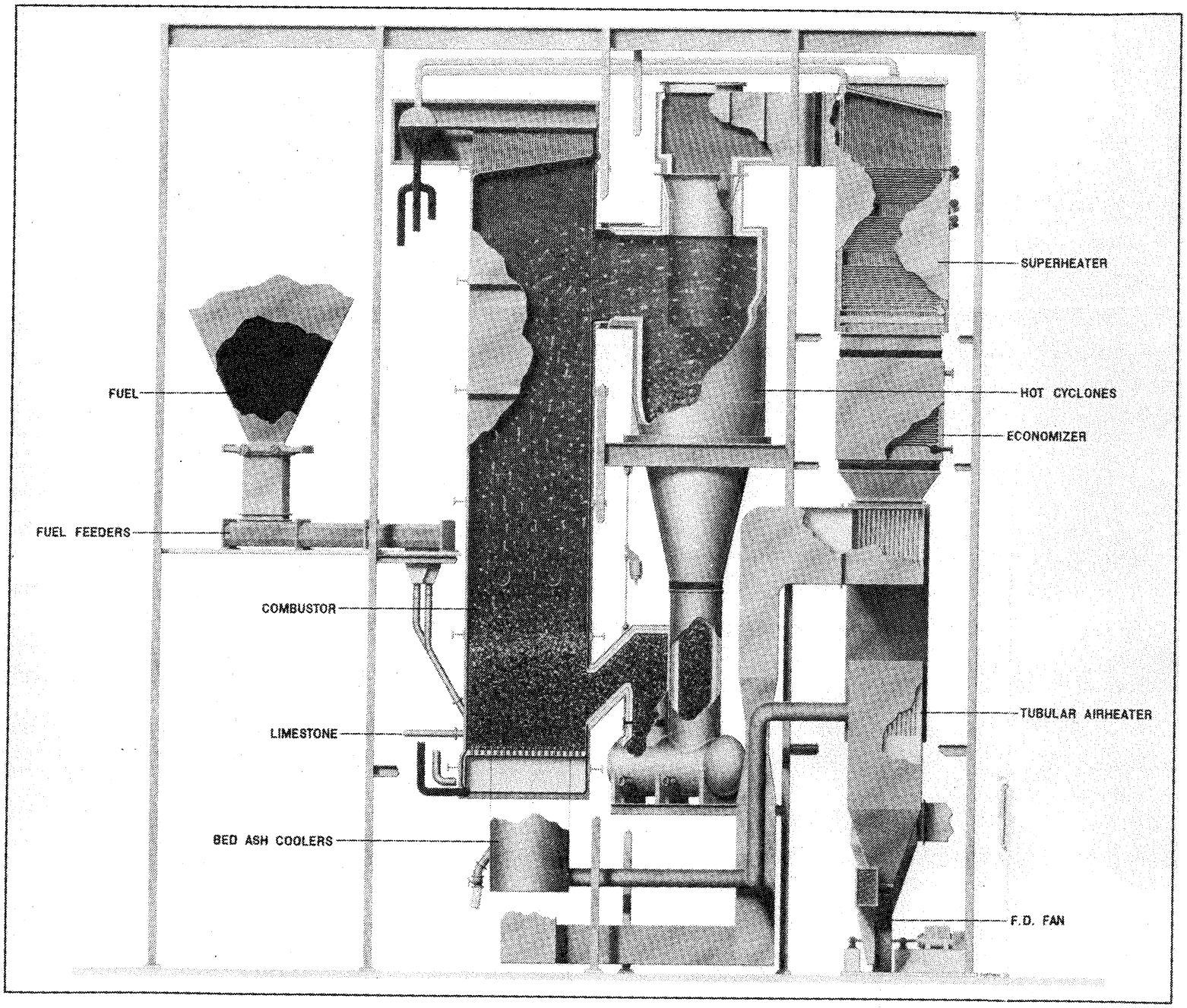


Figure 8



Flow diagram of Tampella Power Company's circulating fludized bed (CFB) boiler. Tampella Power Company is testing different sorbents in its pilot plant facility to improve sulfur capture in CFB boilers (PEDA project #9003-4011).

PEDA PROJECT HIGHLIGHTS

The Authority's energy development and conservation program is summarized in the following paragraphs. Table 1 presents concise information on the four commercial energy projects for which PEDA has issued revenue bonds. The Authority's RD&D projects are summarized in Table 2. Table 2 also provides detail on the projects under Phase I and Phase II of the Anthracite Commercial Boiler Design Competition initiative. For a discussion on the Authority's RD&D projects completed in FY 91-92, refer to Appendix A. RD&D projects which are in progress are described in Appendix B.

For the purposes of this Annual Report, the completed projects in Appendix A refer to those projects for which all work has been completed and a final report has been submitted and accepted by PEDA. Projects listed in Appendix B as "In Progress" include projects that are currently active as well as projects where work has been completed and the contract has terminated but final reports have not yet been received.

Commercial Projects

The Authority has issued approximately $175 million in energy development revenue bonds to assist the development of four commercial energy projects (Table 1). Three of these projects -- the Humboldt Energy Center, the Piney Creek Project, and the Ebensburg Power Company -- are commercial non-utility electric generation facilities that utilize coal refuse from historic mining activity for all or part of their fuel supply. The projects' use of waste coal to generate electricity removes unsightly gob and culm piles, a source of acid drainage, from Pennsylvania's environment. Jointly, the projects have employed 825 workers during peak construction periods, and will provide permanent employment to approximately 135 people. The $175 million in revenue bonds has contributed to a total capital investment of $330 million in Pennsylvania's economy, with sustained monetary and tax revenue flows for many years in the future. The fourth revenue bond project involves the commercial development of gas wells in western Pennsylvania.

Humboldt Energy Center

The Humboldt Energy Center (HEC) is a 135 megawatt cogeneration plant fueled by gasified anthracite refuse (culm) and natural gas in a unique combined cycle process. The largest cogeneration plant in Pennsylvania, HEC is located in the Humboldt Industrial Park near Hazleton and sells steam to tenants of the Park and electricity to Pennsylvania Power & Light Company (PP&L). HEC declared commercial operation in March 1989 following a two year construction period. In approximate terms, the capital investment in this plant was $120 million; 250 workers were employed during the peak construction period; and 70 permanent jobs in plant operation and fuel handling were created. As of 6/30/92, approximately three million tons of culm have been utilized and 2,570 million kilowatthours (KWHs) have been delivered to PP&L at an average availability factor of 92%. Since HEC's commercial operation, 15 new tenants employing approximately 1600 persons have relocated to the Humboldt Industrial Park.

Piney Creek Project

Construction of the 30 megawatt (net) $100 million Piney Creek Project is nearly completed, and commercial operation is expected by the end of the year. Piney Creek will burn bituminous gob along with limestone in a circulating fluidized bed boiler for a sulfur removal rate of 90 to 95%. Electricity will be sold to Pennsylvania Electric Company (Penelec). Piney Creek has employed 300 construction workers at peak and will provide approximately 30 permanent jobs in plant operation. The boiler was manufactured in Pennsylvania by Tampella Power at their modernized manufacturing plant near Williamsport.

Ebensburg Power Company

Construction of the 52 megawatt (net) Ebensburg Power Company cogeneration plant (EPC) was completed and commercial operation was declared in March 1991. EPC burns bituminous gob in a state-of-the-art circulating fluidized bed boiler where limestone is injected into the boiler to achieve 70 to 90% sulfur removal. EPC sells steam to Ebensburg Center and electricity to Penelec. The $110 million capital investment resulted in 275 construction jobs at peak and 34 permanent jobs in plant operations and fuel handling. As of 6/30/92, 431,000 tons of gob have been used and 438 million KWHs have been delivered to Penelec at an average availability factor of 91%.

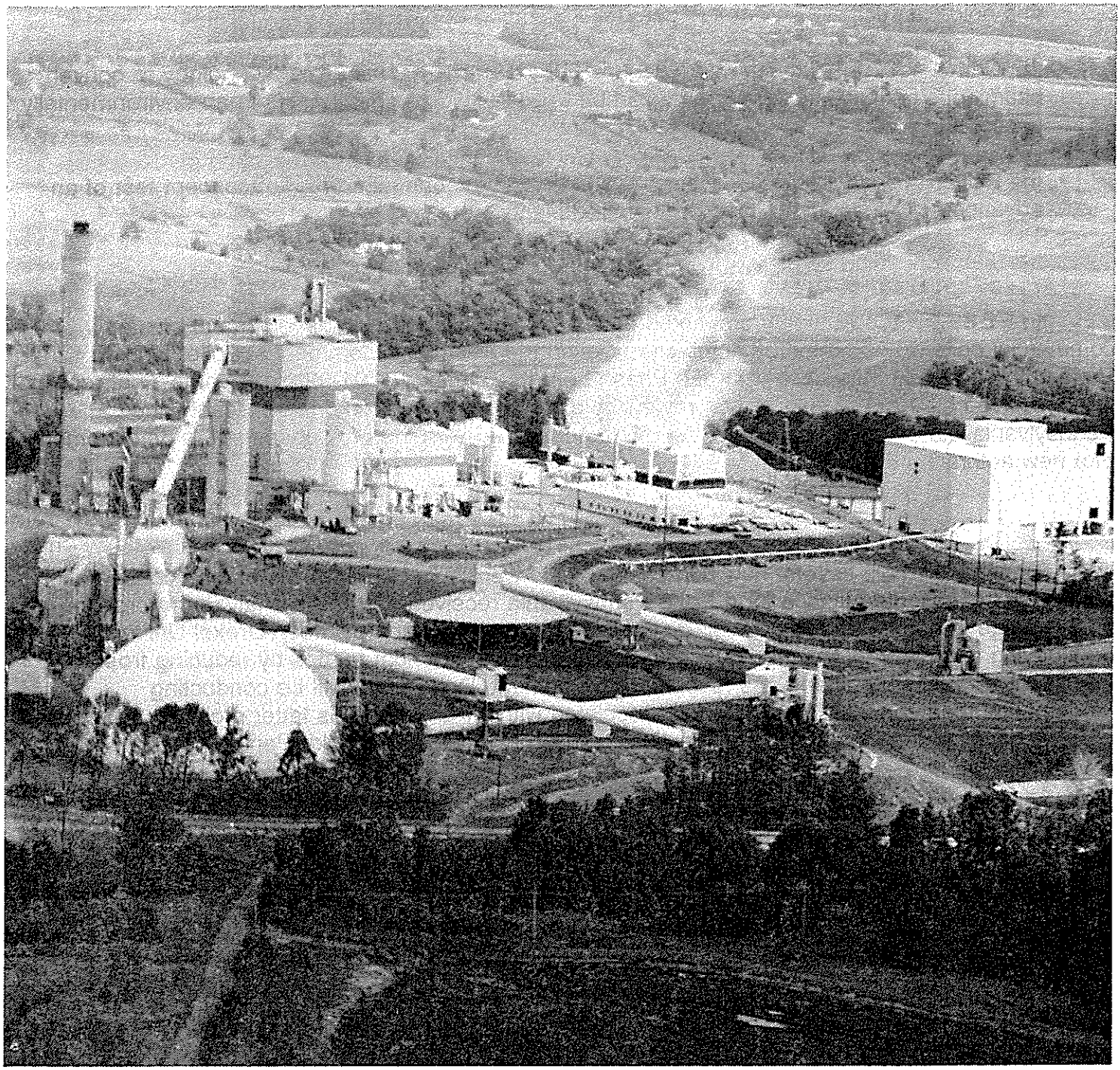
Northern Appalachian Project

Financial closing on the Northern Appalachian Project took place in September 1990. The Project's plans consist of the design, engineering and installation of equipment to produce and process natural gas from wells to be located at various sites throughout Pennsylvania.

Clean Coal Technology Projects

There is not much doubt that the future use of coal is tied directly to the development of technologies that reduce the environmental impacts of its utilization. Consistent with this prognosis the Authority has attempted to direct most of its financial resources to clean coal technology research and development projects. During FY 91-92 the Authority approved six additional projects to advance the clean use of Pennsylvania coal.

Of particular significance to the Authority's clean coal efforts was the provision of support to the Pennsylvania Electric Company to conduct pilot scale testing of coal water fuel at its Seward Power Plant in Indiana County. The test fuel for this project will be produced from the coal water slurry pilot production facility in Homer City which was constructed with Authority support during FY 91-92. Small scale tests supported by the Authority have shown that combining coal water slurry fuel with pulverized coal improves combustion performance and reduces NO_x emissions. In addition, the utilization of preparation plant fines eliminates the environmental problems associated with disposal. This project may provide benefits to other coal preparation plants in Pennsylvania by developing a market for smaller size coal material.



Cambria Cogen Company's cogeneration facility near Ebensburg, Pennsylvania. Cambria Cogen Company is testing ultra-fine bituminous coal refuse for use in cogeneration facilities (PEDA project #9103-4042).

FISCAL STATUS

PEDA ended FY 91-92 with a net available balance of $9,900.29. Though the Authority has total assets of $3,997,616, $3,987,540 are committed to projects ($3,983,981) and operations ($3,559), but not yet spent. According to the attached financial statements, administration costs, including personnel, operating and fixed asset expenses, totaled $290,673 for the year.

The Authority received $312,878 in interest from funds invested by the State Treasurer. The board is pleased to report that, once again, PEDA's operation imposed no costs to taxpayers, and the full amount of Commonwealth funds was available for financial assistance. Summaries of the Authority's fiscal status are presented in Tables 3, 4, 5 and 6. These statements were prepared by the Comptroller's Office, Commonwealth of Pennsylvania.

NO. - QUALIFICATIONS

TABLE 3

PENNSYLVANIA ENERGY DEVELOPMENT AUTHORITY

ENERGY DEVELOPMENT FUND

STATEMENT OF REVENUES AND EXPENDITURES

INCEPTION OF FUND TO JUNE 30, 1992

REVENUES:	
Interest on Investments	$ 2,877,754.13
Application Fees	29,135.00
Commitment Fees	175,750.00
Venture Capital Repayments	1,479.75
Miscellaneous Revenue	34,144.25
TOTAL REVENUES	**3,118,263.13**
EXPENDITURES:	
Grants/Venture Capital	8,411,996.71
Operating Expenses	1,758,826.36
TOTAL EXPENDITURES	**10,170,823.07**
REVENUES UNDER EXPENDITURES	**(7,052,559.94)**
OTHER FINANCING SOURCES:	
Transfer from General Fund	11,050,000.00
REVENUE AND OTHER FINANCING SOURCES OVER EXPENDITURES (FUND BALANCE):	**$ 3,997,440.06**

TABLE 4

PENNSYLVANIA ENERGY DEVELOPMENT AUTHORITY

ENERGY DEVELOPMENT FUND

BALANCE SHEET

JUNE 30, 1992

ASSETS	
Cash	$ 166.03
Short Term Investments	3,981,000.00
Accrued Interest Receivable	16,449.79
TOTAL ASSETS	**$ 3,997,615.82**
LIABILITIES & FUND BALANCES	
LIABILITIES:	$ 175.76
FUND BALANCES:	
Reserved:	
Grants/Venture Capital Commitments	
Encumbered	3,983,981.16
Unencumbered	0.00
Operating Encumbrances	3,558.61
Unreserved:	
Undesignated	9,900.29
TOTAL FUND BALANCES	3,997,615.82
TOTAL LIABILITIES AND FUND BALANCES	**$ 3,997,615.82**

TABLE 5

PENNSYLVANIA ENERGY DEVELOPMENT AUTHORITY

COMPARATIVE STATEMENT OF FUNDS AVAILABLE

FOR THE TWELVE MONTH PERIOD

ENDING JUNE 30

	1991		1992	
TOTAL AVAILABLE FUNDS - July 1		$ 6,389,957		$ 6,717,081
RECEIPTS:				
Transfer from General Fund	$ 750,000		$ 0	
Interest on Investments	512,319		312,878	
Application Fees	3,450		4,600	
Commitment Fees	100,000		0	
Venture Capital Repayments	353		0	
Miscellaneous	208		0	
Total Receipts		$ 1,366,330		$ 317,478
AVAILABLE FOR DISBURSEMENT		**$ 7,756,287**		**$ 7,034,559**
DISBURSEMENTS:				
Grants/Venture Capital	$ 789,342		$ 2,746,446	
Operating Expenses	249,864		290,673	
Total Disbursements		$ 1,039,206		$ 3,037,119
GROSS FUNDS AVAILABLE		**$ 6,717,081**		**$ 3,997,440**
COMMITMENTS:				
Grants/Venture Capital	$ 5,609,658		$ 3,983,981	
Operating	2,589		3,559	
Total Commitments		$ 5,612,247		$ 3,987,540
NET FUNDS AVAILABLE		**$ 1,104,834**		**$ 9,900**

TABLE 6

PENNSYLVANIA ENERGY DEVELOPMENT AUTHORITY

RECONCILIATION OF COMMITMENTS

JUNE 30, 1992

ME #	Contractor	Commitments	Disbursements	Balance
486-043	Pennsylvania State University	142,175.00	127,456.38	14,718.62
487-010	Pennsylvania Electric Company	182,800.00	50,134.84	132,665.16
487-053	BCR National Laboratory	146,428.00	133,129.45	13,298.55
488-007	Renewable Energy Inst	18,000.00	10,994.88	7,005.12
488-009	Pennsylvania State University	36,902.00	18,993.98	17,908.02
863-4008	Pennsylvania Electric Company	400,000.00	360,000.00	40,000.00
883-4024	Pennsylvania Electric Company	70,000.00	28,898.16	41,101.84
883-4034	Drexel University	107,054.00	58,311.75	48,742.25
893-4002	Pennsylvania Electric Company	750,000.00	675,387.00	74,613.00
893-4004	University of Pittsburgh	58,680.00	0.00	58,680.00
893-3005	GE Transportation Systems	200,000.00	173,078.00	26,922.00
893-4013	Pennsylvania State University	108,900.00	70,820.75	38,079.25
893-4014	Pennsylvania State University	250,000.00	146,800.36	103,199.64
893-4016	Pennsylvania State University	219,810.00	131,898.92	87,911.08
893-4018	Pennsylvania State University	144,000.00	37,843.73	106,156.27
893-4021	Lehigh University	153,796.00	75,748.55	78,047.45
893-4029	University of Pittsburgh	157,633.00	65,211.48	92,421.52
893-4030	Zurn Industries, Inc.	130,000.00	0.00	130,000.00
893-4032	GRASP	65,000.00	59,722.92	5,277.08
893-4033	Donlee Technologies	32,169.00	27,491.76	4,677.24
893-4034	B. Datta Research	150,787.00	0.00	150,787.00
893-4038	BCR National Laboratory	213,338.00	159,881.95	53,456.05
893-1001	Pennsylvania State University	35,000.00	11,077.90	23,922.10
893-1002	Bucknell University	29,537.00	0.00	29,537.00
9003-4002	NOXSO Corporation	188,177.00	116,516.96	71,660.04
*9003-3004	GE Transportation Systems	100,000.00	0.00	100,000.00
9003-4005	Miltech Energy Services	69,232.00	42,129.21	27,102.79
9003-4008	Pennsylvania Electric Company	249,380.00	79,550.61	169,829.39
9003-4011	Tampella Power Corp.	175,000.00	3,022.03	171,977.97
9003-4013	Rodale Research Center	10,000.00	5,148.77	4,851.23
9003-4022	Lehigh University	71,795.00	0.00	71,795.00
9003-4025	Washington Energy Process.	155,248.00	90,418.87	64,829.13
*9003-4027	Lehigh University	250,000.00	0.00	250,000.00
9003-4029	Pennsylvania State University	85,227.00	0.00	85,227.00
*9003-4030	Pennsylvania State University	43,595.00	0.00	43,595.00
9003-4034	BCR National Laboratory	99,961.00	25,117.63	74,843.37
*9103-1001	Pennsylvania State University	210,863.00	0.00	210,863.00
*9103-4001	Lehigh University	48,000.00	0.00	48,000.00
*9103-4006	University of Pittsburgh	40,000.00	0.00	40,000.00
*9103-4010	Drexel University	58,568.00	0.00	58,568.00
*9103-4014	Pennsylvania State University	37,759.00	0.00	37,759.00
*9103-4017	Pennsylvania State University	79,942.00	0.00	79,942.00
*9103-4019	Pennsylvania State University	59,875.00	0.00	59,875.00
*9103-4021	Pennsylvania State University	35,017.00	0.00	35,017.00
*9103-4023	Pennsylvania State University	69,323.00	0.00	69,323.00
*9103-4024	Pennsylvania State University	80,000.00	0.00	80,000.00
*9103-4031	Pennsylvania Electric Company	178,400.00	0.00	178,400.00
*9103-4035	Pennsylvania State University	152,356.00	0.00	152,356.00
*9103-4036	Lehigh University	124,318.00	0.00	124,318.00
*9103-4039	BCR National Laboratory	107,774.00	0.00	107,774.00
*9103-4042	Cambria Cogen Company	127,789.00	0.00	127,789.00
*9103-4043	GRASP	59,160.00	0.00	59,160.00
		$5,768,768.00	**$2,784,786.84**	**$3,983,981.16**

* Encumbered Commitments -- Contract not finalilzed as of 6/30/92

APPENDIX A

PEDA RD&D PROJECTS COMPLETED IN FISCAL YEAR 1991 - 92

APPLICANT

Lehigh University
Packard Laboratory
Bethlehem, PA 18015

Dr. Edward K. Levy
215/758-4090

Northampton County

PROJECT NUMBER

487-001

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	87-88

PROJECT DESCRIPTION

This project is the second phase of a project undertaken by Lehigh University to investigate the application of fluidization to coal cleaning. This phase will develop fluidized bed coal cleaning to the point where field demonstration of the technology is imminent. At least three Pennsylvania coals will be evaluated in the course of this project.

PROJECT STATUS

The project is complete. The testing on laboratory scale equipment shows the technology to be a viable dry coal cleaning process. The Applicant has been awarded PEDA funds to continue this project to the pilot plant scale-up phase (See Project #9003-4027). The data obtained as a result of this project is crucial to scale-up.

FINANCIAL SUMMARY

Total Project Cost:	$461,810
Applicant Share:	$375,405
PEDA Share:	$ 86,405

REMAINING PEDA BALANCE

$0

PROJECT START DATE

July 1, 1988

CONTRACT TERMINATION DATE

December 31, 1991

APPLICANT

Pennsylvania State University
114 Kern Building
University Park, PA 16802

Dr. Alan Scaroni
814/865-3264

Centre County

PROJECT NUMBER

873-4022

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Anthracite	87-88

PROJECT DESCRIPTION

This contract is for second phase of the two-phase utility coal blending project. Phase I was completed by the Anthracite Industry Association with the procurement of New York State Electric and Gas Company to participate in the project. Phase II work includes laboratory combustion testing of several anthracite/bituminous coal blends and anthracite pellets/ bituminous coal blends. Combustion testing will be conducted at Penn State's Combustion Laboratory.

PROJECT STATUS

All work under this project has been completed. The project has concluded through its laboratory tests that blends of anthracite and bituminous coal are technically possible. Combustion was not adversely affected by the blended product and, in some instances, improved the combustion characteristics over bituminous fuel alone. Economics will drive whether this option will gain widespread use. However, as a result of this study, New York State Gas and Electric has started burning blends of 10-15% anthracite by-products with its standard bituminous coals at their Jennison Station with no significant problems being encountered. The project has also resulted in the investigation of the effects of moisture in the combustion process (See Project #9103-4023).

FINANCIAL SUMMARY

Total Project Cost:	$222,556
Applicant Share:	$ 22,256
PEDA Share:	$147,343

REMAINING PEDA BALANCE

$0

PROJECT START DATE

July 1, 1990

CONTRACT TERMINATION DATE

June 30, 1992

APPLICANT

Lehigh University
Dept. of Chemical Engineering
Bethlehem, PA 18015

Dr. Harvey G. Stenger, Jr.
215/758-5057

Northampton County

PROJECT NUMBER

883-4025

TYPE OF ASSISTANCE

Venture Capital

FUNDING CATEGORY	**FISCAL YEAR**
Clean Coal	88-89

PROJECT DESCRIPTION

The purposes of this project is to continue development of a catalyst-sorbent for the removal of sulfur dioxide and nitrogen oxides from coal-derived combustion gases to assess the commercial viability of this technology. In addition to Lehigh University and the Authority, project participants include Pennsylvania Power and Light Company (PP&L) and Baltimore Gas and Electric Company. Project objectives are: (1) to determine the amount of rhodium which can be replaced by palladium without decreasing the poisoning resistance of the catalyst; and, (2) to test an optimal catalyst-sorbent (determined from previous work) for a continuous three-month period on a slip stream of flue gas from PP&L's Martins Creek Generating Station.

PROJECT STATUS

This project has been concluded. The Applicant has met the project objectives. It has been determined that 100% of the rhodium can be replaced with a lower cost palladium without any adverse effect on the process. However, as a result of the equipment testing at PP&L's Martin's Creek facility, the Applicant concluded that additional laboratory testing is needed prior to scale-up.

FINANCIAL SUMMARY

Total Project Cost:	$45,152
Applicant Share:	$ 5,000
PEDA Share:	$40,152

REMAINING PEDA BALANCE

$0

PROJECT START DATE

March 15, 1990

CONTRACT TERMINATION DATE

August 31, 1991

APPLICANT

GE Transportation Systems
2901 East Lake Road
Erie, PA 16531

Dr. Bertrend D. Hsu
814/875-2110

Erie County

PROJECT NUMBER

893-3005

TYPE OF ASSISTANCE

Venture Capital

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	89-90

PROJECT DESCRIPTION

This contract covers activities for the third year of General Electric Transportation Systems' five year project to develop a diesel electric locomotive fired with coal-water fuel. Specific tasks for this third year will be qualification testing of the 12-cylinder engine in the laboratory and the transfer of the engine to the test locomotive. Track tests will be performed on the locomotive on GE's test track. Development will continue on a full flow emissions system and a production electronic fuel injection system. Long term durability tests will be started on two cylinders of a full size 8-cylinder engine.

PROJECT STATUS

The contract for the third year of the project has been completed. Work continues on the fourth year of the project.

FINANCIAL SUMMARY

Total Project Cost:	$4,245,186
Applicant Share:	$4,045,186
PEDA Share:	$ 200,000

REMAINING PEDA BALANCE

$11,000

PROJECT START DATE

April 24, 1991

CONTRACT TERMINATION DATE

May 31, 1992

APPLICANT

Lehigh University
526 Brodhead Avenue
Bethlehem, PA 18015

Dr. Dale Simpson
215/758-3023

Northampton County

PROJECT NUMBER

893-4022

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	89-90

PROJECT DESCRIPTION

This project is to determine, through laboratory research and testing, the absorption behavior of NO_x and SO_x from a flue gas stream onto a low-cost mordenite material. Mixed gases and coal flue gases will be used for the tests. This project will provide the necessary data and characterization of mordenite aggregates for a subsequent engineering study dealing with design and modeling for utility power plant use.

PROJECT STATUS

The project is complete. Phase II of the project has also been funded by PEDA and is underway (See Project #9003-4022).

FINANCIAL SUMMARY

Total Project Cost:	$61,205
Applicant Share:	$20,000
PEDA Share:	$41,205

REMAINING PEDA BALANCE

$0

PROJECT START DATE

July 1, 1990

CONTRACT TERMINATION DATE

September 30, 1991

APPLICANT

Production Techniques, Inc.
P.O. Box 896
Hallstead, PA 18822

Roberta D. Turner
717/879-5373

Susquehanna County

PROJECT NUMBER

893-3023

TYPE OF ASSISTANCE

Venture Capital

FUNDING CATEGORY	FISCAL YEAR
Non-Coal	89-90

PROJECT DESCRIPTION

Production Techniques, Inc. (PTI) will receive financial assistance to build a high speed bottle coating line to prove out the economic and technical advantages of an innovative bottle coating process, as well as the energy savings to the glass container industry. PTI/Brandt Division has developed a glass container coating (patented and marketable) having the potential for eliminating the need to melt different colored glasses. Energy savings potential results from greatly increased use of glass cullet, thus reducing energy required to melt glass and greater energy efficiency from melting clear flint glass.

PROJECT STATUS

PTI has completed the design, fabrication, and installation of the prototype conveyorized bottle handling and coating system, that included sample chucks (used to grip the bottles and carry them through the line), a propane gas thermal cure system (for drying the bottles after coating), and an air exhaust system. The Authority received a final report. The Contractor has recently signed a licensing agreement to produce the bottle coating system.

FINANCIAL SUMMARY

Total Project Cost:	$198,427
Applicant Share:	$124,214
PEDA Share:	$ 74,213

REMAINING PEDA BALANCE

$0

PROJECT START DATE

July 1, 1990

CONTRACT TERMINATION DATE

March 31, 1992

APPLICANT

DONLEE Technologies
693 North Hills Road
York, PA 17402

E. J. Coulthard
717/755-1081

York County

PROJECT NUMBER

893-4033

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Anthracite	89-90

PROJECT DESCRIPTION

A key research component of the Good Samaritan Hospital infectious waste incinerator program (PEDA grant #883-4033) is to test an actual full-scale waste shredding and feeding system. Donlee will purchase, install and demonstrate the viability of the infectious waste shredder/feeder at their pilot plant location in York, Pennsylvania prior to its installation at the site of the full-scale circulating fluidized bed facility.

PROJECT STATUS

The Contractor has completed the design, purchase, installation, and testing of the hospital waste shredding and feeding system at their pilot plant testing facility in York. The Contractor recently submitted a draft final report to the Authority.

FINANCIAL SUMMARY

Total Project Cost:	$223,396
Applicant Share:	$191,227
PEDA Share:	$ 32,169

REMAINING PEDA BALANCE

$4,677.24

PROJECT START DATE

October 17, 1990

CONTRACT TERMINATION DATE

June 30, 1992

APPLICANT

Miltech Energy Services
P.O. Box 501
Ligonier, PA 15658

Francis Miller
412/238-3255

Westmoreland County

PROJECT NUMBER

893-4043

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	89-90

PROJECT DESCRIPTION

This project intends to use a patented heavy medium cyclone cleaning process for low gravity separation of ash and sulfur from coal and froth flotation for medium control and recovery of the fine coal. The project will also include the development of a plan for taking the new process from development to fruition as well as a Central Pennsylvania coal supply study, laboratory research, conceptual design, and a business plan.

PROJECT STATUS

The Applicant completed Tasks 2 and 3 of the project. A final report covering these two tasks has been submitted to PEDA. The Applicant is continuing to conduct Tasks 4 and 5 of the project which will determine the economic viability of the process (See Project #9003-4005).

FINANCIAL SUMMARY

Total Project Cost:	$77,034
Applicant Share:	$ 7,704
PEDA Share:	$69,330

REMAINING PEDA BALANCE

$0

PROJECT START DATE

September 21, 1990

CONTRACT TERMINATION DATE

December 31, 1991

APPENDIX B

PEDA RD&D PROJECTS IN PROGRESS

Please Note: The contract termination date is not necessarily the project completion date. Please refer to the "PROJECT STATUS" section for a complete project update.

APPLICANT

Pennsylvania State University
114 Kern Building
University Park, PA 16802

Dr. Alan Davis
814/865-6543

Centre County

PROJECT NUMBER

486-043

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY | **FISCAL YEAR**

General Coal | 86-87

PROJECT DESCRIPTION

The Pennsylvania State University is engaged in a project to develop a statistical model to predict acid mine drainage (AMD) from proposed coal mining sites. The project is comprised of three tasks: (1) overburden characterization via (a) quantitative phase characterization based upon x-ray diffraction analysis, (b) grain-size distribution measurement of pyrite grains in selected samples with computer-controlled scanning electron microscopy, and (c) quantification of the reactivity and amount of pyrite and carbonate minerals by evolved gas analysis; (2) simulated weathering (leaching) experiments to study rates and quantities of acid production; and (3) development of a predictive model based upon data collected from tasks 1 and 2.

PROJECT STATUS

All work under the project is complete. The contract expired on June 30, 1991. PEDA is working closely with Penn State to obtain a final report on the project. The methodologies developed under this project are being used to characterize the mine overburden in Penn State's Alkaline Addition project (See Project #893-4014).

FINANCIAL SUMMARY

Total Project Cost:	$223,521
Applicant Share:	$ 81,346
PEDA Share:	$142,175

REMAINING PEDA BALANCE

$14,718.62

PROJECT START DATE

July 1, 1987

CONTRACT TERMINATION DATE

June 30, 1991

APPLICANT

Pennsylvania Electric Company
1001 Broad Street
Johnstown, PA 15907

Steven T. Higgins
814/533-8883

Cambria County

PROJECT NUMBER

863-4008

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	86-87

PROJECT DESCRIPTION

Pennsylvania Electric Company is hosting a project to demonstrate a low NO_x burner at its Homer City generating station in Indiana County, Pennsylvania. This demonstration is part of a program sponsored by the Electric Power Research Institute (EPRI) to evaluate the performance of low NO_x burner systems. These burners will be retrofitted to a pre-1971 New Source Performance Standards boiler. Comparisons between data obtained before, immediately after, and well after burner conversion will accurately and conclusively assess performance of the selected low NO_x burner system. Low NO_x burners appear to be the simplest and cheapest means of achieving significant NO_x emission reductions in utility boilers.

PROJECT STATUS

The low NO_x burners have been installed in Homer City's boiler and are operational. However, preliminary test data indicates that performance of the burners in lowering NO_x emissions is less than anticipated. Pennsylvania Electric Company is currently working with the burner manufacturer to re-design portions of the burner unit in an effort to maximize NO_x reduction. A contract amendment extending the termination date to June 30, 1993 is currently being negotiated between the Authority and the Applicant to accommodate a full year of burner testing.

FINANCIAL SUMMARY

Total Project Cost:	$6,300,000
Applicant Share:	$5,900,000
PEDA Share:	$ 400,000

REMAINING PEDA BALANCE

$40,000

PROJECT START DATE

May 22, 1991

CONTRACT TERMINATION DATE

June 30, 1992

APPLICANT

Pennsylvania Electric Company
1001 Broad Street
Johnstown, PA 15907

Joseph J. Battista
814/533-8234

Cambria County

PROJECT NUMBER

487-010

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	**FISCAL YEAR**
Clean Coal	87-88

PROJECT DESCRIPTION

The purpose of this project is to show the technical feasibility of co-firing coal-water slurry fuel (CWSF) and coal in pulverized coal (PC) utility boilers. The project involves firing CWSF at pilot and demonstration scales. In addition to the Authority, project participants include Pennsylvania Electric Company (Penelec), New York State Electric and Gas Company, Jim Walter Resources (JWR), Pennsylvania State University (PSU), Management and Technical Services, and CLI Corporation. The project comprises four phases, (1) CWSF Formulation and Characterization, (2) Combustion Behavior of CWSFs, (3) Combustion Behavior when Co-firing CWSF and PC and, (4) CWSF Demonstration Tests.

PROJECT STATUS

This project is the first of several projects being conducted by the Pennsylvania Electric Company to test coal water slurry fuels (See Projects #9003-4008 and #9103-4031). The Applicant recently modified its test program to include slurry prepared by the Applicant. Additional combustion testing of this slurry will also be conducted at Penn State's Combustion Laboratory. A contract amendment extending the termination date to December 31, 1992 is currently being negotiated between the Authority and the Applicant.

FINANCIAL SUMMARY

Total Project Cost:	$262,777
Applicant Share:	$ 79,977
PEDA Share:	$182,800

REMAINING PEDA BALANCE

$132,665.16

PROJECT START DATE

March 27, 1990

CONTRACT TERMINATION DATE

June 30, 1992

APPLICANT

Renewable Energy Institute
0172 Hwy 133 C-2
Carbondale, CO 81623

John D'Angelo
(303) 963-9632

Erie County

PROJECT NUMBER

488-007

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Non-Coal	88-89

PROJECT DESCRIPTION

REI received financial assistance to purchase and install a tower on a site on the Pennsylvania shore of Lake Erie to collect site specific wind data. Data parameters will include wind speed, wind direction, as well as other pertinent data required to determine the feasibility of the use of commercial wind machine to generate electricity in this part of the state.

PROJECT STATUS

REI has purchased and installed a wind tower and began collection of data on June 20, 1990. Consistent collection of data, however, began in December, 1990. The project was delayed for a few months due to the wind tower being damaged by an early spring ice storm in 1991. The contractor completed collection of data in the spring of this year. The Authority is awaiting receipt of the final report.

FINANCIAL SUMMARY

Total Project Cost:	$20,000
Applicant Share:	$ 2,000
PEDA Share:	$18,000

REMAINING PEDA BALANCE

$7,661

PROJECT START DATE

November 16, 1989

CONTRACT TERMINATION DATE

June 30, 1992

APPLICANT

Pennsylvania State University
114 Kern Building
University Park, PA 16802

Dr. Stanley Suboleski
814/865-3437

Centre County

PROJECT NUMBER

488-009

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
General Coal	88-89

PROJECT DESCRIPTION

The Pennsylvania State University will examine all aspects of a 200-foot longwall face. Ventilation, subsidence, coal handling, movement, productivity and development requirements will be studied. The short- and long-term effects of both standard and short longwalls on groundwater will be assessed. The results from the three year effort will be used by the industry sponsor to decide on establishing an in-mine demonstration of the short longwall mining method.

PROJECT STATUS

Considerable work has been done by the Applicant on this project in developing the concept and design of the short longwall mining method. All work under this portion of the project are complete. The Authority is awaiting submittal of the final report from the Applicant.

The applicant also received an allocation from PEDA under Project #9003-4003 to continue development of this technology. However, a review of the project by state and federal agencies concluded that current state and federal mining regulations prohibit an in-mine demonstration of this technology. The allocation for Project #9003-4003 has since been rescinded by the Board.

FINANCIAL SUMMARY

Total Project Cost:	$61,902
Applicant Share:	$25,000
PEDA Share:	$36,902

REMAINING PEDA BALANCE

$17,908.02

PROJECT START DATE

July 14, 1989

CONTRACT TERMINATION DATE

June 30, 1992

APPLICANT

Pennsylvania Electric Company
1001 Broad Street
Johnstown, PA 15907

Joseph J. Battista
814/533-8234

Cambria County

PROJECT NUMBER

883-4024

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	**FISCAL YEAR**
General Coal	88-89

PROJECT DESCRIPTION

This project is being conducted by the Pennsylvania Electric Company to increase the understanding of changes in physical and chemical properties of bituminous coal which is naturally weathered (i.e., exposed to ambient conditions). As a result of weathering, this coal contains essentially no pyritic sulfur due to the oxidation of pyrite. Therefore, utilization of this coal may be a means of complying with SO_2 emission standards. Combustion data will be collected during test burns of weathered coal blends with fresh coal, in a pulverized coal utility boiler, to confirm results of previous laboratory investigations.

PROJECT STATUS

All work under the project is completed. The Applicant has submitted a draft final report to the Authority for review.

FINANCIAL SUMMARY

Total Project Cost:	$100,000
Applicant Share:	$ 30,000
PEDA Share:	$ 70,000

REMAINING PEDA BALANCE

$41,101.84

PROJECT START DATE

November 26, 1990

CONTRACT TERMINATION DATE

June 30, 1992

APPLICANT

Drexel University
32nd & Chestnut Streets
Philadelphia, PA 19104

Nicholas Cernansky
215/895-2284

Philadelphia County

PROJECT NUMBER

883-4034

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Non-Coal	88-89

PROJECT DESCRIPTION

Drexel University has proposed a two-year project comprised of two major tasks: 1) perform laboratory studies to characterize the devolatilization dynamics of a broad range of refuse derived fuel (RDF) pellets and fluff samples; and, 2) perform an industrial pilot plant scale combustion study to determine the performance of the RDF pellets in a circulating fluidized bed combustor. The goal of this project is to develop technology for the implementation of processed municipal solid waste as an energy producing fuel (RDF).

PROJECT STATUS

Drexel has completed a series of experiments performing thermogravimetric and kinetic analysis on RDF derived from municipal solid waste and simulated RDF created from cellulose and plastic materials. Drexel has also developed a preliminary database of kinetic parameters which describe the overall devolatilization of RDF. Currently, they are working with Tampella Power to secure a temporary burn permit from DER for the pilot plant testing phase of the RDF combustion.

FINANCIAL SUMMARY

Total Project Cost:	$147,392
Applicant Share:	$ 40,338
PEDA Share:	$107,054

REMAINING PEDA BALANCE

$63,829.11

PROJECT START DATE

January 5, 1990

CONTRACT TERMINATION DATE

December 31, 1992

APPLICANT

Pennsylvania Electric Company
1001 Broad Street
Johnstown, PA 15907

Joseph J. Battista
814/533-8234

Cambria County

PROJECT NUMBER

893-4002

TYPE OF ASSISTANCE

Venture Capital

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	89-90

PROJECT DESCRIPTION

This project is a demonstration of a new process to remove sulfur and nitrogen pollutants from the flue gas leaving coal-fired boilers. The Pennsylvania Electric Company will host the site for a demonstration of Bechtel Corporation's confined zone dispersion (CZD) process at its Seward Station electrical generating facility located near Johnstown, Pennsylvania. The PEDA contract for this project represents participation in Phase II of this three-phase project. Specifically, the funds will be used for equipment purchases by Pennsylvania Electric Company in retrofitting the facility for the demonstration.

PROJECT STATUS

All construction is complete on the project. Initial test runs revealed problems in the data acquisition system and problems with the limestone sprayer arrangement. Both of these problems have been resolved. The system is currently undergoing a one year continuous testing program. During the one-year period, data will also be collected and analyzed for system efficiency.

FINANCIAL SUMMARY

Total Project Cost:	$8,510,200
Applicant Share:	$7,760,200
PEDA Share:	$ 750,000

REMAINING PEDA BALANCE

$74,613

PROJECT START DATE

May 20, 1991

CONTRACT TERMINATION DATE

July 1, 1993

APPLICANT

University of Pittsburgh
350 Thackeray Hall
Pittsburgh, PA 15260

Dr. Shiao H. Chiang
412/624-9658

Allegheny County

PROJECT NUMBER

893-4004

TYPE OF ASSISTANCE

Venture Capital

FUNDING CATEGORY | **FISCAL YEAR**

Clean Coal | 89-90

PROJECT DESCRIPTION

This is Phase II of the University of Pittsburgh's LICADO coal cleaning process. (see Appendix A, Project Number 485-016 for Phase I) The LICADO (**li**quid **ca**rbon **di**oxide) process, invented by the University of Pittsburgh, uses liquid CO_2 as a medium to beneficiate ultra-fine (-200 mesh) coal. Phase II comprises three tasks: equipment development, testing of continuous operation, and engineering and economic analysis. Preliminary tests with Upper Freeport coal have yielded high clean coal values, with good separation between coal and mineral matter.

PROJECT STATUS

The project is essentially complete. The Applicant is preparing a final report on the project and is expected to be received at the Authority in the near future.

FINANCIAL SUMMARY

Total Project Cost:	$91,000
Applicant Share:	$32,320
PEDA Share:	$58,680

REMAINING PEDA BALANCE

$58,680

PROJECT START DATE

September 13, 1990

CONTRACT TERMINATION DATE

June 30, 1992

APPLICANT

Pennsylvania State University
114 Kern Building
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

893-4013

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY | **FISCAL YEAR**

Anthracite | 89-90

PROJECT DESCRIPTION

The project will establish an Anthracite Institute at Penn State University. The Institute will be a joint public/private partnership between the Anthracite Industry and the University. The function of the Institute is to provide technical extension services to current and potential customers, and to coordinate and expand the University's anthracite research program.

PROJECT STATUS

This first year contract for the operation of the Anthracite Institute has terminated. Penn State University is preparing a final report on the Institute's first year activities. Upon receipt of the final report, Authority staff will assess the project and determine how to proceed with the second year funding for the Institute (See Project #9003-4030).

FINANCIAL SUMMARY

Total Project Cost:	$121,000
Applicant Share:	$ 12,100
PEDA Share:	$108,900

REMAINING PEDA BALANCE

$38,079.25

PROJECT START DATE

January 9, 1991

CONTRACT TERMINATION DATE

June 30, 1992

APPLICANT

Pennsylvania State University
114 Kern Building
University Park, PA 16802

Robert Killoren
814/865-3397

Centre County

PROJECT NUMBER

893-4014

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	**FISCAL YEAR**
Clean Coal	89-90

PROJECT DESCRIPTION

This project will analyze the chemical effects of alkaline addition to mining overburden in the neutralization of acid mine drainage from a surface coal mine. This project will directly observe and measure the use of alkaline addition over an extended period of time in an operating surface mine demonstration site, the Kauffman mining operation in Clearfield County, and investigate the cause of differences between observed water quality and calculated quality, in order to develop improved procedures for preventing acid drainage. The results of this project could substantially increase permittable coal resources.

PROJECT STATUS

The majority of work over the past year has been associated with providing information to the Pa. Department of Environmental Resources' in response to its mine permit reviews. Toward the end of the fiscal year, issuance of the permit was imminent. Mining will commence in the Fall of 1992.

FINANCIAL SUMMARY

Total Project Cost:	$280,000
Applicant Share:	$ 30,000
PEDA Share:	$250,000

REMAINING PEDA BALANCE

$103,199.64

PROJECT START DATE

August 27, 1990

CONTRACT TERMINATION DATE

June 30, 1993

APPLICANT

Pennsylvania State University
114 Kern Building
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

893-4016

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY | **FISCAL YEAR**

Clean Coal | 89-90

PROJECT DESCRIPTION

The purpose of this project is to maximize the cost effectiveness of air quality compliance in circulating fluidized bed combustion (CFB) power plants using Pennsylvania sorbent products. This is to be accomplished by using sorbent evaluation techniques developed at Penn State's Combustion Laboratory to provide calcium utilization efficiency data which sorbent suppliers and customers can use to evaluate within the context of cost. Both sorbent suppliers and circulating fluidized bed combustion power plant operators will derive the technical benefits of this program.

PROJECT STATUS

Penn State has completed the laboratory analysis on the samples. Field testing of the sorbent samples has begun at the Westwood Generating Station, an independent power producing facility, that burns anthracite culm in its CFB. Testing will continue through the end of the Summer of 1992.

FINANCIAL SUMMARY

Total Project Cost:	$246,926
Applicant Share:	$ 27,116
PEDA Share:	$219,810

REMAINING PEDA BALANCE

$87,911.08

PROJECT START DATE

September 13, 1990

CONTRACT TERMINATION DATE

June 30, 1993

APPLICANT

Pennsylvania State University
114 Kern Building
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

893-4018

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	**FISCAL YEAR**
Non-Coal	89-90

PROJECT DESCRIPTION

Penn State will perform extensive field testing on the treatment of various brines produced from oil reservoirs throughout the state. Previous research at Penn State resulted in a benchscale model of a brine treatment method and some initial testing. The effectiveness of the treatment method and the effects of temperature changes will be tested on at least five different brines. The testing procedure will follow recommendations of the Department of Environmental Resources. A database will be developed with a resultant software package to design appropriately scaled treatment systems in the field.

PROJECT STATUS

The contractor is currently conducting laboratory work on the removal of various heavy metals from brine. Field testing of the treatment process continues at the Franklin Oil Brine Treatment facility. The field testing has centered primarily on the removal of iron from brine, with testing of other heavy metals to follow. The contractor will also be conducting experiments on the effects of various design variables on the efficiency of the treatment process, as well as the effect and capability of the process on different brines.

FINANCIAL SUMMARY

Total Project Cost:	$160,000
Applicant Share:	$ 16,000
PEDA Share:	$144,000

REMAINING PEDA BALANCE

$106,156.27

PROJECT START DATE

August 27, 1990

CONTRACT TERMINATION DATE

January 30, 1993

APPLICANT

Lehigh University
526 Brodhead Avenue
Bethlehem, PA 18015

John Cheezum
215/758-3024

Northampton County

PROJECT NUMBER

893-4021

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	**FISCAL YEAR**
Anthracite	89-90

PROJECT DESCRIPTION

The overall objective of this research is to develop guidelines for the selection of anthracite culm feedstock and to determine bed material characteristics to minimize erosion in fluidized bed combustors. The long-range goal of this research is to develop a quality control system for the proper selection of anthracite feedstock that will minimize bed material erosivity. The major technical objectives of this research area are: (a) modify existing test equipment and conduct literature review of bed material characterization and erosivity, (b) erosion test bed materials, (c) characterize the composition, size and shape of bed materials, and (d) develop engineering correlations between erosivity and bed material characterization.

PROJECT STATUS

Construction of the test equipment is completed. Materials testing and data collection continue.

FINANCIAL SUMMARY

Total Project Cost:	$193,796
Applicant Share:	$ 40,000
PEDA Share:	$153,796

REMAINING PEDA BALANCE

$78,047.45

PROJECT START DATE

July 1, 1990

CONTRACT TERMINATION DATE

June 30, 1993

APPLICANT

University of Pittsburgh
350 Thackeray Hall
Pittsburgh, PA 15260

Josephine Hatley
412/624-7400

Allegheny County

PROJECT NUMBER

893-4029

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	89-90

PROJECT DESCRIPTION

This project is being conducted to develop an improved fine coal cleaning method based on the application of cyclonic separation to selective agglomeration processes. The goal of this project is to successfully develop a cyclonic agglomeration system which would provide an effective technology for fine coal cleaning making major Pennsylvania coal reserves more environmentally acceptable and commercially marketable to utility and other users.

PROJECT STATUS

The main equipment for the project, a 3" inside diameter cyclone agglomerator unit, has been constructed and tests are being conducted using Pittsburgh No. 8 coal and Kerosene as the agglomerant. A mathematical model is being developed and tested against the experimental results.

FINANCIAL SUMMARY

Total Project Cost:	$234,405
Applicant Share:	$ 76,772
PEDA Share:	$157,633

REMAINING PEDA BALANCE

$157,633

PROJECT START DATE

November 26, 1990

CONTRACT TERMINATION DATE

December 31, 1992

APPLICANT

Zurn Industries, Inc.
1422 East Avenue
Erie, PA 16503

Robert Seibel
814/452-6421

Erie County

PROJECT NUMBER

893-4030

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	89-90

PROJECT DESCRIPTION

This project will use an existing rotary cascading bed boiler to obtain data for and complete the design of a transportable combustion system to cleanly burn high sulfur, high ash and caking Pennsylvania coals and coal wastes and to co-burn coal in combination with certain industrial and municipal wastes. This project will consist of two phases: (1) the test/demonstration burns of selected Pennsylvania coals, coal wastes and fuels derived from industrial and/or municipal wastes co-fired in an existing rotary boiler; and (2) design of a transportable rotary boiler unit engineered to burn Pennsylvania coal products.

PROJECT STATUS

Test burns were completed on anthracite and bituminous waste fuels co-fired with industrial waste by-products. The test burns were conducted at the North American Rayon Corporation's plant in Elizabethton, Tennessee where Zurn's demonstration rotary boiler has been installed. Data analysis and preliminary designs for a modified boiler are underway.

FINANCIAL SUMMARY

Total Project Cost:	$304,017
Applicant Share:	$174,017
PEDA Share:	$130,000

REMAINING PEDA BALANCE

$130,000

PROJECT START DATE

June 26, 1991

CONTRACT TERMINATION DATE

December 31, 1992

APPLICANT

GRASP
3500 Lancaster Avenue
Philadelphia, PA 19104

Mary Mikus
215/222-0318

Philadelphia County

PROJECT NUMBER

893-4032

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Non-Coal	89-90

PROJECT DESCRIPTION

GRASP will identify 100 flat-roof rowhouses for insulation treatments and energy use studies from applications for the weatherization program at the PHDC. Fifty houses will receive "optimized" treatment (direct air-sealing of all bypasses, tight-packing cellulose in accessible areas, blown-in cellulose for full coverage), and 50 houses will receive "standard" treatment (blowing fiberglass for full treatment). Elapsed time meters will be installed on gas heaters visible through a window for reading. Fuel savings from each of the different treatments will be determined.

PROJECT STATUS

The Contractor has completed monitoring and compiling of the energy usage and consumption data on the 88 sample houses. They also conducted four seminars for contractors in the weatherization industry. These were held in those regions of the state with similar housing stock as in the project. The Authority is currently awaiting a final report and a contractor's guide on weatherizing flat-roof rowhouses. A contract amendment extending the termination date to September 30, 1992 is currently being negotiated between the Authority and the Contractor.

FINANCIAL SUMMARY

Total Project Cost:	$106,290
Applicant Share:	$ 41,290
PEDA Share:	$ 65,000

REMAINING PEDA BALANCE

$14,029.83

PROJECT START DATE

August 20, 1990

CONTRACT TERMINATION DATE

June 30, 1991

APPLICANT

B. Datta Research
617 Tampico Court
Pittsburgh, PA 15239

Rabinder Datta
412/795-3693

Allegheny County

PROJECT NUMBER

893-4034

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY **FISCAL YEAR**

Anthracite 89-90

PROJECT DESCRIPTION

The objectives of this project are to determine the effectiveness and economics of an advanced beneficiation system for cleaning Pennsylvania anthracite coals to 1% - 4% ash. The project will include: (1) an engineering study of the variables to optimize the process; (2) provide technical data to evaluate the process for further scale-up; and (3) obtain data and conduct a conceptual engineering and economic analysis of the process.

PROJECT STATUS

The test apparatus has been modified and several test runs have been performed. Additional technical data analysis needs to be done for equipment scale-up. The contract terminated on December 31, 1991. The Authority is in the process of re-negotiating a contract with the Applicant to complete the work.

FINANCIAL SUMMARY

Total Project Cost: $167,787
Applicant Share: $ 17,000
PEDA Share: $150,787

REMAINING PEDA BALANCE

$150,787

PROJECT START DATE

February 13, 1991

CONTRACT TERMINATION DATE

December 31, 1991

APPLICANT

BCR National Laboratory
500 William Pitt Way
Pittsburgh, PA 15238

Joseph Yerushalmi
412/826-3030

Allegheny County

PROJECT NUMBER

893-4038

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY | **FISCAL YEAR**

Clean Coal | 89-90

PROJECT DESCRIPTION

The main goal of the proposed research is to carry out a systematic series of lab and bench-scale tests to obtain a better understanding of the underlying properties of coal blends relative to their constituent coals, so as to assess potential impacts on the performance of the boiler system. The tests relate to six critical areas of boiler plant operations: (1) coal storage and handling, (2) grinding, (3) combustion behavior, (4) ash deposition, (5) ash collection, and (6) particulate and gas emissions. The tests will span such phenomena as flowability, friability, weathering and self-heating, grindability, combustion characteristics, ash slagging and fouling propensity, and projected plant emissions.

PROJECT STATUS

Laboratory testing continues on the project. The Applicant is working closely with several Pennsylvania utilities to obtain coal and ash samples for the testing. Testing scheduled to continue through the Fall of 1992.

FINANCIAL SUMMARY

Total Project Cost:	$238,338
Applicant Share:	$ 25,000
PEDA Share:	$213,338

REMAINING PEDA BALANCE

$53,456.05

PROJECT START DATE

February 13, 1991

CONTRACT TERMINATION DATE

December 31, 1992

APPLICANT

NOXSO Corporation
P.O. Box 469
Library, PA 15129

Dr. L.G. Neal
412/854-1200

Allegheny County

PROJECT NUMBER

9003-4002

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	**FISCAL YEAR**
Clean Coal	90-91

PROJECT DESCRIPTION

This project involves laboratory-scale experiments using the applicant's NOXSO process in a dilute phase transport reactor to remove SO_2 and NO_x emissions from the flue gas stream of coal-fired boilers. If successful, the dilute phase transport reactor may offer both operational and economic advantages currently used fluidized bed reactors.

PROJECT STATUS

The research work concentrated on the experimental work for the sorbent adsorption tests. The experimental apparatus has been modified based on shakedown observations. An updated system is being used to collect data on the sorbent adsorption tests.

FINANCIAL SUMMARY

Total Project Cost:	$282,125
Applicant Share:	$ 93,948
PEDA Share:	$188,177

REMAINING PEDA BALANCE

$71,660.04

PROJECT START DATE

May 15,1991

CONTRACT TERMINATION DATE

December 31, 1992

APPLICANT

GE Transportation Systems
2901 East Lake Road
Erie, PA 16531

Dr. Bertrend D. Hsu
814/875-2110

Erie County

PROJECT NUMBER

9003-3004

TYPE OF ASSISTANCE

Venture Capital

FUNDING CATEGORY | **FISCAL YEAR**

Clean Coal | 90-91

PROJECT DESCRIPTION

This is the fourth year for this project to develop a coal-water slurry fueled diesel electric locomotive. This is a six year, $22 million venture co-funded by the U.S. Department of Energy, New York State Energy Research and Development Authority, and Norfolk Southern Railroad.

PROJECT STATUS

The contract for this fourth year of the project was recently executed and the work continues.

FINANCIAL SUMMARY

Total Project Cost:	$2,084,043
Applicant Share:	$1,884,043
PEDA Share:	$ 100,000

REMAINING PEDA BALANCE

$100,000

PROJECT START DATE

June 17, 1992

CONTRACT TERMINATION DATE

December 31, 1992

APPLICANT

Miltech Energy Services, Inc.
P.O. Box 501
Ligonier, PA 15658

Francis G. Miller
412/238-3255

Westmoreland County

PROJECT NUMBER

9003-4005

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	**FISCAL YEAR**
Clean Coal	90-91

PROJECT DESCRIPTION

This is the second year funding for this project to study a patented fine coal cleaning process involving heavy medium cyclonic separation and froth flotation. This year's research will include detailed studies and laboratory testing of the process using samples of Upper Freeport, Lower Freeport and Lower Kittaning coal.

PROJECT STATUS

Laboratory testing of the coal cleaning process continue. Preliminary flow diagrams, showing how this process can be integrated into a coal preparation facility, have been completed. Economic analyses on the process continue. A contract amendment extending the termination date to December 31, 1992 is currently being negotiated between the Authority and the Applicant.

FINANCIAL SUMMARY

Total Project Cost:	$76,925
Applicant Share:	$ 7,693
PEDA Share:	$69,232

REMAINING PEDA BALANCE

$27,102.79

PROJECT START DATE

April 24, 1991

CONTRACT TERMINATION DATE

June 30, 1992

APPLICANT

Pennsylvania Electric Company
1001 Broad Street
Johnstown, PA 15907

Joseph J. Battista
814/533-8234

Cambria County

PROJECT NUMBER

9003-4008

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	90-91

PROJECT DESCRIPTION

This project involves the construction of a three ton per hour fine coal cleaning and coal water slurry (CWS) pilot plant at Pennsylvania Electric's Homer City Coal Preparation Plant. The pilot plant will enable the applicant to conduct tests to determine the optimum CWS which can be produced from fine coals at the Homer City Plant.

PROJECT STATUS

The contract for this project was executed in October 1991. The pilot plant was designed, constructed and is undergoing operational tests. The pilot plant will produce coal water slurry from the recovered fines at the Homer City Coal Prep facility.

FINANCIAL SUMMARY

Total Project Cost:	$376,880
Applicant Share:	$127,500
PEDA Share:	$249,380

REMAINING PEDA BALANCE

$169,829.39

PROJECT START DATE

October 11, 1991

CONTRACT TERMINATION DATE

December 31, 1992

APPLICANT

Tampella Power Corporation
2600 Reach Road
Williamsport, PA 17701

Michael Alliston
717/326-3361

Lycoming County

PROJECT NUMBER

9003-4011

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	90-91

PROJECT DESCRIPTION

This project involves research and testing sorbents to improve sulfur capture and limestone utilization in a circulating fluidized bed (CFB) boilers. The applicant is a Pennsylvania-based manufacturer of CFB equipment and maintains their own pilot testing facility.

PROJECT STATUS

The contract for this project was executed in October 1991. Testing is scheduled to begin in the summer of 1992.

FINANCIAL SUMMARY

Total Project Cost:	$306,108
Applicant Share:	$131,108
PEDA Share:	$175,000

REMAINING PEDA BALANCE

$171,977.97

PROJECT START DATE

October 11, 1991

CONTRACT TERMINATION DATE

September 30, 1992

APPLICANT

Rodale Research Center
611 Siegfriedale Road
Kutztown, PA 19530

Maria van Hekken
215/683-6383

Berks County

PROJECT NUMBER

9003-4013

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY | **FISCAL YEAR**

Non-Coal | 90-91

PROJECT DESCRIPTION

This project will investigate energy efficient cropping techniques that will potentially reduce oil consumption in farming. An energy and economic analysis will be performed on six new cropping techniques. These cropping techniques are part of the Low Input Reduced Tillage Experiments.

PROJECT STATUS

The Contractor has begun work this spring and continues to conduct the energy analysis of the six cropping techniques. Information on various energy inputs required for each of the six scenarios is presently being gathered. A final report is expected by December.

FINANCIAL SUMMARY

Total Project Cost:	$101,992
Applicant Share:	$ 91,992
PEDA Share:	$ 10,000

REMAINING PEDA BALANCE

$3,994

PROJECT START DATE

October 11, 1991

CONTRACT TERMINATION DATE

December 31, 1992

APPLICANT

Lehigh University
526 Brodhead Avenue
Bethlehem, PA 18015

Dr. Edward K. Levy
215/758-4090

Northampton County

PROJECT NUMBER

9003-4027

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	90-91

PROJECT DESCRIPTION

This project is for the construction of a pilot scale coal cleaning facility utilizing Lehigh University's Dry Coal Purifier (D-CoP) process. This process uses a low temperature fluidized bed particle separator to remove impurities from coal. The Authority has supported this project since its inception.

PROJECT STATUS

The contractor is currently attempting to secure additional industry/government project participation in order to finance the project.

FINANCIAL SUMMARY

Total Project Cost:	$1,725,906
Applicant Share:	$1,475,906
PEDA Share:	$ 250,000

REMAINING PEDA BALANCE

$250,000

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Pennsylvania State University
248 Calder Way, #300
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

9003-4029

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	**FISCAL YEAR**
Anthracite	90-91

PROJECT DESCRIPTION

This project will focus on recovering and marketing tailings from existing anthracite coal preparation plants for use in the carbon market. These tailings have the potential, if recovered, to yield a very low ash (less than 3%) anthracite product.

PROJECT STATUS

The Contractor has began work on the project this spring. Work has focused on the identification of the six coal preparation plants and collection and analysis of the samples.

FINANCIAL SUMMARY

Total Project Cost:	$94,727
Applicant Share:	$ 9,500
PEDA Share:	$85,227

REMAINING PEDA BALANCE

$85,227

PROJECT START DATE

February 7, 1992

CONTRACT TERMINATION DATE

June 30, 1993

APPLICANT

Pennsylvania State University
248 Calder Way, #300
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

9003-4030

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	**FISCAL YEAR**
Anthracite	90-91

PROJECT DESCRIPTION

This project is for second year funding of the Anthracite Institute being conducted at Penn State University. The Anthracite Institute is a joint public/private partnership between the Anthracite Industry and the University. The function of the Institute is to provide technical extension services to current and potential customers.

PROJECT STATUS

This project is pending a review of the first year's contract which terminated June 30, 1992. The Authority and Penn State University will re-evaluate the project at that time.

FINANCIAL SUMMARY

Total Project Cost:	$87,191
Applicant Share:	$43,596
PEDA Share:	$43,595

REMAINING PEDA BALANCE

$43,595

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

BCR National Laboratory
500 William Pitt Way
Pittsburgh, PA 15238

Dr. Joseph Yerushalmi
412/826-3030

Allegheny County

PROJECT NUMBER

9003-4034

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
General Coal	90-91

PROJECT DESCRIPTION

This project will investigate a new technique for the drying of fine coals. The approach is based on the use of vibrated beds in which a granular solid acquires a fluid-like mobility by the applications of mechanical vibrations without the need of an aerating gas. This approach could be used in lieu of thermal dryers, thereby significantly reducing the cost of the product. This project is being conducted in two phases. The first phase is co-funded by a U.S. Department of Energy Small Business Innovation Research (SBIR) Phase I grant. After successful completion of Phase I, the Contractor will be exploring funding sources for Phase II.

PROJECT STATUS

The Contractor has completed Phase I of the project and has submitted a draft final report.

FINANCIAL SUMMARY

Total Project Cost:	$714,961
Applicant Share:	$615,000
PEDA Share:	$ 99,961

REMAINING PEDA BALANCE

$99,961

PROJECT START DATE

September 11, 1991

CONTRACT TERMINATION DATE

December 31, 1994

APPLICANT

Pennsylvania State University
248 Calder Way, #300
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

9103-1001

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY | **FISCAL YEAR**

Anthracite | 91-92

PROJECT DESCRIPTION

This project is to design and construct a highly efficient, convenient anthracite-fired boiler system for the commercial and light industrial markets. The boiler is in the size range of 2 to 20 MMBtu/hr. The conceptual design incorporates the integration of a water-cooled furnace with a steel firetube boiler. The thrust of this program is to develop and demonstrate a shop-assembled anthracite boiler, based on a mass produced gas/oil boiler design, requiring a minimum of installation effort and expense.

PROJECT STATUS

This project was approved by the Board of Directors on April 14, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$353,257
Applicant Share:	$142,394
PEDA Share:	$210,863

REMAINING PEDA BALANCE

$210,863

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Lehigh University
526 Brodhead Avenue
Bethlehem, PA 18015

John Cheezum
215/758-3024

Northampton County

PROJECT NUMBER

9103-4001

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	91-92

PROJECT DESCRIPTION

This project is an investigation into a method of characterizing Pennsylvania bituminous coals by the chemical reactivity of the aromatic systems in the coal. The N-O infra-red stretching frequency of NO^+ complexes with aromatic systems in coals will be used to determine the ionization potential of those aromatic systems. The project has long range possibilities as a tool for screening coals.

PROJECT STATUS

This project was approved by the Board of Directors on February 11, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$60,000
Applicant Share:	$12,000
PEDA Share:	$48,000

REMAINING PEDA BALANCE

$48,000

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

University of Pittsburgh
350 Thackeray Hall
Pittsburgh, PA 15260

Michael M. Crouch
412/624-7400

Allegheny County

PROJECT NUMBER

9103-4006

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Clean Coal	91-92

PROJECT DESCRIPTION

The objective of this project is to develop a novel, simple and effective device for fine coal cleaning, based on the concept of Taylor vortices formation in rotating concentric cylinders. This project would provide for: (1) the design and construction of a novel Taylor-Vortex column; (2) conducting hydrodynamic tests; (3) conducting conventional flotation tests as a comparison with those obtained by the Taylor-Vortex column; and (4) performing statistical analysis of experimental data. The thrust of the project is to determine the feasibility of the process.

PROJECT STATUS

This project was approved by the Board of Directors on February 11, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$50,000
Applicant Share:	$10,000
PEDA Share:	$40,000

REMAINING PEDA BALANCE

$40,000

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Drexel University
32nd and Chestnut Streets
Philadelphia, PA 19104

Jan S. Odjemski
215/895-2838

Philadelphia County

PROJECT NUMBER

9103-4010

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY | **FISCAL YEAR**

Non-Coal | 91-92

PROJECT DESCRIPTION

This project will investigate the use of desiccants to remove moisture from the air stream that passes over the outdoor heat exchanger coils of heat pumps. The prevention of frost buildup will reduce the thermal insulation and blockage effects of the frost and therefore enhance the energy efficiency of the heat pumps. Since the use of electric air source heat pumps are becoming increasingly common in Pennsylvania, this research could result in substantial energy savings and have a significant impact on electrical energy use in the state.

PROJECT STATUS

This project was approved by the Board of Directors on February 11, 1992. The contract has been negotiated and is currently being circulated for signatures.

FINANCIAL SUMMARY

Total Project Cost:	$85,300
Applicant Share:	$26,732
PEDA Share:	$58,568

REMAINING PEDA BALANCE

$58,568

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Pennsylvania State University
248 Calder Way, #300
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

9103-4014

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Non-Coal	91-92

PROJECT DESCRIPTION

This project is directed at developing, designing, constructing, and testing a photovoltaic (PV) powered charging station for an electric vehicle. Its objectives include improving the knowledge base in PV technology by utilizing the latest PV and related electronic equipment; provide hands-on experience for both faculty and students from various disciplines; and spurring commercial development of both the electric vehicle and the charging station.

PROJECT STATUS

This project was approved by the Board of Directors on April 14, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$47,199
Applicant Share:	$ 9,440
PEDA Share:	$37,759

REMAINING PEDA BALANCE

$37,759

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Pennsylvania State University
248 Calder Way, #300
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

9103-4017

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY | **FISCAL YEAR**

Non-Coal | 91-92

PROJECT DESCRIPTION

This project seeks to conduct fundamental and applied research to foster a better understanding of the hydraulics associated with air drilling and well control operations and provide the drilling community with scientifically-based predictive capabilities. Field data supports the fact that air drilling achieves a tremendously faster drilling rate than conventional mud usage in drilling. The major inhibitor in a wider utilization of this technology is the lack of adequate understanding of this system. Since drilling is a major capital-intensive aspect for oil field development and exploration, the increased use of this technology will result in significant savings to the industry.

PROJECT STATUS

This project was approved by the Board of Directors on February 11, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$99,927
Applicant Share:	$19,985
PEDA Share:	$79,942

REMAINING PEDA BALANCE

$79,942

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Pennsylvania State University
248 Calder Way, #300
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

9103-4019

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Anthracite	91-92

PROJECT DESCRIPTION

This project is an investigation into an approach to convert anthracite to graphite. It is a theoretical approach based on treating the anthracite with a mixture of 9,10 dihydrophenanthrene and phenanthrene. The dihydrophenanthrene is used to provide a source of donatable hydrogen to intercept crosslink formation between aromatic structures while the phenanthrene should provide the aromatic fluid medium to disrupt the electronic interactions between aromatic structures. Currently, petroleum coke is used as the filler constituent in the manufacture of graphite.

PROJECT STATUS

This project was approved by the Board of Directors on February 11, 1992. The contract has been negotiated and is currently being circulated for signatures.

FINANCIAL SUMMARY

Total Project Cost:	$74,844
Applicant Share:	$14,969
PEDA Share:	$59,875

REMAINING PEDA BALANCE

$59,875

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Pennsylvania State University
248 Calder Way, #300
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

9103-4021

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY **FISCAL YEAR**

General Coal 91-92

PROJECT DESCRIPTION

This project is to conduct research and to demonstrate the technical feasibility and practicality of a method of detecting electrical faults in an underground mine's direct current trolley system. Electrical faults in the trolley system have been the source of several underground mine fires. Existing technology does not detect the low-current, and sometimes arcing faults that cause these fires. The research will be conducted through extensive laboratory and in-mine experiments at two Pennsylvania coal mines. The data will be analyzed and used to demonstrate the technical feasibility, economic viability, and simplicity of the proposed detection method.

PROJECT STATUS

This project was approved by the Board of Directors on February 11, 1992. The contract has been negotiated and is currently being circulated for signatures.

FINANCIAL SUMMARY

Total Project Cost:	$43,771
Applicant Share:	$ 8,754
PEDA Share:	$35,017

REMAINING PEDA BALANCE

$35,017

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Pennsylvania State University
248 Calder Way, #300
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

9103-4023

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Anthracite	91-92

PROJECT DESCRIPTION

This project is an investigation of the tempering process, the process of adding water to coal to aid in combustion. This project is a result of an earlier PEDA project which investigated anthracite/bituminous coal blends. It was observed in the earlier project that the addition of small amounts of water improved the combustion efficiency of the blended coal product. This project will seek to determine the mechanism of the tempering process, elucidate the role of moisture in the ignition process, determine the relative importance of the change in the physical condition of the fuel bed (bed density) upon tempering, and identify the chemical reactions that occur within the bed during the combustion of tempered coal and blends.

PROJECT STATUS

This project was approved by the Board of Directors on April 14, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$86,654
Applicant Share:	$17,331
PEDA Share:	$69,323

REMAINING PEDA BALANCE

$69,323

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Pennsylvania State University
248 Calder Way, #300
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

9103-4024

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY | **FISCAL YEAR**

Clean Coal | 91-92

PROJECT DESCRIPTION

This project will investigate several unit operations that are key to the successful operation of an integrated fine-coal cleaning circuit. This multi-faceted approach allows several critical areas to be examined, which offers the potential of a greater overall process improvement that would be applicable to a wider range of coals than a single process development. The areas to be studied include centrifugal dense-medium circuits, and solid-liquid separation of coal and refuse products.

PROJECT STATUS

This project was approved by the Board of Directors on February 11, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$80,000
Applicant Share:	$ 0
PEDA Share:	$80,000

REMAINING PEDA BALANCE

$80,000

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Pennsylvania Electric Company
1001 Broad Street
Johnstown, PA 15907

Joseph J. Battista
814/533-8234

Cambria County

PROJECT NUMBER

9103-4031

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	**FISCAL YEAR**
Clean Coal	91-92

PROJECT DESCRIPTION

The applicant is conducting pilot scale combustion tests of coal water slurry (CWS) fuels in Unit 12 of its Seward Station generating plant. This project is a continuation of previously funded PEDA work. The project will utilize CWS prepared at the applicant's Homer City Coal Preparation Plant. The test program includes an engineering and design phase during which time burner selection and location of the burners in the boiler will be finalized.

PROJECT STATUS

This project was approved by the Board of Directors on April 14, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$560,000
Applicant Share:	$382,600
PEDA Share:	$178,400

REMAINING PEDA BALANCE

$178,400

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Pennsylvania State University
248 Calder Way, #300
University Park, PA 16802

Robert Killoren
814/865-3396

Centre County

PROJECT NUMBER

9103-4035

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY

Clean Coal

FISCAL YEAR

91-92

PROJECT DESCRIPTION

The purpose of this project is to evaluate Pennsylvania limestones and dolomites for use in wet flue gas desulfurization (FGD) applications. FGD is one of several utility alternatives for meeting Clean Air Act compliance levels. The stones will be evaluated to determine their effect of sulfur dioxide capture, limestone utilization, and limestone dissolution. This project builds on the successful results of another PEDA-funded project, also conducted at Penn State, which characterized Pennsylvania limestone products for use in circulating fluidized bed (CFB) boilers.

PROJECT STATUS

This project was approved by the Board of Directors on April 14, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$353,257
Applicant Share:	$142,394
PEDA Share:	$152,356

REMAINING PEDA BALANCE

$152,356

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Lehigh University
526 Brodhead Avenue
Bethlehem, PA 18015

John Cheezum
215/758-3024

Northampton County

PROJECT NUMBER

9103-4036

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
Anthracite	91-92

PROJECT DESCRIPTION

This is a project to investigate the erosive properties of weld overlay boiler tube coatings in an effort to extend boiler tube life. The project builds on an earlier PEDA-funded project which developed an experimental methodology for characterizing erosive materials in a circulating fluidized bed (CFB) boiler environment. CFB boilers are in use at several anthracite waste fired co-generation facilities in Pennsylvania.

PROJECT STATUS

This project was approved by the Board of Directors on April 14, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$195,398
Applicant Share:	$ 71,080
PEDA Share:	$124,318

REMAINING PEDA BALANCE

$124,318

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

BCR National Laboratory
500 William Pitt Way
Pittsburgh, PA 15238

Dr. Joseph Yerushalmi
412/826-3030

Allegheny County

PROJECT NUMBER

9103-4039

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY | **FISCAL YEAR**

Clean Coal | 91-92

PROJECT DESCRIPTION

The purpose of this project is to test a method of reducing NO_x emissions in coal-fired burners. The method has been patented and proven effective in reducing NO_x in burners firing gas and liquid fuel oils. Emissions are reduced by recirculating stack gases into selected zones of the burner. The proof-of-concept tests will be conducted in a 500,000 Btu/hr. combustion test facility. If successful, this project could lead to a commercial demonstration.

PROJECT STATUS

This project was approved by the Board of Directors on April 14, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$194,718
Applicant Share:	$ 86,944
PEDA Share:	$107,774

REMAINING PEDA BALANCE

$107,774

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

Cambria Cogen Company
7201 Hamilton Blvd.
Allentown, PA 18195-1501

T. Robert Tsao
215/481-8642

Cambria County

PROJECT NUMBER

9103-4042

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY	FISCAL YEAR
General Coal	91-92

PROJECT DESCRIPTION

The objectives of this project are to conduct an engineering and economic evaluation of seven technologies to determine which technology has the greatest potential to enable the use of ultra fine bituminous coal refuse material or silt as fuel for circulating fluidized bed (CFB) boilers, to demonstrate the selected technology using a 100 ton prepared sample and conducting a test burn in a commercial CFB boiler, and demonstrating the use of the processed fuel in place of CFB premium fuel to verify combustion efficiency and emissions control performance.

PROJECT STATUS

This project was approved by the Board of Directors on April 14, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$204,116
Applicant Share:	$ 76,327
PEDA Share:	$127,789

REMAINING PEDA BALANCE

$127,789

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A

APPLICANT

GRASP
3500 Lancaster Avenue
Philadelphia, PA 19104

Mary Mikus
215/222-0318

Philadelphia County

PROJECT NUMBER

9103-4043

TYPE OF ASSISTANCE

Grant

FUNDING CATEGORY Non-Coal

FISCAL YEAR 91-92

PROJECT DESCRIPTION

GRASP will analyze the extent of the problem of duct leakage in homes in Southeastern Pennsylvania. GRASP will measure leakage rates in a sample of houses, develop diagnostic and treatment approaches for fixing this duct leakage, implement a pilot program using these techniques in another sample of houses, analyze the results, develop training materials for replicating the work and disseminate the results through presentations at conferences, workshops and seminars.

PROJECT STATUS

This project was approved by the Board of Directors on April 14, 1992. Contract negotiations are currently underway between PEDA staff and the contractor.

FINANCIAL SUMMARY

Total Project Cost:	$65,076
Applicant Share:	$ 5,916
PEDA Share:	$59,160

REMAINING PEDA BALANCE

$59,160

PROJECT START DATE

N/A

CONTRACT TERMINATION DATE

N/A