



**SUSTAINABLE  
ENERGY FUND**  
of Central Eastern Pennsylvania

**SUSTAINABLE ENERGY FUND  
OF CENTRAL EASTERN PENNSYLVANIA**  
(Docket # M-00031715 F0003)

**Annual Report  
to the  
Pennsylvania Public Utility Commission  
and to the  
Joint Petitioners**

**For the Period  
July 1, 2005-June 30, 2006**

**October 25, 2006**

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## EXECUTIVE SUMMARY

In 2005-2006 The Sustainable Energy Fund (SEF) invested in a number of projects through various and traditional mechanisms. Note that some portions of the projects are funded through a grant vehicle while others through either a loan arrangement or equity participation. As a matter of Fund policy, all projects, programs and investments are reviewed by a Program Related Investments Committee (PRI), a subcommittee of the board of directors, for mission fit, credibility of the investment or grant, as well as its capability to have a “multiplier effect”. The committee reviews the management team’s due diligence and prepares a recommendation to the Board of Directors. This is followed by a final review, authorization by the Board of Directors, and execution by the management of the SEF. The following criteria are examples of characteristics of projects supported by the Fund.

- Renewable Energy projects which draw power from naturally replenished sources. These may include solar power, wind power, geothermal power, or power generated from biomass sources.
- Clean Energy Projects that produce energy using technology and processes that have minimal impacts on the environment, such as distributed generation projects.
- Energy Efficiency/Energy Conservation Projects – that save electricity or other energy. These may include green building technologies, efficient lighting, energy load management controls, etc.
- Grants – the SEF has in the past disbursed a limited number of grants to organizations seeking funding of projects consistent with the Fund’s mission, such as education projects, feasibility studies leading to a larger activity, or support for trade related activities such as conferences and seminars.

## PROGRAM RELATED INVESTMENTS

For Fiscal Year 2005-2006 The SEF approved funding of \$4,847,842 for projects using loan or equity instruments and disbursed approximately \$3,411,989 or 74% of allocated funds. Timing and specific project issues postponed or cancelled a small portion of the disbursement of these funds. A more detailed explanation of the major activities executed in 2005 is described below.

Each of these projects, described below, had an “energy value” or complimentary “energy savings” component pre-determined prior to developing the “financial relationship” with the appropriate client.

<b>Project</b>	<b>Funding Amount</b>	<b>Energy Produced/Saved</b>	<b>Additional Information</b>
Bear Creek Wind Farm (24.0 MW)	\$1.75MM	68,584 MWh produced annually	\$60MM total project size; 397 Job years created
Bishop Haffey HS lighting retrofit	\$252,094	346,000 kWh saved over 15 years	PPL guaranteed savings of \$15,776/year
Forest City School District. Lighting Retrofits	\$230,000	Energy Savings 285,980 kWh/yr	
Juniata School District (12 schools)	\$900,000	Energy Savings @ \$1,979,655 over 15 years	3,643 new lighting fixtures
SunFarm Ventures	\$200,000	Generating 300Mwh in '06, 800 MWh in '07, 1400Mwh in '08	PV micro utility with plans to install a minimum of 150 kW of PV in Lehigh Valley
Kountry Kraft	\$358,000	2,483,500 kWh/year conserved	
SEF – LED Project State-wide LED retrofits for all municipal traffic signals	\$500,000	LED energy savings projected at 157,248,000 kwh/year for the State	Energy savings calculated at a cumulative \$11,000,000 per year for entire State
SEF – AD Project Application of Anaerobic Biodigester technology	\$500,000	Projected 948,000 kWh annual production @98% capacity Factor	Applies to each digester installed on farms with approx. 500 dairy animals

## Narrative for each of the major projects

### ▪ **Bear Creek Wind Farm: \$1,750,000**

The Bear Creek Wind Power Project, developed by Community Energy, is a 24 MW + wind energy facility located in the Pocono Mountain region of Pennsylvania less than 10 miles southeast of Wilkes-Barre in the town of Bear Creek. The project, at inception, was designed to produce over 75 million kilowatt hours of wind energy annually commencing in December, 2005. Community Energy, Inc. (CEI) founded in 1999 with the support of environmental leaders and the SEF's has developed wind farms in New York, Pennsylvania, West Virginia, Illinois, and Colorado. Having been completed, this wind farm is the seventh utility scale wind project in the Mid-Atlantic electricity grid. It was made possible by commitments by PPL Energy Plus to purchase the output power (see below)\* of the project coupled with wind energy consumers such as the University of Pennsylvania, Mohawk Paper Mills, and PEPCO Energy Services. The project design consisted of twelve (12) 2.0 MW Gamesa wind turbines standing 397 feet tall.

Community Energy partnered with Babcock and Brown as well as the Central Hudson Energy Group to develop, construct, and operate the Bear Creek Wind Farm. The Farm is producing a product being marketed as "New Wind Energy®" and is being offered in "Windblocks" which represent 100 kilowatt hours of electric supply. Each Windblock is available at \$2.25 per unit. The average household would require 6 blocks of NewWind Energy to be 100% powered by wind power. Each year each wind turbine prevents the release of nearly 4 million pounds of CO<sub>2</sub> which translates into planting over 3,800 trees or taking 315 cars off the road.

CEI executed a twenty year power purchase agreement (PPA) with PPL Energy Plus, LLC, a Pennsylvania limited liability corporation that is a subsidiary of PPL Energy Supply, LLC and ultimately owned by PPL Corporation, a Fortune 500 global energy holding company. Under the terms of the PPA, the buyer purchases 95% of the electrical output and renewable energy certificates associated with the Project at a bundled first-year average price of \$38/MWh, escalating at 0.5% for twenty years. The remaining 5percent of the Project output will be purchased by the Buyer at the Locational Marginal Price (LMP) at the Delivery Point as defined in the PPA. LMP is defined as the hourly integrated market clearing marginal price for energy at the location the energy is delivered or received. Bear Creek interconnects to the PJM interconnection Transmission System (PJM). PJM is a regional transmission organization that coordinates the movement of wholesale electricity in all or parts of Delaware, Maryland, New Jersey, Ohio, Pennsylvania, Virginia, West Virginia and the District of Columbia.

### ▪ **Diocese of Scranton (Bishop Hafey High School): \$252,094**

The Diocese of Scranton was formed in 1868 when 11 counties in Northeastern Pennsylvania were separated from the Archdiocese of Philadelphia. The Diocese administers 24 elementary and secondary schools. These schools include the Bishop Hafey High School in Hazleton, PA.

PPL Energy Services completed an Investment Grade Audit (IGA) for Bishop Hafey Junior/Senior High School in 2004 in order to determine the school's position concerning utility costs and subsequent effects on the learning environment. During the survey, a team of engineers noted energy conservation measures in the areas of lighting, HVAC, heating plant, control systems, domestic water, building envelope and small energy using equipment. Computer generated energy models were created using the data acquired in the survey. Using current utility rates and energy conservation measures, ECM's were recommended which would provide a savings of \$15,976 in the first full year after implementation. The total cost for implementation of these measures was \$252,094. This results in a simple payback of approximately 15 years. Total program savings of \$294,364 was apportioned as \$235,039 in energy savings and \$59,306 in operational savings. The overall program demonstrated the following:

- Reduced Maintenance Costs
- Improved comfort and working environment
- Improved Indoor Air Quality and Ventilation

- Updated and efficient Heating, Ventilation and Air Conditioning Systems
- Improved Lighting Environment
- Maintenance and Operations Training for the maintenance staff on existing and new equipment.
- Increased equipment life
- Increased productivity
- Reduced breakdowns and repairs

The energy savings guaranteed by PPL Energy Services, once all recommendations were implemented, was in the vicinity of 235,000 kwh over a 15 year period. Projected energy savings over this 15 year period is estimated to be 346,000 kwh.

▪ **Forest City School District: \$230,000**

The school district in partnership with PPL Energy Services and The SEF developed a lighting retrofit project to replace existing outdated fixtures with more energy efficient equipment and technology. The general design of the energy audit activity and development of energy conservation measures (ECM's) used the following criteria:

- Potential Energy Savings
- Available, cost effective technology
- Building comfort issues and indoor air quality (IAQ)
- Noise and acoustical concerns
- Condition of existing systems
- Future building renovation plans
- Life-Cycle Cost considerations
- Implementation considerations (disruption/interruption, outages, contamination and cleanup, etc.)
- Operability by maintenance staff
- Training and support for maintenance and operation of installed ECM's
- Standards for quality control and performance measures
- Comfort control issues.

The High School consists of 91,816 square feet built in 1961 with renovations occurring in 1967 and 1999. Exterior wall construction is brick and block with double pane shaded windows with U value of 0.6 and Shading coefficient of 0.6 all in good condition. Most of the building interior fixtures consisted of magnetic T-12 ballast and T-12 lamps. For the most part these fixtures were replaced with high efficiency high power electronic T-8 ballasts and energy saving T-8 high lumen lamps. The increased lumen output achieved by the high power ballast and XP lamps allowed the number of lamps in the fixtures to be reduced by two (2) with no discernable loss in light levels. The consequences of this retrofit program was an expected savings of 285,980 kWh/year.

▪ **Juniata County School District: \$900,000**

The Juniata County Project, encompassing 12 school buildings in the district, included lighting and mechanical upgrades; control upgrades and heating plant replacement for these buildings. The total project of \$2.4 million included \$900,000 for lighting retrofits (provided by SEF) and \$1.5 million in commercial loans. The energy savings over a 15 year period have been calculated to be \$1.7 million plus operating savings of \$279 thousand totaling \$1.979 million. Net savings over this same period have been calculated to be \$943,489. Similar to the Bishop Hafey project, the energy solution at Juniata was the retrofit of T-8 lamps and high efficiency electronic ballasts into 3,643 new fixtures. The specific goals which were met in this project were:

- Eliminate deferred maintenance
- Update systems that are at the end of their life cycle

- Improve the learning environment
  - Reduce energy and operational costs
  - Fund program improvements from savings
  - Satisfy student, faculty, board, and community need
- **Kountry Kraft: \$358,000**  
 A subchapter S corporation, located in Millcreek Township, Lebanon County, PA, Kountry Kraft, Inc. provides high end offerings of cabinetry using exotic and rare woods, custom detailing, heavier and thicker doors and shelves as well as extensive finishing in a customized design application setting. It is a growing manufacturer of custom made kitchen cabinetry. The company has been operating in Lebanon County since 1959 and currently has 130 employees. The project was the installation of a state-of-the-art 1.5 million BTU hot water combustion unit that will burn scrap wood produced as a result of the wood cabinet manufacturing process. The unit is rated to conserve 2,483,500 kWh of electricity per year. This new biomass combustion unit will emit 500 pounds of particulate when burning 1,000,000 pounds of wood which represents 4,000 pounds less in emissions than current equipment. The manufacturing facilities are in a “high development area” spreading out from town toward the facility. The owners understood the need to manage the disposal of the waste wood, not only from a cost perspective, but also from an environmental perspective.
  - **SunFarm Ventures: \$200,000**  
 The SEF has entered into a loan agreement with SunFarm Ventures in order to develop a relationship with a major solar power development company and promote their developing projects and installations in the PPL region of Pennsylvania. Given the dependence on an AEPS-only incentive structure (with no planned rebates), the SunFarm model, effective in New Jersey, is uniquely positioned to achieve both market adoption and the necessary acquisition of third party financing support. The market in Pennsylvania remains highly risky, however, given that technical interconnect standards are still being established, the commercial details of AEPS are not yet known, and the AEPS SREC demand curve is very shallow in the initial years. Given the balance of these strategic factors, the company is considering a small number of trial projects to begin testing the commercial viability of this new market, and early (but very cautious) development of the infrastructure needed to pursue larger scale operations as the AEPS market expands. The SEF has agreed to support investment in a SREC liquidation instrument offered by the company, which is essential to helping create the necessary liquidity in the mandatory SREC markets. In addition, the Lehigh Valley is near the company’s current base on operations in NJ, and demographically well suited to early solar project trials (especially in the agricultural segment). The company is currently investing both time and resources to define a trial program in Pennsylvania, and is prepared to expand that commitment assuming a variety of commercial conditions are met. There is a currently mutual expectation between the SEF and SunFarm Ventures that approximately 150 kWp of trial projects could be completed over the next several years. The company is prepared to commit commercial resources, solar product allocations, and market development resources to the trial projects synchronized with satisfaction of necessary environmental criteria. In particular, incremental funding arrangements interconnect feasibility, and commercial confidence in both demand and pricing of SREC’s must be reasonably established.

**GREEN CONNEXIONS, INC.**

PPL Sustainable Energy Fund, d/b/a Sustainable Energy Fund of Central Eastern PA (The Fund) has been a Pennsylvania non-profit corporation formed to promote, research and invest in clean and renewable energy technologies, energy conservation, energy efficiency and sustainable energy enterprises that provide opportunities and benefits for the PPL ratepayers.

By way of background, The Fund was formed pursuant to a joint settlement agreement arising from the Pennsylvania Utility Commission (PUC) electric utility deregulation proceedings in 1998. The agreement provides, in part, a rate surcharge on electric power consumers (ratepayers) through 2004. In 2005, the

rate surcharge was renewed for an additional two years through December 31, 2006. The 2005 surcharge was 0.01 cents per kwh and reduced to 0.005 per kwh in 2006. The surcharge is collected from the ratepayers by the power distribution entity, PPL Electric Utilities for this local area, and remitted to the Fund for investment. The Fund is managed by a President & Executive Director who reports to a seven (7) member Board of Directors.

The Fund was notified by the Chairman of the PUC that beyond 2006, The Fund would receive no further surcharge fees from PPL. Since this ruling was made, the Board of Directors of The SEF sought out ideas and strategies that would assist in the continued and sustainable execution of its primary mission described above, without rate payer surcharge investment dollars. One strategy which was developed, vetted, and approved by the SEF Board, was the establishment of a wholly owned subsidiary of SEF, funded with debt and equity instruments to allow for the development of “for profit” activities in the renewable energy arena which were parallel and congruent with the interests and mission of The SEF. It was and is anticipated that this investment, similar to SEF’s investments in other for profit entities, would be developed to provide funds back to The SEF for use in executing its original mission and objectives on a sustainable basis.

The company that has been formed, as a Pennsylvania based organization, named Green Connexions, Inc. (GC) and currently occupies the same space currently used for SEF operations. There are no employees as of yet, and minimal funds have been expended by SEF in the operation of GC. The SEF has informed each individual PUC commissioner as well as the Law Bureau of the PUC of the pending development of Green Connexions, its congruent mission with SEF, and the rationale for creating this entity. Subsequently, the Law Bureau informed all the major stake holders in the rate case of this activity and solicited their comments as to their position on the development of this for profit entity. No response was made from any organizations contacted. The Law Bureau informed the SEF that it would write an opinion statement as to the viability of the Green Connexions, Inc. concept and that this issue would be presented to the PUC commissioners for deliberation, comment, and/or approval. On August 17, 2006, Docket No. M-00031715F003 was approved by the Pennsylvania Utility Commission and allowed for the formation of Green Connexions, Inc. as a wholly owned subsidiary of the SEF.

The business of Green Connexions, as seen for the future, is to provide products and services through two or three renewable energy and energy efficiency business ventures within the territory of the existing PPL rate-base and expandable throughout the Commonwealth of Pennsylvania. However, the Board of Directors of the SEF has decided to maintain the original business units, earlier earmarked for Green Connexions, Inc. in the SEF organizational structure and, the board of directors of Green Connexions, in which the SEF board participates, will continue to develop opportunities in the renewable and energy conservation business sectors and evaluate their value as a subsidiary of the SEF.

## **BUSINESS VENTURE #1**

### **Municipal LED retrofit program for All Traffic Signals within the Commonwealth.**

The SEF has already funded a number of municipalities for the retrofit of traffic signals by using a grant vehicle to support the cost of procurement and subsequent retrofit of LED modules. After reviewing the potential market (over 2,400 municipalities containing in excess of 300,000 signals), it became obvious that a significant contribution to energy savings and reduction of kWh necessary to power these modules can be achieved.

For example, the average amount of electricity to light a 3X incandescent traffic signal is in the vicinity of 300-450 watts. Replacing this outmoded incandescent light source with LED modules will reduce this electrical requirement to approximately 24 to 35 watts; at least an 85% reduction in electrical usage, and therefore cost. Coupling this “energy savings” with reduced maintenance costs, the municipalities which participate in this program, will have “guaranteed savings” over a 5 to 10 year period of approximately \$600-\$800 per traffic signal per year.

This business will be poised to generate revenues in this market niche and return a portion of the profits generated back to the SEF. This is intentionally promulgated to ensure that the SEF is able to continue to fund traditional as well as unique and valuable Program Related Investments (PRI's). With the participation of local installers, PennDot, as well as municipalities, Boroughs, Cities, and

Townships throughout the Commonwealth, SEF expects to retrofit these traffic signals as well as pedestrian signage, emergency signals, and eventually street lighting all with and without the potential for being retrofit in specific cases with solar power. Following this activity, SEF will explore the economic and technical feasibility of supplying solar powered modules to energize some of these LEDs at critical traffic intersections which must be operable in times of grid interruptions or other intrusive problems. A three (3) year projection is attached.

From a staffing perspective, this project will require a minimum of two (2) and possibly three (3) full time individuals to manage the supply chain activities as well as the scheduling of installations, proposal preparation and presentations to the municipalities, towns, cities, counties, and boroughs. A study from PennDot showing documented energy savings using LEDs as replacement modules and can be retrieved from their website; [www.penndot.org](http://www.penndot.org).

As described earlier, the market in Pennsylvania for LED conversion is estimated to be in the vicinity of 300,000 individual modules at over 12,000 intersections. Assuming that each incandescent bulb draws 130 watts, and then 39,000,000 watts of energy are consumed. If these 300,000 bulbs are converted to 10 watt LED modules, the wattage is reduced to 3,000,000 watts. Assuming that difference of 36,000 kWp x 24hrs. x 365days x 0.50(anticipated time of illumination) = 157,248,000 kWph/year are saved. At a conservative estimate of cost of \$0.07 per kWh, the savings throughout the state would be \$11,007,360 in electrical generation; obviously worthy of implementation.

The expected progress of this business venture is described in the enclosed table.

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
<b>Installed lenses</b>	5,000	15,000	29,165
<b># intersections</b>	250	750	1,823
<b>MWh saved</b>	2.62	7.86	15.3
<b>\$ savings</b>	\$209,664	\$628,992	\$1,222,970
<b>\$saved/intersection</b>	\$830	\$838	\$670

There will be, along with the retrofit of LEDs for traffic signals, efforts to build additional product offering for municipalities within the Commonwealth. The first will be dedicated to evaluating the potential retrofit of STREET LIGHTS with LED to further enhance the energy savings which can be enjoyed by this customer base. The third product, as mentioned above, is planned on being an LED traffic signal which can be powered by solar photovoltaic modules. Where critical intersections exist, as described by police, fire, and emergency medical personnel, it would be appropriate to offer signals that can operate regardless of the condition of the grid. Solar powered LEDs are now viable due to the low wattage requirements of the modules, and are commercially available... This technology and business program will be explored within the first two years of operations. Another opportunity which will be investigated is the utilization of LED modules for residential use. Significant effort is being made by a number of organizations to “inform and instruct” homeowners in energy conservation and energy efficiency. With the pending removal of rate caps from the utility sector, homeowners will need to be educated on methods, products, and processes which can reduce their “energy footprint” in order to reduce their electrical and other energy costs. This LED technology is perfect in assisting these homeowners in reducing their electrical consumption.

**BUSINESS VENTURE #2**

**The Generation, Commercialization, and Marketing of “Green Electricity” by the Production and Conversion of Methane Gas using the Process of Thermo-phylic Anaerobic Digestion of Dairy, Cattle, Swine, and Chicken Manure.**

The SEF has been awarded an Energy Harvest Grant from the PADEP in the amount of \$440,854 to develop **Thermophilic** technology for the conversion of dairy and/or swine manure into methane

gas which will feed either a modified internal combustion engine or solid oxide fuel cell and generate electricity to the grid and to the farm. This “Green “electricity will have multiple financial components: the intrinsic value as determined by fair market conditions and the value of the renewable energy credits (RECs) from the use of a renewable feed stock (biomass). The SEF will match the DEP funds 1:1 and subcontract the work in meeting the deliverables of this project. In turn SEF will solicit the technical, design, engineering, and controls development of this program through third party experts. The plan calls for the designing, building, owning, and operating of a number of digesters located throughout Pennsylvania and the Mid-Atlantic region. It essentially allows SEF to operate as a “micro-generator” with the goal of supplying Tier 1 energy generation mandated by Act 213 (AEPS). The farm on which the equipment is installed is to be contracted through a long term lease arrangement with guarantees of access and manure feed stock. In turn the farm receives the nutrients collected from the process, lower electrical costs, waste generated heat for barn heating, as well as the aesthetic improvement in the farm environs with respect to already significant malodorous conditions.

We have evaluated 3 such farms in the PPL, MET-ED, and PECO regions and will select a site based upon the farms methods of collecting manure, the level of interest by the farm for a long term relationship, the ability to develop a power purchase agreement with local utility, and the ease of obtaining interconnection approvals and equipment. Each farm that we have interviewed is excited about the possibility of having a digester on sight because of the benefits achieved in odor control, weed seed minimization, nutrient chemicals at reduced cost, obviating land application issues relative to nutrient management, reduced cost in obtaining bedding materials, and the possibility of participating in tipping fees with the importation of other types of feed stock.

This program has the following time lines:

An example of the cash revenue from a typical 500-700 dairy herd over 10 years is provided (\$000’s)

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>kWh\$</b>	\$55.1	\$56.7	\$58.4	\$60.2	\$61.9	\$63.8	\$65.7	\$67.7	\$69.7	\$71.8
<b>Heat Savings</b>	\$5.5	\$5.6	\$5.8	\$5.9	\$6.2	\$6.4	\$6.5	\$6.7	\$6.9	\$7.2
<b>Greenhouse Gas Credits</b>	?	?	?	?	?	?	?	?	?	?
<b>Total</b>	<b>\$89.7</b>	<b>\$92.4</b>	<b>\$95.1</b>	<b>\$98.0</b>	<b>\$100.9</b>	<b>\$104.0</b>	<b>\$107.1</b>	<b>\$110.3</b>	<b>\$113.6</b>	<b>\$117.0</b>

*These data do not reflect the potential escalation of kWh costs over the 10 year period*

With these revenues, and with the potential expansion to other sites and installations, SEF is intent on using a significant portion of the invested funds to continue to fund its operations as well as traditional mission activities.

### **FUTURE BUSINESS VENTURES**

From time to time, SEF will explore other business ventures which fit into the portfolio of renewable energy products, services and applications that are not only consistent with SEF’s policies and mission, but also able to expand the capabilities of supplying state of the art energy savings products to the rate payers of the Commonwealth. An example of such a technology breakthrough with significant cost savings to homeowners in Pennsylvania is the development of a novel methodology for the installation of ground source heat pumps for new and retrofit residential construction. It is suggested that this type of activity will fit within the mantle of either SEF or Green Connexions, Inc. and be able to provide additional income to SEF.

## GRANTS SUMMARY

In the same time frame, the Fund approved \$182,632 in grants specifically allocated to projects of the following type:

Memberships	Conference sponsors	Energy Audits	Feasibility Studies	Education	LED Program
14%	20%	1.7%	3.0%	36%	38%

The major program funded and “rolled out” in 2005 was Solar Scholars.<sup>™</sup> The SEF is supporting the exposure, education, and understanding of solar photovoltaic’s and their installation at universities and colleges in Pennsylvania. A pilot program was launched this year and supports the academic, administrative, and student organizations toward the exposure of the science of PV and the installation of a solar system on campus. The fund has provided resources to Villanova University, Clarion University, Bucknell University, Pennsylvania State University at State College, Messiah College, and Mercyhurst College. These schools have received funding from SEF to install a 1.5 to 2.5kWp PV system to be used as an educational venue to teach students the theory and practicality of solar energy. Each academic institution has committed to incorporate a renewable energy curriculum within their academic program to foster an interest and potentially direct students toward a career in renewable energy technology, energy policy, or similar vocation. A one week workshop has also been implemented occurred between August 7 and August 11th at Bucknell University where 2 students and 1 faculty member from each of the 6 academic institutions convened and assembled a 2.5 kWp PV system on campus as well as receive instruction from national experts on the theory of photovoltaic’s and solar technology.

Parenthetically, each of the systems installed on the campuses will generate in the vicinity of 2,983 kwh AC energy annually for approximately 20 years. In total, this represents approximately 357,960 kwh of replaced electrical generation from typical fossil fuel generating plants.

### SOLAR SCHOLARS PROGRAM (con’t)

As described above, the SEF successfully launched its solar scholars program in 2005-2006 by supporting the development of curricula, educational tools, and hands on experience in the design and installation of solar systems on 6 campuses in Pennsylvania. Through a competitive proposal process, six colleges and universities received financial support for the training of students and the acquisition of the necessary equipment to complete a solar installation on campus. Penn State (State College), Villanova, Bucknell, Mercyhurst, Messiah, and Clarion University were the schools chosen among a list of 12 schools who requested funding. The program included a one week training program under contract to Solar Energy International which was hosted by Bucknell University. Each school committed additional funds to the \$15,000 provided by SEF to each of the institutions. The following table summarizes the salient features of the program:

Participating University	Submitted	Key Contact	kWp installation	\$\$School Contribution
Penn State University	15-Feb-06	R. Killoren, Assoc. VP	1.62	19,000
Clarion University	16-Feb-06	Dr. Joshua Pierce	1.36	13,010
Bucknell University	10-Mar-06	Craig Kochel, Director	3.2	10,000
Messiah College	31-Mar-06	Dr. David Vader	3.0	6,000
Villanova University	4-Apr-06	Dr. Pritpal Singh	3.0	10,000
Mercyhurst	10-Apr-06	Dr. Ron Brown	3.0	9,500
			15.8	67,510
Schools awaiting 2nd Round				
Lafayette College	31-Mar-06	Ben Towne, Leap	3.0	6,000
Juniata College	3-Apr-06	Rob Yelnoski	3.0	6,000
Dickinson College	14-Apr-06	Vallie Edenbo	3.4	6,500
Wilson College	17-Apr-06	Matt Steiman	3.0	8,500
Allegheny College	26-Apr-06	Ann Areson	3.0	9,900
Muhlenberg College	TBD			
Duquesne University	TBD			
Shippensburg University	TBD			
Carnegie Mellon University	TBD			
Installation Total			15.4	36,400
Grand Total			30.58	103,910

Further, financial support in the form of a \$5,000 grant for the development of Green House Gas monitoring and inventory was provided to and through the Pennsylvania Consortium for Interdisciplinary Environmental Policy and is being implemented by faculty from Wilson College. This program offers university faculty and students the opportunity to learn how to apply state of the art software techniques to determine campus energy footprints as well as methodologies and techniques to mitigate the production of green house gases on campuses.

This technology will then have applicability at the municipal level and be a tool available to assist those municipalities who have an interest in minimizing their green house gas production levels.

## Appendix A: Board of Directors

- Chairman: Arthur E. Morris (completing term on December 31, 2006)  
Utility Solutions  
Keystone National Alliance  
434 W. Chestnut St.  
Lancaster, PA 17603  
Ex-Officio, Finance, H/R, PRI Committees
- Vice Chairman/Secretary: Gary F. Lamont  
Conyngham Pass  
SR 93 Box 702  
Conyngham, PA 18219-0702  
Chairman, Finance Committee  
PRI Committee member
- Director: Craig C. Onori (completing term on October 25, 2006)  
Lehigh Valley Hospital & Health Network  
17th and Chew Streets  
PO Box 7017  
Allentown, PA 18105-7017  
Chairman, PRI Committee  
H/R Committee member
- Director: Eric Epstein  
EFMR Monitoring Group  
4100 Hillsdale Road  
Harrisburg, PA 17112-1419  
Chairman, H/R Committee  
Finance Committee member
- Director: G. Scott Paterno (appointed on June 6, 2006)  
305 N. Front Street, 4th Floor  
Harrisburg, PA 17108-1003  
PRI Committee member
- Director: Alan A. Roman (appointed on June 6, 2006)  
Roman Consulting, Inc.  
607 March St.  
Reading, PA 19607  
Finance Committee member
- Director: Dennis A. Maloskey (appointed on June 6, 2006)  
Governor's Green Government Council  
Rachael Carson State Office Building  
P.O. Box 8772  
Harrisburg, PA 17105-8772  
H/R Committee member
- Director: Andrew Stein (effective October 25, 2006)  
Replacing Craig Onori
- Director: Robert Davis (effective January 1, 2007)  
Replacing Arthur Morris