Utility Usage Report
for Fiscal Year
2004 - 2005

PENNSTATE

Penn State Facilities Engineering Institute
College of Engineering
Marion Place
135 E. Nittany Avenue, Suite 414
State College, PA 16801

Phone: 814-865-7615
Fax: 814-863-7835

Serving the Commonwealth of Pennsylvania. . .

Vision

We will take satisfaction in partnering with our customers to provide the highest quality facilities services.

Mission

The PSFEI mission is to merit the public trust by meeting customer facility needs through engineering, information management, education, and research services.

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PSFEI Staff

Director
James R. Myers, P.E.

Associate Director
Kenneth W. Davidson, P.E., C.E.M., C.E.P.

Engineer – Boiler Plant
Wayne R. Macafee

Electrical Field Engineer
Benjamin F. Bidelspach, Jr., P.E.

Engineer – Electrical
Carl D. Peretti, P.E.

Engineer – HVAC
J. Robert Becker

Engineer – Water
Robert M. Bruce, P.E.

Energy Management Consultant
Paul M. Meister, P.E.

Coordinator, Information Systems
Lance M. Bland

Systems Programmer/ Analyst
Brian Walther

Staff Assistant
Kathleen M. Pennebaker

Staff Assistant
Dorothy L. Sauerwein

Five-Year University Utility Data, Costs, and Illustrations

A Message
From the Director
Penn State Facilities Engineering Institute

We are proud that “Serving the Commonwealth of Pennsylvania” remains our primary goal after 58 years of assisting the System (Pennsylvania State System of Higher Education) Universities with facilities engineering needs. However, we do not rest solely on our history in providing for the current needs of the System. Over the past year, we have continued to address changing needs in ways illustrated by: assisting and training University personnel for energy projects under the GESA (Guaranteed Energy Savings Act); saving dollars for the Universities by assisting with new guidelines of NFPA 70E for protection of electrical personnel; navigating new air pollution regulations that include all campus combustion sources, not just central boilers; and proposing new ways to buy energy in a volatile market.

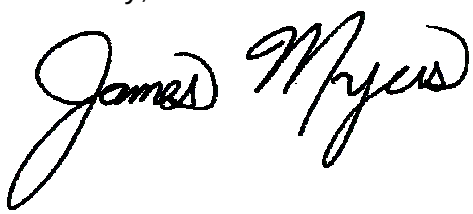
Please take time to review our summary of services as well as the summary of utility usage information with analysis for each University.

The utility usage portion of the report is a reference book that provides a basis for the System and Commonwealth officials, facilities managers, and operations personnel to plan, budget, and operate the Universities within the System. PSFEI (Penn State Facilities Engineering Institute) also uses the data in a variety of ways as we assist the Universities in saving energy dollars, in energy procurement and quality control, and in helping the Universities develop guaranteed energy savings projects. This report continues to employ the EUI (Energy Utilization Index), an important concept for facility benchmarking and measurement in the determination of facility-wide success when implementing energy conservation measures.

We value our working relationship with the Chancellor’s Office and each University and thank all the individuals that provided support in collecting the data that is the basis for this report.

Please feel free to contact us at any time to request services or simply to discuss new ideas.

Sincerely,



James Myers, P.E.
Director

INTRODUCTION

The 2004-2005 Utilities Usage Report maintained the improved expanded format from the 2003-2004 report. It provides consistent tables and graphs to identify fuel consumption and energy costs over a five-year period. The EUI (Energy Utilization Index), defined as Btu/sq-ft, remains as an index of a facility's use of all forms of energy. Identification of the EUI in this report establishes it as the baseline for past and future measurement and comparison. In addition, the data presented reflects a five-year history for a variety of energy, space, student population, water, and sewage information.

Energy flow and operating costs for the Indiana University co-generation plant were maintained in this report to identify the costs associated with co-generation versus those required to meet the needs of the Campus. The co-generation plant data are presented independently in this report. Data for Clarion's Venango Campus were also included for use in Clarion's facilities planning and in utility assessments. Additionally, Dixon Center data were presented, for the first time in the report.

During the 2004-2005 fiscal year, PSFEI developed a Utility Usage Report Data Viewer. This viewer allows the SSHE facilities to see their current utility and central plant energy consumption data on the internet. The data is displayed at the yearly summary level in the same format as the PSFEI Annual Report. Drilldowns enable the data to be viewed at the monthly level, for each facility.

The professional and technical services provided throughout the 2004-2005 fiscal year included (1) boiler plant, (2) electrical, (3) HVAC, (4) water treatment, and (5) energy. These services covered a broad array of completed and continuing projects as well as efforts which have resulted in avoided costs, improved reliability, and operating efficiency. A brief description of services provided collectively and individually to System facilities is presented below.

COLLECTIVE SERVICES

BOILER PLANT

Wayne Macafee provides Boiler Plant Services from PSFEI (Penn State Facilities Engineering Institute). Wayne specializes in all aspects of boiler plant operations and provides support over a broad range of issues, from evaluations of equipment and procedures to air-quality permitting and training. Other related services involve boiler plant control system assessments and project technical reviews. Wayne also serves as the SSHE representative on the Commonwealth Coal Committee, which oversees quality control and procurement issues for coal.

Boiler MACT (Maximum Achievable Control Technology)

- PSFEI expended a significant amount of time to resolve the requirements of this new rule (National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/ Institutional Boilers and Process Heaters, also referred to as the Boiler MACT), and determine the potential impacts on Commonwealth facilities. This included numerous contacts with DGS (Department of General Services), PADEP (Pennsylvania Department of Environmental Protection), USEPA (United States Environmental Protection Agency), various consultants, DOC (Department of Corrections), DPW (Department of Public Welfare), and the System (State System of Higher Education). We issued our findings and recommendations to DGS in Report MR 04/05-02 in January 2005.
- PSFEI also developed a comprehensive spreadsheet to assist facilities in calculating their HAP (hazardous air pollutant) emissions in support of initial applicability determination requirements in

the new rule. This spreadsheet was originally intended to be used as an evaluation tool to determine whether a facility needed more extensive assessment. If so, a professional engineering firm would be hired to conduct the more detailed assessment and complete any required documentation for PADEP. It was ultimately determined that the completed spreadsheet was sufficient to establish whether a facility was a major or area source of HAPs. Given the size of System facilities, major sources of HAPs could reduce their fuel throughput limits in their air quality permits to establish themselves as area sources. At that point, the Boiler MACT rules are not applicable. Voluntary reduction of fuel throughputs is considered a minor modification to the permit and individual facilities were expected to be able to handle that paperwork. As such, the cost of hiring professionals (estimated average of $7,000 per facility) was avoided. PSFEI will continue to support facilities that request assistance on this issue.

ELECTRICAL

Ben Bidelspach and Carl Peretti provide the PSFEI Electrical Services. Ben specializes in field engineering including on-site testing and troubleshooting. He also provides infrared surveys and maintenance recommendations. Carl concentrates on medium-voltage electrical distribution systems, reviews capital projects, conducts coordination studies, and makes recommendations on operations, maintenance, and replacement of electrical equipment. During the fiscal year 2004-2005, Carl and Ben taught several workshops on Basic Electricity and Wiring, Commercial Electricity, and Cable Terminations and Splicing. Carl also coordinated an ESG (Electrical Services Group) meeting at Millersville University on behalf of the System. The ESG consists of electrical supervisors from the Universities.

HEATING VENTILATION AND AIR CONDITIONING

Bob Becker provides expertise and advisory services to the System in the HVAC (Heating, Ventilation, and Air Conditioning) field. Specifically, most requests for Bob's assistance are to review conventional and new technologies in HVAC designs that involve airflow, humidity, automatic temperature control, and steam and hot-water heating. He also evaluates the "office environment" with respect to moisture, airflow, and temperature to improve comfort and productivity. He provides assessments for equipment such as pumps and motors, air-handling equipment, water towers, compressors, chillers, coils, terminal units, and associated distribution equipment. Bob provided HVAC training through five one-day workshops at various sites around the state. He also conducted an HVAC short course (Air Conditioning Systems and Maintenance) and a 2½-day Effective Management of the Physical Plant short course at University Park for facility personnel.

In addition, Bob coordinated the educational programs for PSFEI, served as Program Co-Chairperson of the Mechanical Utilities Group, developed programs for semi-annual meetings to cover material important to System supervisors engaged in facilities maintenance, served on ESCO (Energy Services Company) review teams to evaluate the contractor selections for projects with Edinboro and Shippensburg Universities, and made presentations on the GESA (Guaranteed Energy Savings Act) on behalf of DGS (Department of General Services).

WATER TREATMENT

Robert Bruce provides water treatment and related advisory services to the System. Available services include technical evaluations and advice relative to boiler water, cooling towers, potable water, and wastewater. His prior professional engineering experience encompasses engineering evaluations and designs relating to wastewater treatment facilities, wastewater collection systems, water treatment facilities, water distribution systems, feasibility studies, construction management services, operation and maintenance manuals for wastewater and water facilities, rate studies, development and negotiation

of inter-municipal service agreements, and analyses and evaluations for capital improvements. Bob has conducted several on-site workshops and short course presentations. He has provided several services common to all Universities including review of daily boiler water chemistry logs and review of water and sewage utility usage data. He also reviewed and provided information on developing environmental regulations.

Additionally, Bob assisted with the program for the Ssytem Mechanical Supervisor's Seminar at Lock Haven University's Sieg Conference Center, and attended quarterly ESP (Energy Strategic Planning) meetings. He provided recommendations and reports on current projects such as web-based Utility Usage Reporting and web-available Utility Data Reports, implemented enhancements to the System Annual Report, and provided new Operator Certification Law requirements and the impacts on the System facilities.

ENERGY

The Penn State Facilities Engineering Institute's energy team furnishes vital services to the System in the following areas:

- Energy procurement
- Database construction and management for all electric and natural gas accounts
- Support at all levels of the Guaranteed Energy Savings Act program for facility energy improvements
- Assistance with strategic energy planning
- Energy education
- Energy markets research
- Assistance with a broad array of utility issues

Ken Davidson, Paul Meister, and Brian Walther were pleased to serve the System during the 2004-2005 fiscal year.

The energy market turbulence seen over the past few years continued in 2004-2005. Electricity and natural gas prices followed spiraling oil prices. On the PJM (Pennsylvania-Jersey-Maryland) Interconnection, electricity prices reached the $70 per megawatt-hour range, forcing facilities to continue purchasing generation service from local EDCs (electric distribution companies) in lieu of shopping the deregulated marketplace. Natural gas prices advanced to more than $8 per dekatherm, driven by adverse weather in autumn 2004, international events, and increased demand. To respond to the new market conditions, the PSFEI energy team developed a multi-day bidding approach to be used for shopping events.

The energy team was pleased to help the System reduce costs and improve operating efficiency during the fiscal year.

General

- Reviewed all electric and natural gas bills when available. Bills were examined for proper rate, demand charges, energy consumption, penalties, distribution charges, taxes, and potential tariff savings.
- In the 2004-2005 fiscal year, PSFEI developed an Annual Report Data Viewer. This viewer allows the SSHE facilities to see their current utility and central plant energy consumption data over the internet. The data is displayed at the yearly summary level in the same format as the PSFEI annual report. Drilldowns enable the data to be viewed at the monthly level for each facility. The data may also be exported into several formats, including Microsoft Excel.

- Prepared the 2003-2004 State System of Higher Education Utility Usage Report. This report provides valuable information for System officials, directors, managers, and operations personnel for better planning, budgeting and operation of System facilities. The report establishes a 5-year comparison of utilities for the fourteen (14) Universities, individually and collectively. These utilities include water, wastewater, electricity, natural gas, propane, fuel oil, and coal. This report illustrates Energy Growth, Consumption, and Costs and provides detailed usage data by facility and fuel type, which enables PSFEI to monitor energy costs and better assist System facilities during energy procurement events and energy savings projects.

Procurement

- PSFEI conducted three natural gas procurement events in September 2004, October 2004, and May 2005. Avoided costs of $122,673 annually were realized as shown in the chart below:

AVOIDED COSTS FOR DEREGULATED NATURAL GAS				
University	**Supplier**	**Contract Starts**	**Contract Ends**	**Avoided Cost**
Kutztown	Shipley	11/1/04	10/31/05	$6,811
Edinboro	Vineyard	11/1/04	10/31/05	$64,599
Mansfield	Amerada Hess	7/1/05	6/30/06	$51,263
			Total	$122,673

- Expanded the *Best Value Analysis* program to automatically calculate avoided costs for supplier price quotes. This improvement permits faster decision making during electric and natural gas procurement events.
- Employed market-timing techniques for procurement of natural gas. A multi-day period was predetermined during September 2004, October 2004, and May 2005 for suppliers to submit price quotes until a price was accepted. The market-timing technique allows flexibility as the System can now respond to real-time price movements on the NYMEX market, to adverse weather, to injection and storage reports, and to other events. For example, on three separate bidding dates, supplier price quotes were rejected because of insufficient savings. A price was then locked-in during a market downturn on the fourth bidding day to achieve an additional $48,923 in avoided costs.
- Kept abreast of energy trends and developments on behalf of the System with participation at PUC (Pennsylvania Utility Commission) demand-side response meetings, PUC natural gas outlook meetings, *green power* seminars, and meetings with electric and gas utilities management. Information from these meetings allows the System to prepare for real-time pricing, market movements, utility rate modifications, and *green power* procurement methods.
- Recruited electric and natural gas suppliers to foster heightened competition in Commonwealth energy procurement events. Contacts in fiscal year 2004-2005 included Select Energy, Dominion Energy, PEPCO, Delta Energy, National Fuel Gas, Sempra, and Columbia Gas. Columbia Gas, Delta Energy, and Select Energy are currently preparing applications to become qualified suppliers on the DGS (Department of General Services) contract.
- Participated in the PJM Generation Attribute Tracking System Workshops. Helped develop a procedure for metering and authentication of energy attributes to ensure that the output from renewable generation sources is properly identified on the PJM grid.

- Coordinated the PSFEI Electrical Systems and Maintenance short course to educate Commonwealth employees on energy, utility industry operations, deregulation, electrical equipment, and safety.
- Prepared RFQ (Request for Quote) and held a bidding event to secure *green power* as mandated by the Rendell administration. Researched available renewable generation sources to include hydro with PECO and PPL, wind, landfill gas, solar, and coal/wood waste. Successfully procured 100,000 megawatt-hours of *green power* in the form of green tags for the output of particular generation. Purchasing green tags instead of actual kilowatt-hours reduces the *green power* cost differential for the Commonwealth by $1.33 million annually.
- Explored wholesale hydro power purchases for the Commonwealth and System with PPL and PECO Energy. Wholesale purchases could reduce electricity costs by about 10%, however, the FERC (Federal Energy Regulatory Commission) has not yet granted Electric Wholesale Generation status to the hydro plants. This initiative will be further monitored during the 2005-2006 fiscal year.
- Improved databases to achieve faster extraction of electric and natural gas account information used in procurement. Improved the supplier response for commodity and transportation additions.
- Acquired electric and natural gas billing histories from utilities for System accounts as required. Billing histories were entered into the database for inclusion with energy procurement RFQs.
- Reviewed Alternative Energy Portfolio Standards Act 213 at the ESP (Energy Strategic Planning) committee meetings. The Act provides for acquisition and sale of electricity generated from renewable sources. Met with DEP (Department of Environmental Protection) and DGS (Department of General Services) management to discuss potential effects on the Commonwealth's electric accounts.

Guaranteed Energy Savings Act

- Coordinated and managed the Commonwealth's GESA (Guaranteed Energy Savings Act) program to achieve energy conservation measures. Work included training facility personnel, making site visits and proposal evaluations, and attending ESCO meetings. PSFEI's ESCO (Energy Services Company) work with California, Cheyney, Dixon University Center, East Stroudsburg, Kutztown, Lock Haven, Mansfield, Millersville, and Slippery Rock are further identified in the specific university listings within this report.
- Created and currently maintain a GESA web page for System projects as well as other Commonwealth agencies. The web page https://fei.psu.edu/ESCO/GESA shows the up-to-date status of individual GESA projects with links to standard documents, educational information, and ESCO data.
- Presented the benefits of performance contracts on behalf of DGS, the Governor's Office of Administration, DEP, and to the System Universities at ESP (Energy Strategic Planning) and on an individual basis.
- Provided assistance and training to System staff during the transition to accelerated GESA project schedule during April, May, and June 2005. Continued guidance and training is on-going as individual GESA projects progress at the Universities.
- PSFEI continues to serve on ESCO LOI (Letter of Interest) and ESCO proposal evaluation committees and helped to select the most qualified and cost efficient ESCOs for System GESA projects.

Energy Strategy Planning Committee

- Teamed with the Chancellor's Office to maintain the ESP (Energy Strategic Planning) Committee mission. The ESP Committee consists of representatives from California, Clarion, Edinboro, East Stroudsburg, Indiana, and Millersville Universities and has developed a long-range plan to assure reliability and cost avoidance through energy efficiency and procurement in the deregulated marketplace.
- Teamed with the System in coordinating the implementation of a Strategic Energy Plan for the Universities. The energy plan includes considerations of energy sources, energy conversion technologies, and conservation (end use) issues. Currently, PSFEI work with the System centers on conservation goals. PSFEI recently assisted with development of a report for vice-presidents and directors that emphasized the need for establishing energy conservation initiatives and goal measurements.
- Presented energy market updates and trends to the directors at the KAPPA (Keystone Association of Physical Plant Administrators) meetings in autumn 2004 and spring 2005.
- As a follow-up to a PJM representative's presentation on PJM energy programs, PSFEI prepared a document clarifying current PJM demand-reduction programs.
- PSFEI arranged for Mr. Mike Newman, a world-renown speaker on building automation control systems, to make a presentation at the Physical Plant Directors' meeting in March. Prior to the meeting, PSFEI provided information on types of control systems and the issues associated with each.

EDUCATIONAL SERVICES

PSFEI provides several educational opportunities as part of its services to the System. Multi-day short courses are held at University Park. One-day workshops are held regionally throughout the Commonwealth or for an individual University, if requested.

PSFEI reviews its course offerings continuously and revises content and instruction to keep pace with System needs and developments in technology. PSFEI short courses and workshops helped 59 System staff members hone their engineering, maintenance, and operational skills in fiscal year 2004-2005.

University	Short Courses 2004-2005				Workshops 2004-2005				Total Attendees	
University	Boiler	Electric	HVAC	Effective Mgmt.	Boiler	Electric	HVAC	Water	Short Courses	Work-shops
Bloomsburg						2	2			4
California	2	1			5	3	2		3	10
Cheyney						1				1
Clarion					2					2
Dixon Center		1							1	
East Stroudsburg	1						1		1	1
Edinboro						4	1			5
Indiana		3	3						6	
Kutztown			2	2	10				4	10
Lock Haven										
Mansfield										
Millersville										
Shippensburg			1	1	1		3		2	4
Slippery Rock				1	1	1	2		1	4
West Chester										
Total	3	5	6	4	19	11	11		18	41

An additional 13 System staff members were trained on proper completion of the Monthly Utility Usage Report.

SERVICES TO INDIVIDUAL UNIVERSITIES

Bloomsburg University

- Continued support for the boiler-controls upgrade project through construction and startup testing and correction of punch list items. The project is complete with the exception of tuning the controls for the #4 Boiler. This boiler was not available for firing due to a pending stoker rebuild. It is expected that this boiler will be completed during the 2005-2006 heating season.
- Rapid increases in stack temperatures for Boilers 5 and 6 (consuming rice coal) continued to be a problem during the last heating season as a function of ash buildup on heat-transfer surfaces. PSFEI visited the facility to meet with the Utility Plant Supervisor and a representative from the coal supplier. Several potential causes for the ash buildup were proposed and discussed as well as two potential remedies. Neither remedy was able to be completely implemented before the end of the heating season. It is expected that they will be implemented for the 2005-2006 heating season. PSFEI will continue to support this endeavor.
- PSFEI support was requested regarding high current draws by the feedwater pumps, causing one pump motor to periodically trip. Site visits were conducted to obtain measurements of currents and header pressures for various pump configurations, including current draws at shutoff heads. The facility also provided motor current draws with the motors disconnected from their respective pumps. The current measurements showed that the motors were drawing near or above full-rated load. It was determined that measurements of suction and discharge pressures were also required in order to fully check pump performance. The facility has now installed the required pressure gauges and PSFEI expects to visit the facility in early October 2005 to take measurements.
- Performed electric rate calculations to show billing component charges and load factors. Prepared a report for the Director of Operations to identify ways to reduce energy demand, resulting in lower KW demand and energy charges.

California University

- Reviewed the HAPs (Hazardous Air Pollutants) assessment spreadsheet completed by the facility relevant to the recently effective National Emissions Standards for Hazardous Air Pollutants for Industrial/Commercial/Industrial Boilers and Process Heaters (also called the Boiler MACT rule).
- Met with Mr. Dana Ferry, Assistant Director of Facilities and Energy Management, to discuss composition of RFLOI (Request for Letters of Interest) to be sent to ESCOs.
- Investigated the operation of a 12kV S&C automatic switch at Eberly Hall. It was determined that this switch operated correctly under a fault condition.
- California experienced a series of electrical outages from October through December 2004. One of the outages was a complete loss of power for more than 8 hours. California and PSFEI believe this outage resulted from a failure of Allegheny Power equipment. It appears that the University's equipment operated correctly. PSFEI provided input concerning possible causes and remedies to the outage problems.
- Provided a medium-voltage upgrade plan and list of needs for the 12 kV distribution system. This plan included a new substation and an additional 12 kV circuit at a cost of approximately $2,000,000. This project is necessary to eliminate antiquated equipment but will also support the proposed convocation center project.
- PSFEI conducted an energy study to determine the most economical means of heating and cooling facilities proposed for construction over the next 10 years. As part of the evaluation, the study also considered capacity and overall condition of the existing utility infrastructure for the entire campus. This approach promoted evaluations and decisions from a campus-wide perspective. The objective of this initial evaluation was for PSFEI to evaluate viable methods and alternatives for heating and cooling of existing renovated buildings in addition to new construction throughout the campus. Several alternatives were developed for each of four (4) projects. Broad alternative concepts were

pre-qualified to enable further development of alternatives specific to each building. A 25-year life-cycle cost was developed for each alternate that included the initial capital cost, annual utility cost, and annual operation and maintenance costs. The recommended alternatives for each building project were Duda World Culture Building Replacement (Tap into Mandarino for Chilled Water and Gas-Fired Boiler), Steele Hall Renovation (Water Source Heat Pump with Ground Source), Stanley and Clyde Residence Halls Replacement (Water Source Heat Pump with Ground Source), and Convocation Center and Student Recreation Center Construction (Water Source Heat Pump with Steam Converters).

Cheyney University

- Provided significant support for AIMS (Air Inventory Management System) reporting:
  - Generated emission estimates for the years 1999 thru 2003 based on fuel usage and operating hours data supplied by the facility.
  - Reviewed, marked up, and commented on the 2003 AIMS package to be submitted to PADEP. Also, conversed with the PADEP Regional representative to clarify specific reporting needs for the University.
  - Generated emission estimates for the 2004 AIMS report.
- Met with Mr. Carl Williams, Deputy Director of Facilities, to discuss the GESA process and GESA project potential at Cheyney. A walkthrough evaluation of campus buildings was conducted to gather information to be used in the RFLOI (Request for Letter of Interest). PSFEI drafted the RFLOI documents.

Clarion University

- Researched and provided recommendations to the facility regarding appropriate internal coating materials for the deaerator tank. Also, reviewed specifications for sandblasting and coating of the tank and provided comments/suggestions for revisions.
- Provided the results of research on the requirements for certified welders for steam systems.
- Conducted a site visit to inspect the Condensate Return Tank and associated systems and to discuss the concept of installing a bypass line around the tank. The purpose of the bypass was to prevent having to dump condensate if the tank had to be taken out of service for any reason. After reviewing the requirements for such a system, the complexities involved, and the potential savings, it was determined that the project was not viable. PSFEI issued a report detailing our investigation and the results as well as providing alternative suggestions for saving condensate in the event the Return Tank had to be taken out of service.
- Conducted a site visit to investigate discrepancies in gas usage by the boiler plant between the utility-owned meter and the University-owned meters on each of the boilers. Boiler Plant personnel had already begun tracking gas meter data in a spreadsheet. PSFEI added steam meter readings to determine whether boiler combinations and load were contributing to the differences and increased the reading frequency to every four hours. A report was issued to document the visit, provide potential causes for the meter differences, detail the data recording requirements, and provide the expected path forward. Data recording continued through 4/20/05. Due to the complexity of the data, PSFEI expect to provide an oral presentation to the University followed by a final written report Fall 2005.
- Visited the facility to address the inspection failure of the DA (Deareation) Tank and to conduct a boiler plant equipment assessment. PSFEI reviewed the inspection report findings and recommendations as well as looking at the inside of the tank, concurred with the recommendations provided by the Inspector, and issued a report to document the visit and recommendations. The final report of the equipment assessment is pending completion of a secondary analysis of the gas metering data to determine whether the installation of a new boiler would be a viable project. The most pressing need for the boiler plant is an upgrade of the boiler control system, including a number of associated field devices (instrumentation, actuator/positioners, and control valves).

- Provided consultation for an electric meter installation at Ballentine Hall. The investigation determined that this meter had been wired incorrectly during the installation. This meter is to be used for on-campus billing purposes and inaccuracies would have resulted in significant billing discrepancies.
- Assisted Clarion University in the development and review of RFP (Request for Proposal) for Infiltration and Inflow (I/I) identification services. Reviewed Consultant's report and presented comments and recommendations to Mr. Clare Heidler, Director of Facilities Planning. Attended joint meeting with University and Consultant to review required report modifications.

Dixon University Center

- Conducted a facility walkthrough with Mr. Thomas Morgan, Director of Facility Operations & Maintenance, on April 28, 2005. Provided a report detailing our observations and recommendations for all campus buildings including HVAC, electrical, lighting, building envelope, utility charges, and emergency power systems. Potential energy conservation measures were summarized and a GESA project potential was discussed. Dixon is scheduled to engage in a GESA project with Kutztown and Cheyney Universities.
- An infrared survey of the electrical equipment in the Dixon University Center buildings was performed. Hot spots were identified in Duncan, Richards, and Dixon Halls. Recommendations for correction of these conditions were presented in a report.

East Stroudsburg University

- Met with Facilities Management staff Messrs. Anayo Ezeigbo, Bill Pierson, and Scott Heinrich on several occasions in January, February, and March 2005 to assist with implementing a GESA project at ESU. Periodic guidance was provided as requested.
- Reviewed Science Center plans and identified potential project cost savings. Presented a report and listing of cost reduction measures.
- Made recommendations for new bladder-type expansion tanks to replace the existing tanks that are leaking at Hawthorne Expansion Tank. The work included a site visit and consultation with University personnel.

Edinboro University

- Conducted deregulated natural gas procurement event. This effort resulted in avoided costs of $64,599.
- Provided guideline specifications for a generator for Ross Hall (the computer center). These specifications were prepared after consultation with IT (Information Technology), facilities management, and the electrical foreman. The job planning and specifications will provide a functional, cost-effective design installation which should satisfy the needs of the entire center. This design provides an approximate $30,000 savings compared to having an outside contractor complete the work.
- Investigated and provided recommendations on the gas-vent stack size and height for Edinboro University's tower dorm stacks.
- Performed a review of National Fuel tariffs and latest gas-cost rate adjustments to compare with shopping in the deregulated marketplace. National's rate hike added 10¢/mcf to the avoided cost Edinboro is presently realizing from shopping.

Indiana University

- PSFEI helped to identify and quantify an opportunity to increase efficiency of the auxiliary boilers based on utility usage data reported by the facility. The cause of low efficiency was determined to be a function of operating methods, the way the boilers were being kept in warm standby. PSFEI met with facility representatives to discuss alternative methods that would help improve the overall efficiency of the auxiliary boilers and save dollars on natural gas. The facility elected to reduce the number of boilers kept in warm standby at any given time.

- Visited the facility to examine problems with pressure oscillations from the low-pressure steam reducing station. PSFEI issued a report to document our findings and provide recommendations for immediate valve repairs (the system was providing insufficient steam to the DA tank, thereby reducing the tank's ability to remove oxygen). We also recommended that modifications to the system be considered in order to eliminate the regulating valve oversizing problem and provide back-up in the event of a single regulating valve failure. The University is currently examining available options.
- Developed and taught a workshop on medium voltage cables. This workshop provided training in electrical system troubleshooting and included hands-on practice in terminating, splicing, and elbow installation. A workshop of this type provided by an outside consultant would cost approximately $15,000.
- Installed a recording light and electric meter at McElhaney Hall to verify a manufacturing defect in a type of luminary. This information was used to negotiate with the manufacturer to have the fixtures replaced. The approximate value of the new fixtures was several thousand dollars.
- Reviewed co-generation and steam plant chemical procurement RFP and bids. Presented a report and checklist which identified deficiencies of bidders. Also, recommended caution when bidding specialized products that require implementation by highly-trained professionals. Many of the water treatment products utilized by Indiana University require precise monitoring and control by the Engineering Staff with technical assistance provided by trained, competent water-treatment firms and consulting engineers.
- Reviewed a study done by HF Lenz for a master plan for steam pipeline replacement. Work included meeting with the design professional.
- Wrote a procedure for start-up and shut-down of the South Steam Distribution to prevent further water-hammer damage in steam-line valves.
- Investigated the issue of the 100% make-up air handler's steam coil freezing up in Walsh Building, Responsibility for the problem is still not resolved between the unit manufacturer and the engineer.
- Worked with University personnel to correct airflows in the President's House Air Conditioning system. This work included a site visit and an air balance.

Kutztown University

- Conducted a deregulated natural gas procurement event. This effort resulted in avoided costs of $6,811.
- Installed and monitored on-line electric metering equipment to verify electric meter accuracy at Schuylkill, Berks, Lehigh, and Bonner Halls and at University Place. The information obtained indicated that the existing metering systems, as monitored by the EMS, are accurate.
- Provided review comments on the ESCO RFLOI (Request for Letter of Interest) drafted by Mr. Jeff Grimm, Director of Facilities Management.

Lock Haven University

- Met with Mr. David Proctor, Director of Facilities and Planning, regarding review of RFLOI documents and to discuss the GESA project process.

Mansfield University

- Conducted deregulated natural gas procurement event. This effort resulted in avoided costs of $51,263.
- Met with Mr. Dao Ton, Director of Facilities Planning and Construction, to discuss the GESA process and GESA project potential at Mansfield. A walkthrough of facilities in question was conducted with Utility Plant Manager, Mr. Denny Atkinson. The University requested that PSFEI collect data and write the RFLOI. The draft RFLOI was completed and submitted to Mansfield.

- Assisted with the planning, specification, bid evaluation, and installation of a 12470-208/120V 500 kVa transformer at Butler Center. Mansfield personnel installed the transformer, replacing a transformer that was leaking oil. The new transformer was specified to fit on the existing pad and to minimize cable work, thereby allowing complete installation in one 8-hour work shift and saving approximately $20,000 over having a contractor complete the installation.
- Performed an evaluation of Mansfield University's water treatment, storage, and distribution facilities to identify necessary improvements and enhancements that will promote long-term production, storage, and distribution of quality drinking water that complies with regulatory agency requirements. The study determined that while production capacity is not currently an issue, the University's water system does require improvements due to age and ever-expanding regulatory agency requirements. Water system improvement projects were identified. The total estimated cost for these improvements is $2,005,000. Assuming soft costs (engineering legal, etc.) are equal to 30% of that amount, total project costs were estimated to be $2,606,500.
- Conducted an on-site evaluation of hydrant fire-flow and fire-pump supply and flow at Mansfield University's North Hall. This evaluation enabled PSFEI to identify available fire flow from the potable water distribution system, the North Hall sprinkler system flow requirements, and the North Hall fire pump operating points relating to the water supply and fire demand systems.
- Investigated the Fitness Center condensate issue. The main campus steam-line was flooding back at a rate too high for the condensate tanks to handle. Recommendations for changes to the tank's piping system were submitted to the University.

Millersville University

- Provided GESA and ESCO RFP (Request for Proposal) training to Mr. John Colarusso, Director of Maintenance.
- Evaluated generator capacity to supply different loads at Boyer Computer Center and provided details on a cost-effective method to supply the UPS and air conditioning loads. Provided a report detailing these recommendations that saved the University several thousands of dollars in design fees.
- Investigated the settings and reset a ground fault relay in Roddy Science Building for proper operation. This effort saved the University lost time due to call-outs, as well as saving several thousands of dollars in consulting fees.
- Reviewed water and sewage costs for Millersville University with Mr. Arthur Dickinson, Director, Capital Construction, Contracting, and Design. Discussed rates and the borough billing structure.
- Provided Monthly Utility Usage Report preparation assistance for staff.
- Performed infrared surveys of the electrical equipment at Harbold and Diehm Buildings and an infrared survey of the roof of the Harbold Building. There were no areas identified requiring immediate repair; however, PSFEI recommended that the facility investigate questionable hot spots.
- Tested protective relays in the main switch gear and the tin shop distribution switch gear. The relays were found to be in good working condition and only required minor adjustments. "As found" and "as left" conditions of the relays were reported.
- Tested the surplus transformer and helped to troubleshoot switchgear in Landis Hall.
- Met with Mr. John Colarusso, Director of Operations, and Mr. David Erickson, Business Manager, to explain ESCO procedures, the procurement process for natural gas and electricity, and *green power* purchases.

Shippensburg University

- During an investigation of the wastewater flow meter, we observed significant wastewater flow at the flow meter during pump station operation. Flow meter surcharging undoubtedly occurs during the pump station "on-cycle". We also documented abnormal pump cycling times and duration during our investigation. In response, we conducted an evaluation of the pump station and pumps to determine

whether the pump output and number of pump starts could be reduced and whether the short pump run times could be increased. That evaluation indicated that the wet well at the pump station is vastly undersized. Due to design constraints, system improvements can only be achieved by a construction project. Under current operating conditions, excess pump wear will continue, likely causing premature pump failure. PSFEI recommended phasing out the Pump Station, if possible, or construction of a new larger wet well. Until that time, it is advisable to have a spare motor and pump available in the event of failure of those currently in use.

- Provided an evaluation on high BOD (Biochemical Oxygen Demand) and FOG (Fat, Oil, and Grease) concentrations in University wastewater. Met with representatives of the Highland Tank Company to procure recommendations for reduction programs.
- Attended a meeting with Shippensburg Borough, on the University's behalf, to report the status on BOD reduction efforts.
- Performed a detailed investigation of food service practices to identify opportunities for BOD and FOG reduction in University wastewater. Observations during the 2-day visit enabled formulation of several recommendations to reduce BOD and FOG, contributed from the dining halls to the sanitary sewer system. These recommendations were presented in report form for review and consideration.
- Attended a meeting with Mr. J. Lance Bryson, Director of the Physical Plant, and University legal counsel to review issues associated with current Sewer Use Agreement. Developed comments and recommendations for consideration during future negotiation events.
- Explored the merit of combining the chillers in two adjacent buildings (the Performing Arts Center and the new Student Recreation Center). PSFEI will complete additional research before presenting recommendations.
- Investigated the use of non-welded steam pipe. The piping has been used by other facilities with success. Pipe produced by this specific manufacturer has been installed in one facility for over ten years.

Slippery Rock University

- Provided technical support for Project 413-45 Phase II, Renovation of Central Boiler Plant. Reviewed control equipment submittal packages from R.J. Meyer Controls Company and provided comments/recommendations back to the Professional. Provided the Professional with appropriate arguments to counter the control integrator's assertion that control platform redundancy was not needed despite the specification documents clearly stating that it was a requirement. Also, assisted the Professional in determining the requirements for positioners on the new mechanical drive turbines for the Induced Draft Fans.
- Assisted in the review of oxygen trim controls on the boilers. PSFEI recommended that oxygen trim control be removed from the control strategy, but that the oxygen sensors and inputs to the control system be retained for monitoring purposes
- Met with the facilities management staff on December 2, 2004 to discuss the GESA project process.

West Chester University

- Reviewed a boiler stack test report that indicated the University was failing (exceeding permit limits) for several pollutants. PSFEI identified errors in computing the heat input rate to the boilers, which subsequently affected the results. The stack testing firm has now corrected the report to show that the University passed on all tests. This work eliminated the potential for fines and remediation requirements (pollution controls) that could have cost several million dollars.
- Provided a short spreadsheet to calculate diesel generator emissions as a function of fuel usage to support 2004 AIMS reporting.
- Initiated work with the University to resolve incidents of coal sulfur content exceeding permitted levels. Some of the coal has already been consumed and may result in fines. The remainder is currently stored in the bunkers and must be remediated. PSFEI will be providing continual support to resolve this problem including data generation to support modification of permit limits, planning for

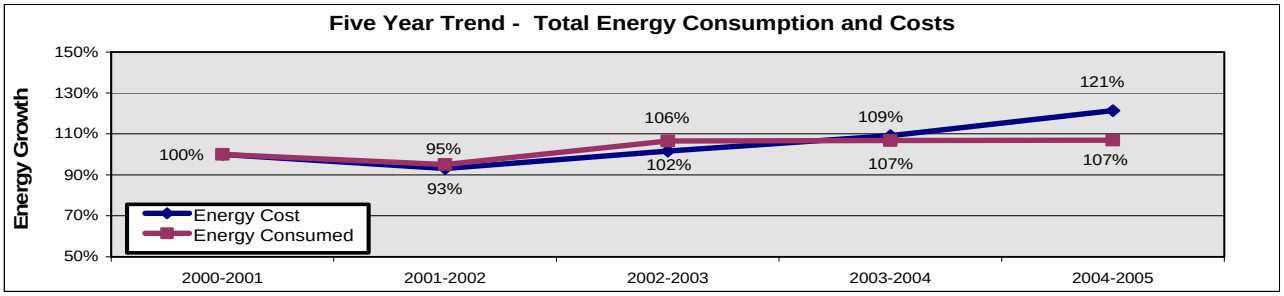
remediation of high-sulfur coal in the bunkers, and attending meetings with University representatives and PADEP to determine an acceptable path forward.

- Visited the facility to begin a long-term project to generate a spreadsheet for calculating non-boiler NO_x emissions. The purpose of the visit was to gather information on emission sources, fuel consumption measurement, operating-hour measurement, and any other data pertinent to the project. Some work on the spreadsheet has been completed; however, the inability to measure fuel use on many of the sources at this point in time limits the usefulness of further work. The University is working on installing operating hour meters on those sources that do not have them. They are also considering the installation of fuel meters where multiple sources pull from the same metered fuel supply.
- Evaluated the functionality of 5 kV switchgear following a failure and a repair by a contractor. Recommended the continued service of the equipment but also recommended a near-term replacement of the switchgear.
- Performed an infrared survey of the complete underground steam line system and areas of suspected steam line leaks and reported the probable locations of the leaks. PSFEI also benchmarked the remainder of the system.

End of Summary of Services

System Utility Data, Related Costs, and Illustrations

Fuel and Energy Consumption and Costs



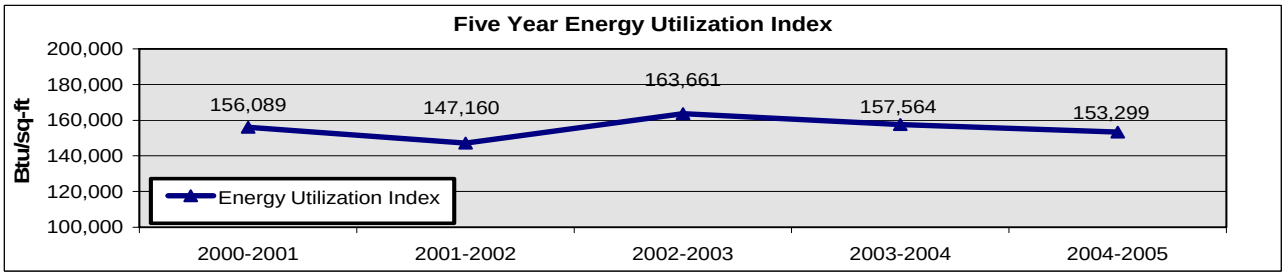
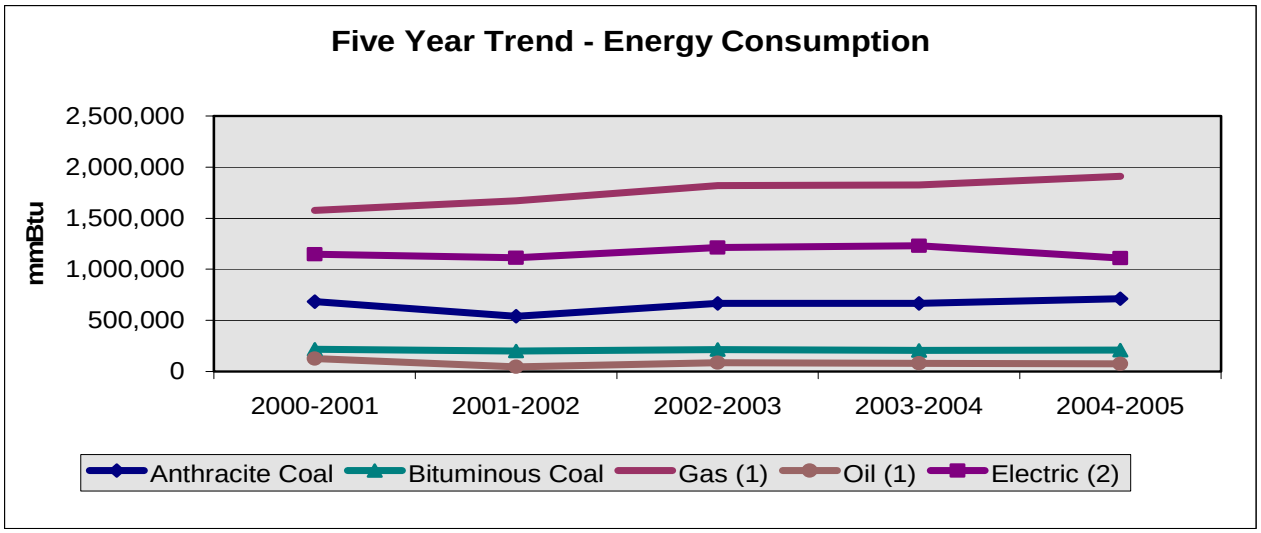


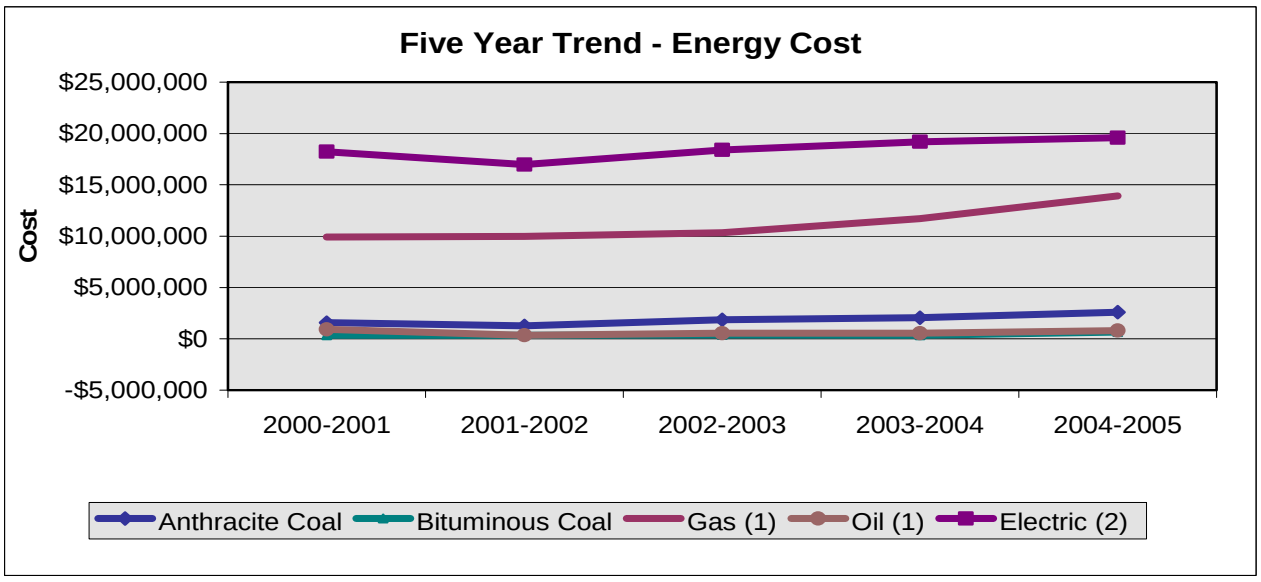
Table 1
System Fuel and Energy Consumption and Costs
State System of Higher Education
Five Year Comparison: 2000-2001 to 2004-2005

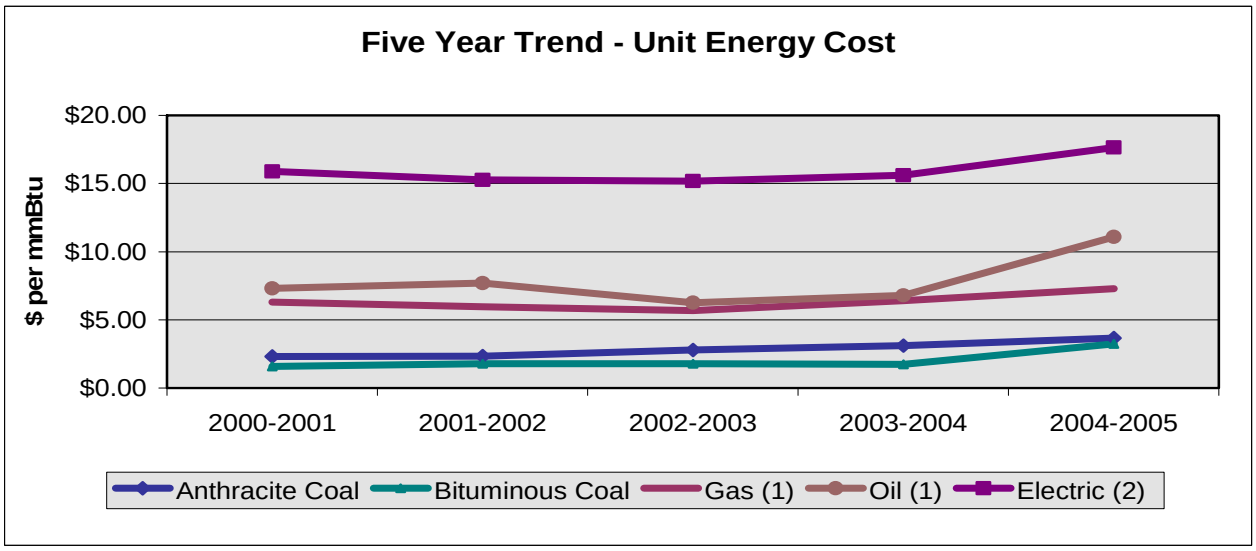
	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	27,060	21,380	26,338	26,335	28,136
Bituminous Coal	tons	8,214	7,577	8,059	7,777	7,807
Gas (1)	mcf	1,328,502	1,632,185	1,778,605	1,784,067	1,874,041
Oil (1)	gal	908,300	322,741	621,598	562,686	524,564
Electric (2)	kwh	298,326,823	289,135,975	316,539,549	321,333,243	325,196,185
Energy Costs						
Anthracite Coal	$	$ 1,587,404	$ 1,260,653	$ 1,853,378	$ 2,064,927	$ 2,613,494
Bituminous Coal	$	$ 344,628	$ 356,804	$ 379,615	$ 359,534	$ 671,005
Gas (1)	$	$ 9,925,586	$ 9,962,253	$ 10,349,801	$ 11,707,081	$ 13,939,630
Oil (1)	$	$ 929,083	$ 348,556	$ 545,759	$ 536,575	$ 814,588
Electric (2)	$	$ 18,231,001	$ 16,960,467	$ 18,394,610	$ 19,199,065	$ 19,586,927
Total	**$**	**$ 31,017,702**	**$ 28,888,734**	**$ 31,523,163**	**$ 33,867,182**	**$ 37,625,644**
Energy Consumption						
Anthracite Coal	mmBtu	683,964	540,221	665,337	665,436	711,059
Bituminous Coal	mmBtu	218,492	201,548	214,369	206,868	207,666
Gas (1)	mmBtu	1,576,359	1,671,284	1,819,302	1,824,978	1,911,522
Oil (1)	mmBtu	127,241	45,264	87,102	78,852	73,439
Electric (2)	mmBtu	1,147,755	1,111,765	1,211,640	1,229,934	1,109,895
Total	**mmBtu**	**3,753,811**	**3,570,082**	**3,997,750**	**4,006,068**	**4,013,581**
Energy Utilization Index	**Btu/sq-ft**	**156,089**	**147,160**	**163,661**	**157,564**	**153,299**
Unit Fuel Costs						
Anthracite Coal	$ / ton	$ 58.66	$ 58.96	$ 70.37	$ 78.41	$ 92.89
Bituminous Coal	$ / ton	$ 41.96	$ 47.09	$ 47.10	$ 46.23	$ 85.95
Gas (1)	$ / mcf	$ 7.47	$ 6.10	$ 5.82	$ 6.56	$ 7.44
Oil (1)	$ / gal	$ 1.02	$ 1.08	$ 0.88	$ 0.95	$ 1.55
Electric (2)	cts / kwh	6.11 ¢	5.87 ¢	5.81 ¢	5.97 ¢	6.02 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	$ 2.32	$ 2.33	$ 2.79	$ 3.10	$ 3.68
Bituminous Coal	$ / mmBtu	$ 1.58	$ 1.77	$ 1.77	$ 1.74	$ 3.23
Gas (1)	$ / mmBtu	$ 6.30	$ 5.96	$ 5.69	$ 6.41	$ 7.29
Oil (1)	$ / mmBtu	$ 7.30	$ 7.70	$ 6.27	$ 6.80	$ 11.09
Electric (2)	$ / mmBtu	$ 15.88	$ 15.26	$ 15.18	$ 15.61	$ 17.65
Weighted Average	**$ / mmBtu**	**$ 8.26**	**$ 8.09**	**$ 7.89**	**$ 8.45**	**$ 9.37**

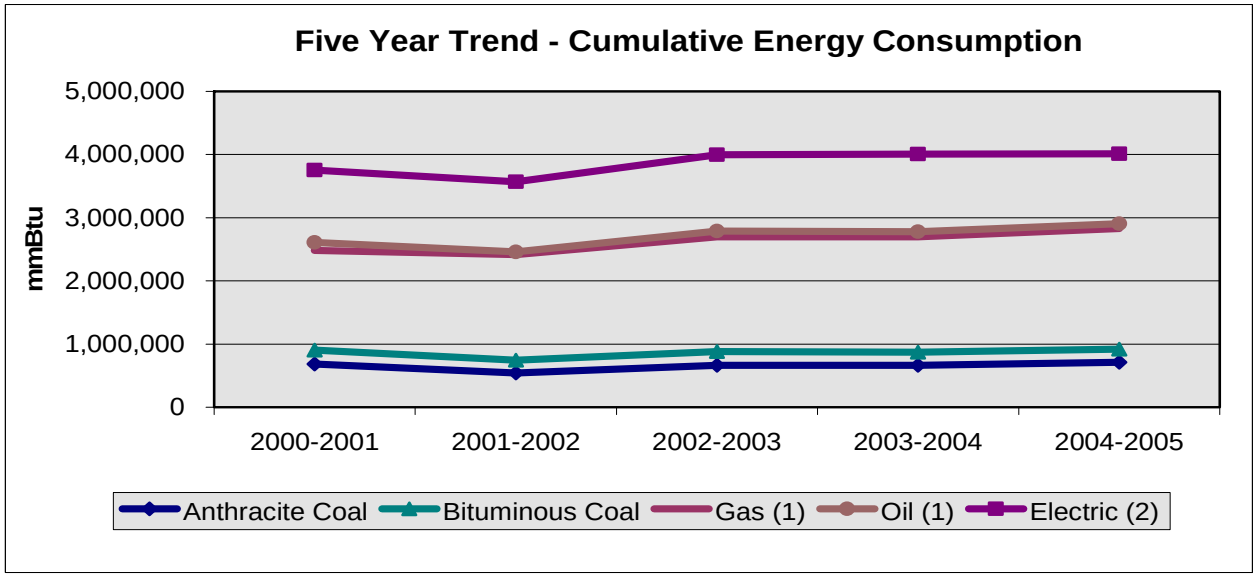
(1) Includes prorata share of Indiana University of Pennsylvania co-generation plant fuels required to meet campus needs only.
(2) Electric data includes only that purchased directly from the Power Company.

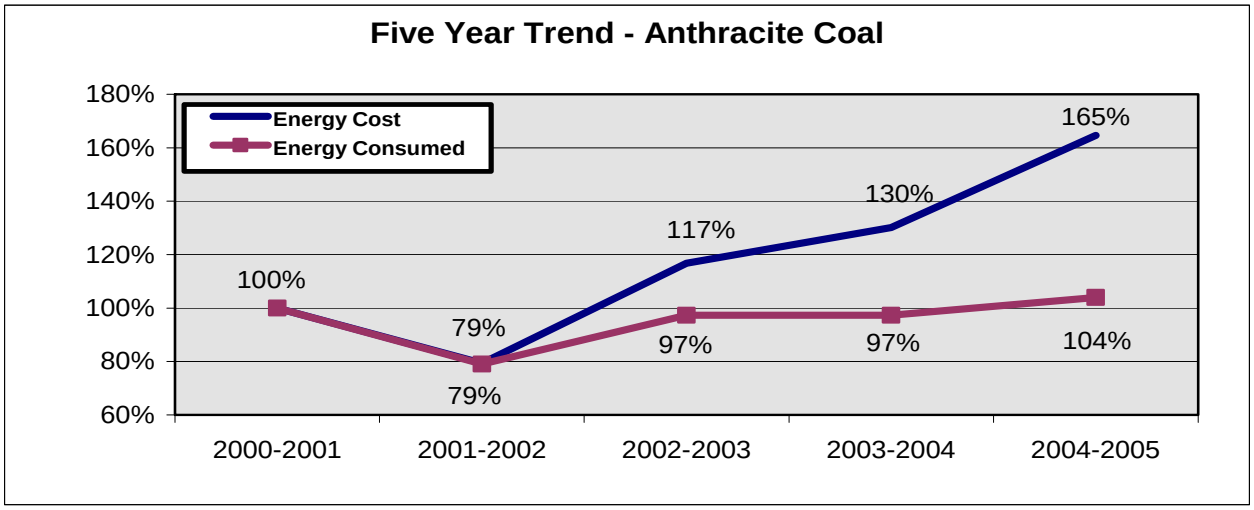
Five-Year Trend - Energy Consumption and Costs

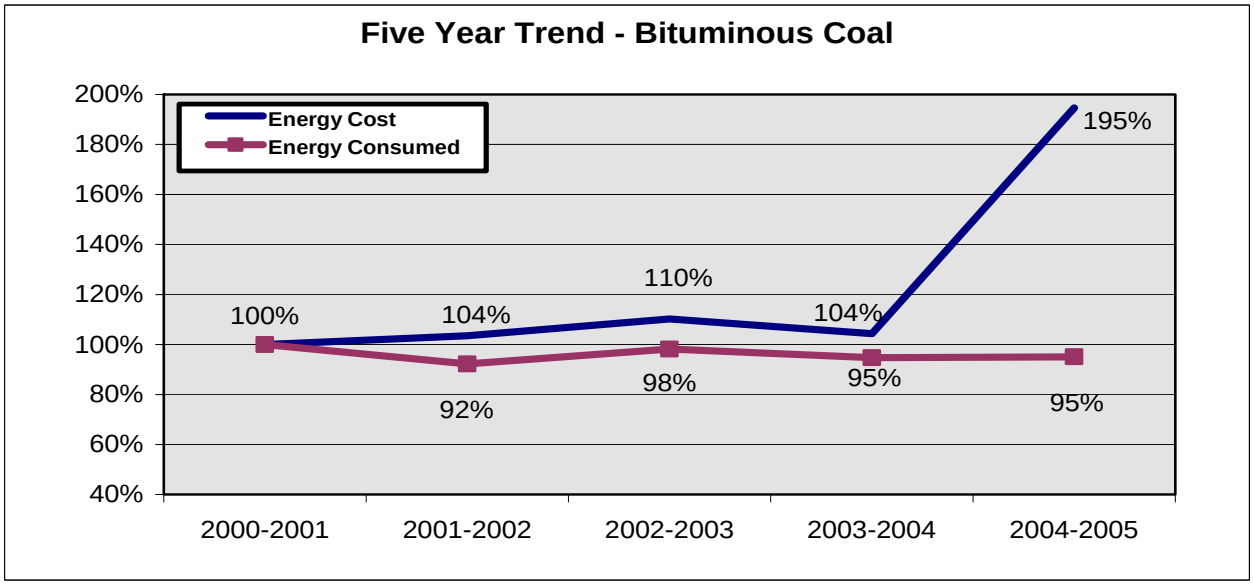


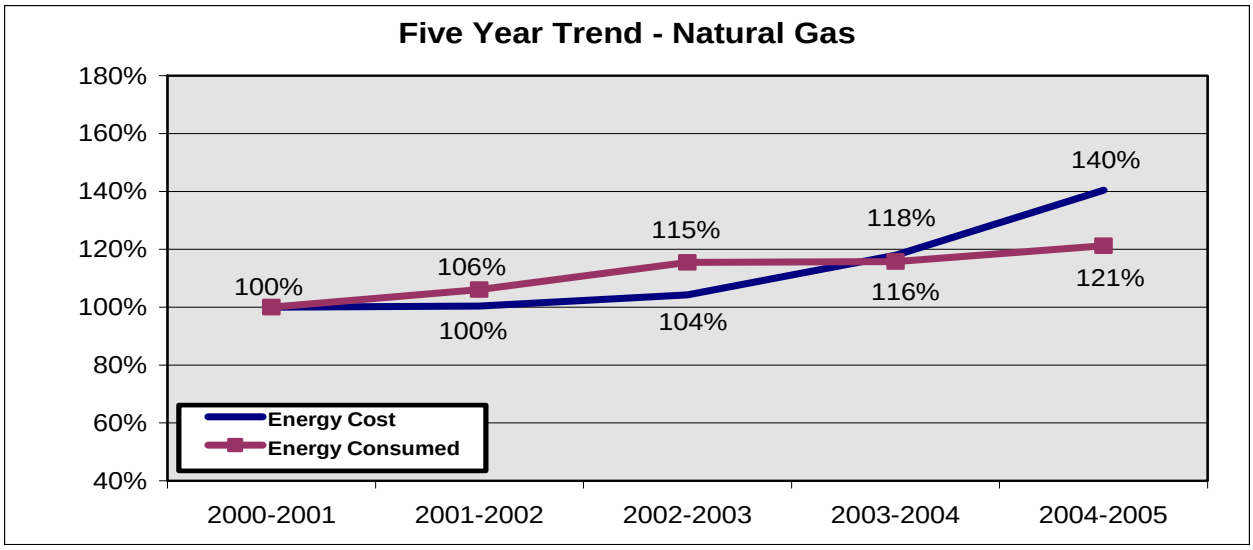


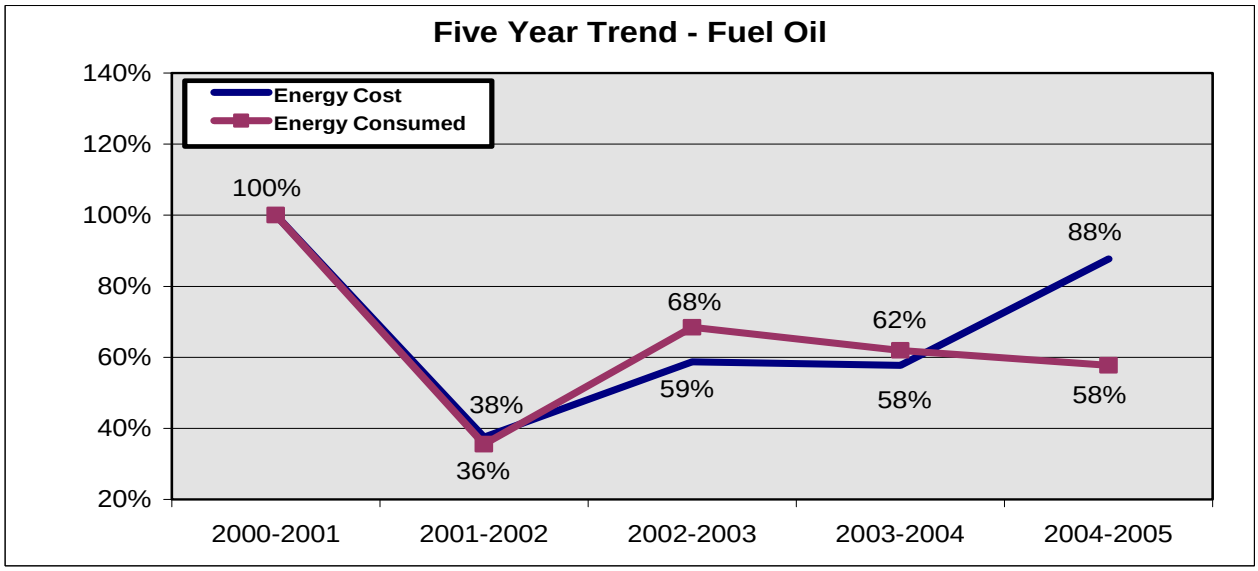



Five Year Trend - Cumulative Energy Consumption
mmBtu
5,000,000
4,000,000
3,000,000
2,000,000
1,000,000
0
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005
Anthracite Coal
Bituminous Coal
Gas (1)
Oil (1)
Electric (2)


Five Year Trend - Anthracite Coal
180%
160%
140%
120%
100%
80%
60%
Energy Cost
Energy Consumed
100%
79%
79%
117%
97%
130%
97%
165%
104%
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005


Five Year Trend - Bituminous Coal
200%
180%
160%
140%
120%
100%
80%
60%
40%
Energy Cost
Energy Consumed
100%
104%
92%
110%
98%
104%
95%
195%
95%
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005


Five Year Trend - Natural Gas
180%
160%
140%
120%
100%
80%
60%
40%
100%
106%
115%
118%
140%
100%
100%
104%
116%
121%
Energy Cost
Energy Consumed
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005


Five Year Trend - Fuel Oil
140%
120%
100%
80%
60%
40%
20%
Energy Cost
Energy Consumed
100%
38%
36%
68%
59%
62%
58%
88%
58%
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005

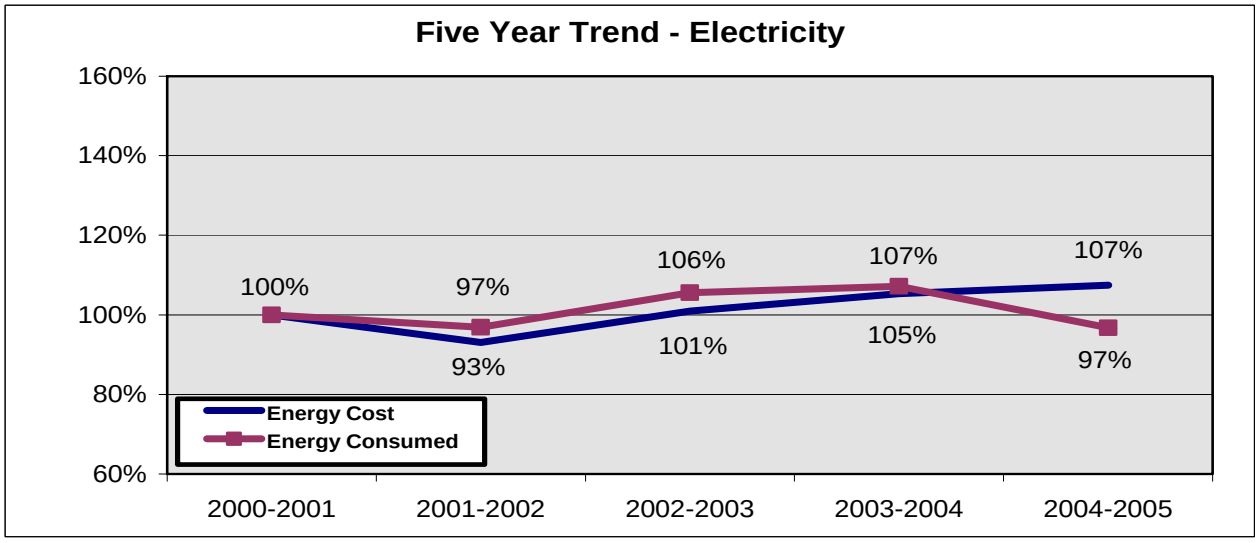

Five Year Trend - Electricity
160%
140%
120%
100%
80%
60%
Energy Cost
Energy Consumed
100%
97%
93%
106%
101%
107%
105%
107%
97%
2000-2001
2001-2002
2002-2003
2003-2004
2004-2005

Table 2
Energy Consumption and Costs 2004-2005
State System of Higher Education

	Energy Sources Utilized					Total Energy	Total Energy Cost	Unit Energy Cost	Total Building Area	Energy Utilization Index
	Anthracite Coal	Bituminous Coal	Gas	Oil	Electric	(mmBtu)	($)	($/mmBtu)	(sq-ft)	(Btu/sq-ft)
Bloomsburg Lower	x		x		x	277,035	$2,264,282	$8.17	1,712,991	161,726
Bloomsburg Upper					x	18,650	$361,811	$19.40	283,905	65,691
California			x		x	109,408	$1,306,905	$11.95	1,645,404	66,493
Cheyney			x	x	x	159,036	$1,678,618	$10.55	1,081,527	147,048
Clarion			x		x	236,666	$2,277,841	$9.62	1,543,540	153,326
Clarion-Venango			x		x	8,071	$139,778	$17.32	78,652	102,611
Dixon Center			x		x	18,332	$252,695	$13.78	145,734	125,794
East Stroudsburg			x	x	x	188,150	$2,175,066	$11.56	1,512,587	124,390
Edinboro			x		x	201,839	$2,703,443	$13.39	1,916,156	105,335
Indiana (1)			x	x	x	836,473	$5,739,410	$6.86	3,146,384	265,852
Kutztown	x		x	x	x	281,348	$2,355,764	$8.37	1,979,285	142,146
Lock Haven			x	x	x	175,391	$2,048,896	$11.68	1,603,597	109,373
Mansfield			x		x	171,914	$1,793,955	$10.44	1,270,884	135,271
Millersville			x	x	x	173,111	$2,965,026	$17.13	1,947,112	88,907
Shippensburg	x		x		x	308,429	$2,107,474	$6.83	1,891,961	163,021
Slippery Rock		x	x		x	460,724	$2,629,719	$5.71	1,916,095	240,449
West Chester	x		x	x	x	389,004	$4,824,963	$12.40	2,505,516	155,259
	Anthracite Coal	Bituminous Coal	Gas	Oil	Electric					
Total						4,013,581	$37,625,644		26,181,330	
Weighted Average								$9.37		153,299

(1) Includes energy used to fulfill campus energy needs and not electric energy sales to Penelec.

Table 3
Central Boiler Plant 2004-2005
State System of Higher Education

	Makeup %	Heating Degree Days	Peak Steam Demand (lbs/hr)	Fuel Cost	Operation & Maintenance Cost	Total Operation Cost	Energy Unit Cost Total Operation ($/mlb)	Unit Cost Total Operation ($/mmBtu)	Average Plant Efficiency
Bloomsburg Lower	4%	5,539	47,000	$760,625	$635,857	$1,396,482	$14.07	$7.39	53%
California	12%	5,529	13,500	$225,640	$190,888	$416,528	$16.70	$12.85	77%
Cheyney	73%	4,629	28,500	$734,336	$675,471	$1,409,807	$14.77	$12.40	84%
Clarion	32%	5,162	65,900	$1,467,785	$336,282	$1,804,067	$13.60	$10.68	78%
Dixon Center	---	5,069	---	$109,867	---	$109,867	---	$9.08	---
East Stroudsburg	12%	5,483	44,500	$781,835	$406,066	$1,187,900	$12.52	$11.08	88%
Indiana (1)	43%	5,762	38,516	$3,537,895	$631,730	$4,169,625	$16.23	$7.94	49%
Kutztown	16%	5,054	57,000	$485,132	$470,248	$955,381	$9.34	$6.25	67%
Lock Haven (2)	---	5,211	---	---	$92,047	$92,047	---	---	---
Mansfield	13%	5,984	28,850	$810,944	$249,383	$1,060,326	$11.51	$9.54	83%
Shippensburg	46%	5,173	52,300	$809,320	$504,521	$1,313,842	$11.31	$6.07	54%
Slippery Rock	41%	5,654	52,000	$1,078,508	$647,187	$1,725,695	$9.92	$6.54	66%
West Chester	23%	4,616	55,760	$1,157,723	$955,881	$2,113,603	$14.45	$10.24	71%
Total				$11,959,610	$5,795,560	$17,755,169			

(1) Fuel cost associated with steam production for campus only. Income from electric sales to Penelec is not deducted from O&M.
(2) O&M costs for Lock Haven represent decentralized boilers.

Table 3A
Boiler Performance 2004-2005
State System of Higher Education

	Fuel Type	Number of Boilers	Steam Capacity (lbs/hr)	Steam Generated (mlbs)	Fuel Consumed		Fuel Consumed (mmBtu)	Central Plant Fuel Cost	Central Plant Fuel Cost ($/mmBtu)	Boiler Efficiency
Bloomsburg	Anthracite Coal	5	71,000	89,226	6,979	tons	176,569	$639,530	$3.62	51%
	Gas	1	17,250	10,054	12,161	mcf	12,404	$121,095	$9.76	81%
California	Gas	3	45,000	24,936	31,786	mcf	32,422	$225,640	$6.96	77%
Cheyney	Gas	3	98,000	85,098	95,650	mcf	97,563	$595,206	$6.10	87%
	Oil			10,323	115,531	gal	16,174	$139,130	$8.60	64%
Clarion	Gas	3	70,000	132,628	165,650	mcf	168,963	$1,467,785	$8.69	78%
Dixon Center	Gas	3	---	---	11,864	mcf	12,101	$109,867	$9.08	---
East Stroudsburg	Gas	4	95,000	94,903	105,141	mcf	107,244	$781,835	$7.29	88%
Indiana	Gas	3	92,000	36,386	74,613	mcf	76,105	$516,523	$6.79	48%
	Cogen-Gas	4	44,000	216,880	432,332	mcf	440,979	$2,927,207	$6.64	49%
	Cogen-Oil			3,679	56,068	gal	7,850	$94,165	$12.00	47%
Kutztown	Anthracite Coal	3	49,000	99,905	5,906	tons	148,820	$437,761	$2.94	67%
	Gas	2	46,000	2,375	3,890	mcf	3,968	$47,372	$11.94	60%
Mansfield	Gas	3	64,000	92,107	108,990	mcf	111,170	$810,944	$7.29	83%
Shippensburg	Anthracite Coal	4	83,335	115,072	8,522	tons	214,754	$796,445	$3.71	54%
	Gas	1	15,997	1,140	1,600	mcf	1,632	$12,875	$7.89	70%
Slippery Rock	Bituminous Coal	4	120,000	174,007	7,807	tons	207,666	$671,005	$3.23	67%
	Gas			35,773	55,069	mcf	56,170	$407,503	$7.25	64%
West Chester	Anthracite Coal	3	53,000	118,007	6,729	tons	170,917	$739,758	$4.33	69%
	Oil	2	40,000	28,277	253,442	gal	35,482	$417,964	$11.78	80%

Table 4
Electricity Consumption and Costs 2004-2005
State System of Higher Education

	Total Building Area (sq-ft)	Heating Degree Days	Cooling Degree Days	Electricity Consumed (kwh)	Electricity Consumed (kwh/sq-ft)	Peak Demand (KW)	Peak Demand (W/sqft)	Load Factor	Electric Cost (cts/kwh)	Total Electric Cost	Electric Cost ($/sq-ft)
Bloomsburg Lower	1,712,991	5,539	834	20,313,158	11.9	4,934	2.9	0.59	6.41	$1,302,740	$0.76
Bloomsburg Upper	283,905			5,464,424	19.2	1,724	6.1	0.52	6.62	$361,811	$1.27
California	1,645,404	5,529	628	20,709,023	12.6	4,868	3.0	0.63	4.96	$1,026,497	$0.62
Cheyney	1,081,527	4,629	1,257	10,303,000	9.5	1,982	1.8	0.70	8.02	$826,651	$0.76
Clarion	1,543,540	5,162	471	17,481,082	11.3	3,985	2.6	0.66	4.12	$720,309	$0.47
Clarion-Venango (1)	78,652	---	---	1,396,060	17.7	117	1.5	---	7.49	$104,587	$1.33
Dixon Center	145,734	5,069	1,196	1,825,700	12.5	458	3.1	0.53	7.82	$142,828	$0.98
East Stroudsburg	1,512,587	5,483	536	19,020,000	12.6	4,084	2.7	0.66	6.43	$1,222,889	$0.81
Edinboro	1,916,156	6,893	299	40,408,019	21.1	8,812	4.6	0.71	5.24	$2,115,990	$1.10
Indiana (2)	3,146,384	5,762	455	43,008,722	13.7	---	---	---	1.20	$517,501	$0.16
Kutztown	1,979,285	5,054	1,533	25,855,391	13.1	5,801	2.9	0.68	6.30	$1,628,977	$0.82
Lock Haven	1,603,597	5,211	465	15,915,706	9.9	3,533	2.2	0.63	6.60	$1,049,824	$0.65
Mansfield	1,270,884	5,984	849	15,079,438	11.9	2,910	2.3	0.67	5.96	$899,182	$0.71
Millersville	1,947,112	5,340	980	44,605,425	22.9	11,115	5.7	0.64	6.08	$2,710,559	$1.39
Shippensburg	1,891,961	5,173	939	21,724,144	11.5	4,797	2.5	0.71	5.40	$1,172,188	$0.62
Slippery Rock	1,916,095	5,654	861	25,481,084	13.3	6,217	3.2	0.56	4.34	$1,106,597	$0.58
West Chester	2,505,516	4,616	1,186	37,365,576	14.9	6,582	2.6	0.77	8.13	$3,036,201	$1.21
Total (3)	26,181,330	81,098	12,489	365,955,952						$19,945,332	
Weighted Average					14.0			0.61	5.45		$0.76

(1) Incorporation of multiple accounts yields inaccurate load factor and is not reported.
(2) IUP data includes electric produced by co-generation that was consumed by campus.
(3) All data includes lighting costs and Kwh, when provided.

Table 5
Water, Sewage, and Miscellaneous Utilities and Costs 2004-2005
State System of Higher Education

	Water (mgal)	Water Cost	Water Cost ($/mgal)	Sewage (mgal)	Sewage Cost	Sewage Cost ($/mgal)	Misc Gas (mcf)	Misc Gas Cost	Misc Gas ($/mcf)	Misc Oil (gal)	Misc Oil Cost	Misc Oil ($/gal)
Bloomsburg	77,713	$149,798	$ 1.93	---	$173,831	---	18,366	$200,917	$ 10.94	---	---	---
California	35,916	$191,075	$ 5.32	---	$696,270	---	6,183	$54,768	$ 8.86	---	---	---
Cheyney	35,323	$68,441	$ 1.94	30,918	$59,006	$ 1.91	9,936	$117,631	$ 11.84	---	---	---
Clarion	36,834	$184,041	$ 5.00	39,329	$83,102	$ 2.11	7,882	$89,746	$ 11.39	---	---	---
Clarion-Venango	407	$1,727	$ 4.24	407	$1,280	$ 3.15	3,241	$35,191	$ 10.86	---	---	---
Dixon Center	1,364	$27,499	$ 20.16	---	$4,640	---	---	---	---	---	---	---
East Stroudsburg	41,362	$109,694	$ 2.65	---	$97,022	---	14,770	$158,465	$ 10.73	6,610	$11,877	$ 1.80
Edinboro	103,022	$203,783	$ 1.98	---	$276,429	---	62,673	$587,453	$ 9.37	---	---	---
Indiana	62,718	$440,236	$ 7.02	47,039	$728,779	$ 15.49	20,170	$173,195	$ 8.59	---	---	---
Kutztown	73,236	$339,556	$ 4.64	73,182	$448,534	$ 6.13	39,133	$235,906	$ 6.03	2,863	$5,749	$2.01
Lock Haven	38,115	$55,841	$ 1.47	---	$63,395	---	118,097	$992,768	$ 8.41	4,368	$6,304	$1.44
Mansfield	48,670	$77,315	$ 1.59	---	$121,340	---	9,096	$83,829	$ 9.22	---	---	---
Millersville	64,353	$90,746	$ 1.41	63,262	$579,655	$ 9.16	14,929	$189,086	$ 12.67	40,325	$65,381	$1.62
Shippensburg	78,300	$315,264	$ 4.03	38,634	$99,734	$ 2.58	17,547	$125,966	$ 7.18	---	---	---
Slippery Rock	58,005	$150,871	$ 2.60	---	$238,122	---	107,765	$444,614	$ 4.13	---	---	---
West Chester	85,388	$464,098	$ 5.44	85,488	$302,120	$ 3.53	52,630	$615,276	$ 11.69	9,958	$15,763	$1.58
Total	840,726	$2,869,984		378,259	$3,973,260		502,419	$4,104,810		64,124	$105,074	
Weighted Average			$ 3.41			$ 10.50			$ 8.17			$1.64

Indiana University of Pennsylvania
Co-generation Process Description

Due to the complexity of the Indiana University of Pennsylvania (IUP) co-generation process data and how that data is reported, a brief explanation is provided herein. IUP has a co-generation plant that is fueled by natural gas and diesel fuel to produce electricity for the campus, electricity for revenue sales, and steam for the campus. The relative amounts of energy output are illustrated in Figure 1 below. This system configuration is quite different from the other System Universities that purchase all their electric energy from their local utilities and meet thermal needs with steam boilers. The cogeneration plant provides for most of the campus' thermal requirements. It also provides revenues from electric sales that are sufficient to offset operational costs so that the campus energy needs can be met at less cost than by traditional methods.

For the sake of comparison among universities, the IUP usage and cost data in Tables 1 through 8 represent the energy (electric and steam) needs of the campus itself. The costs of these campus energy needs are partly offset by revenue generated by the sale of electricity to Penelec. However, the revenue generated by this sale is credited to the entire co-generation operation as shown on Tables 6 (A) and 6 (B). Evaluation of energy production and usage on a mmBtu basis (refer to Figure 1 below) indicates that 31.4% of co-generation output was used to produce campus steam, 19.8% used to produce campus electric and 47.4% was sold to Penelec. Additionally, 1.4 % of the energy produced was utilized for co-generation needs and less than 0.05% encompassed miscellaneous losses. The cost of producing campus electricity and steam is shown in Table 6A for fiscal year 2004-2005 and Table 6B for fiscal year 2003-2004.

Total energy consumption data for the IUP co-generation plant are also shown in Tables 6A and 6B. These tables identify the usage and costs associated with all energy purchases made by IUP for co-generation purposes and for the campus.

Figure 1

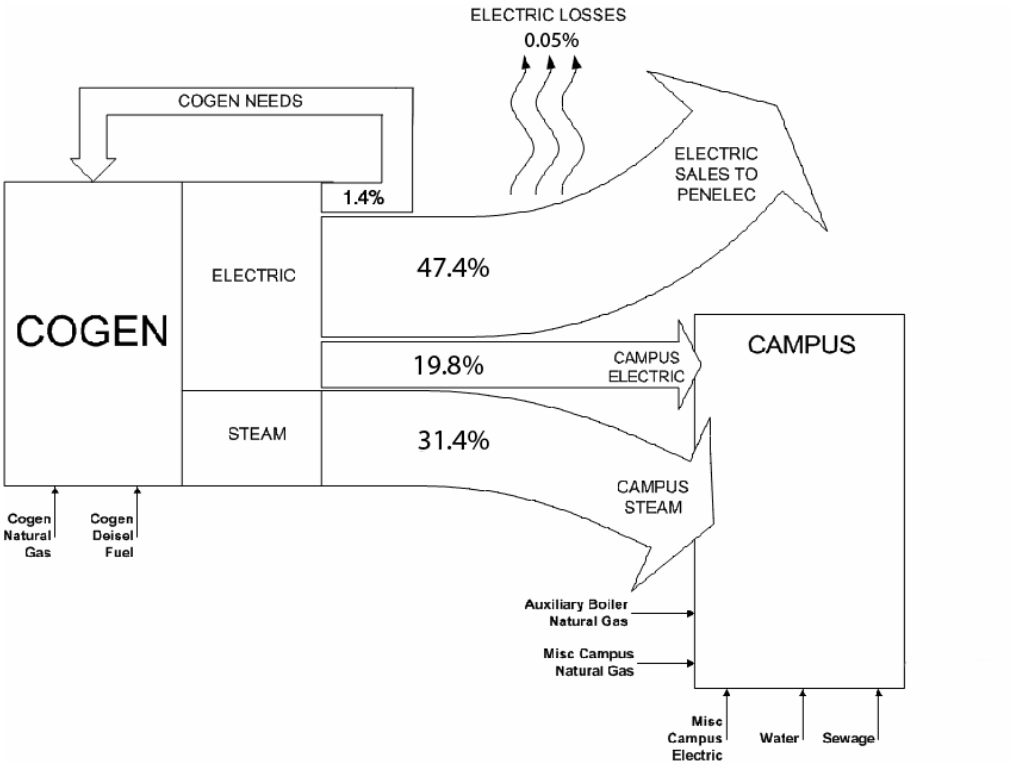


Table 6 (A)
Indiana University Co-Generation Summary 2004-2005

Input	**Units**	**mmBtu**	**Cost**
Contract Natural Gas (mcf)	1,366,077	1,393,399	$9,200,801
I.U.P. Natural Gas (mcf)	13,187	13,451	$0
Diesel Fuel (gal)	178,910	25,047	$296,320
Water (gal)	9,599,633		$49,653
Total Fuel		1,431,897	$9,546,774
Operation Expenses			**Cost**
I.U.P. Natural Gas Processing Charge			$10,805
Staff Costs			$769,187
Lube Oil			$34,476
Repairs/Parts			$607,157
Total Expenses			$1,421,625
Total Operating Cost (Fuel and Expenses)			$10,968,399
Output	**kwh**	**mmBtu**	**Cost**
Electric			
Electric Supplied to Campus (kwh)	40,759,767	139,113	
Electric Sale to Penelec (kwh)	97,674,612	333,363	($7,402,169)
Electric Lost in Transmission (kwh)	100,646	344	
Electric Consumed by Cogen (kwh)	2,907,976	9,925	
Total Electric	141,443,001	482,745	($7,402,169)
Steam (lbs)	220,559,168	220,559	
Total Output		703,304	
Net Cost (1) (2)			$3,566,230
Summary of Data			
Total Thermal Efficiency	49.1%		
% Output Electrical	68.6%		
% Output Steam	31.4%		
	Total $	**$/kwh**	**$/mmBtu**
Cost Electric (1)	$2,447,845	$0.0173	$5.07
		$/mlb	
Cost Steam (1)	$1,118,385	$5.07	$5.07
Peak Electric Capacity	24,320 KW		
Average Production Level	66.4%		
Peak Steam Capacity	43,000 lb/hr		
Average Production Level	58.6%		

(1) Costs do not include bond cost or amortized capital cost of the co-generation plant.

(2) Net cost does not include avoided cost of utilities assuming traditional systems.

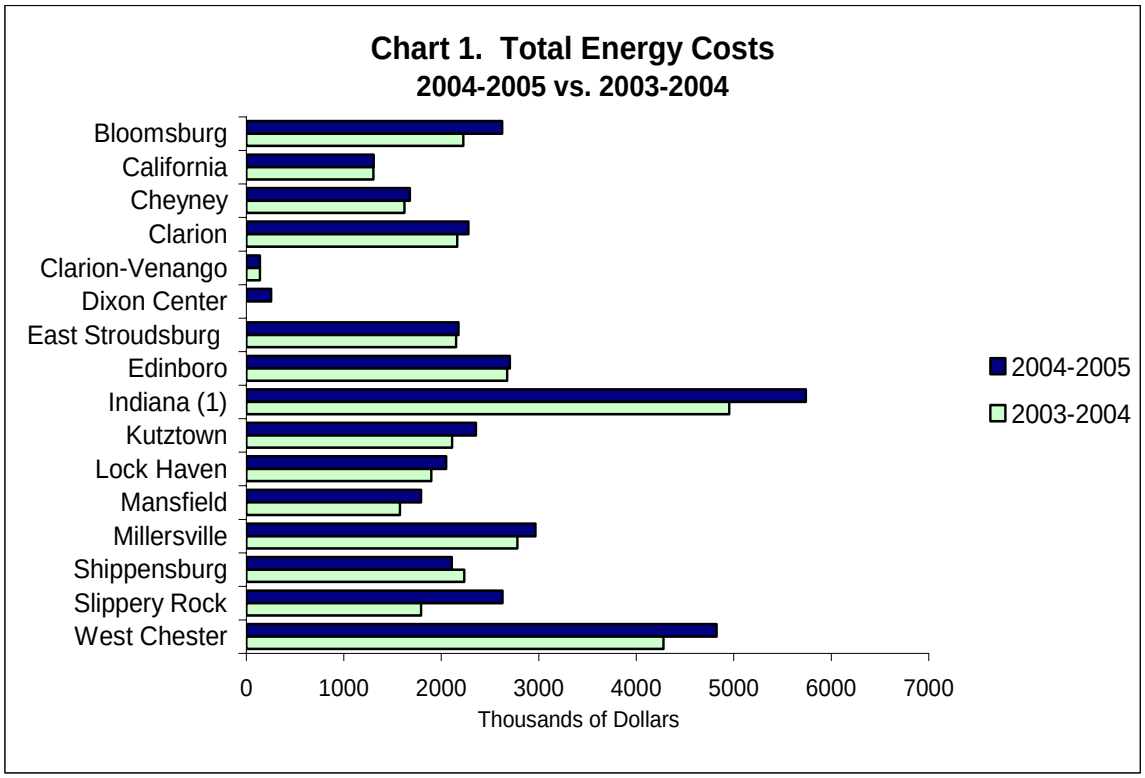
Table 6 (B)
Indiana University Co-Generation Summary 2003-2004

Input	**Units**	**mmBtu**	**Cost**
Contract Natural Gas (mcf)	1,483,195	1,512,859	$8,415,802
I.U.P. Natural Gas (mcf)	13,875	14,153	$0
Diesel Fuel (gal)	157,780	22,089	$137,647
Water (gal)	24,294,842		$111,923
Total Fuel		1,549,101	$8,665,372
Operation Expenses			**Cost**
I.U.P. Natural Gas Processing Charge			$8,497
Staff Costs			$768,868
Lube Oil			$44,562
Repairs/Parts			$611,367
Total Expenses			$1,433,294
Total Operating Cost (Fuel and Expenses)			$10,098,666
Output	**kwh**	**mmBtu**	**Cost**
Electric			
Electric Supplied to Campus (kwh)	39,034,149	133,224	
Electric Sale to Penelec (kwh)	116,655,020	398,144	(6,659,550)
Electric Lost in Transmission (kwh)	147,696	504	
Electric Consumed by Cogen (kwh)	3,271,135	11,164	
Total Electric	159,108,000	543,036	(6,659,550)
Steam (lbs)	249,687,699	249,688	
Total Output		792,723	
Net Cost (1) (2)			$3,439,116
Summary of Data			
Total Thermal Efficiency	51.2%		
% Output Electrical	68.5%		
% Output Steam	31.5%		
	Total $	**$/kwh**	**$/mmBtu**
Cost Electric (1)	$2,355,882	$0.0148	$4.34
		$/mlb	
Cost Steam (1)	$1,083,234	$4.34	$4.34
Peak Electric Capacity	24,320 KW		
Average Production Level	74.7%		
Peak Steam Capacity	43,000 lb/hr		
Average Production Level	66.3%		

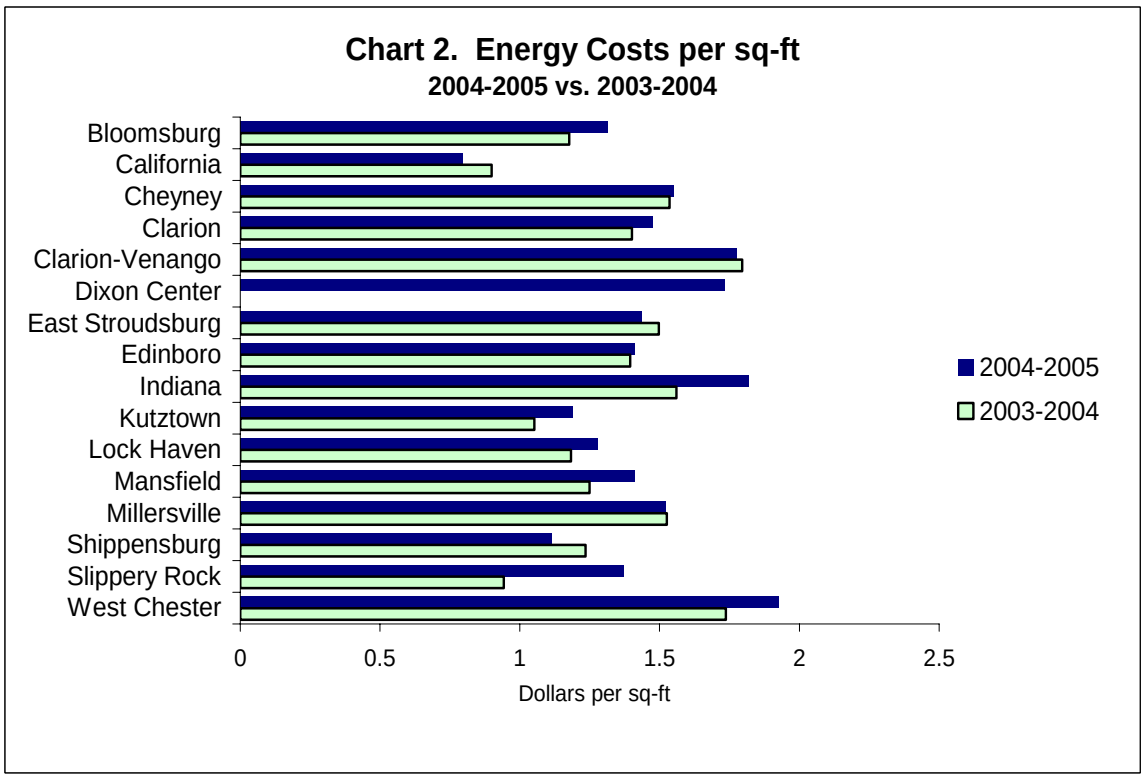
(1) Costs do not include bond cost or amortized capital cost of the co-generation plant.

(2) Net cost does not include avoided cost of utilities assuming traditional systems.

System Energy, Water, and Sewage Costs
2004-2005 vs. 2003-2004



(1) Data reflects campus requirements only. This note also applies to Charts 2 through 9.



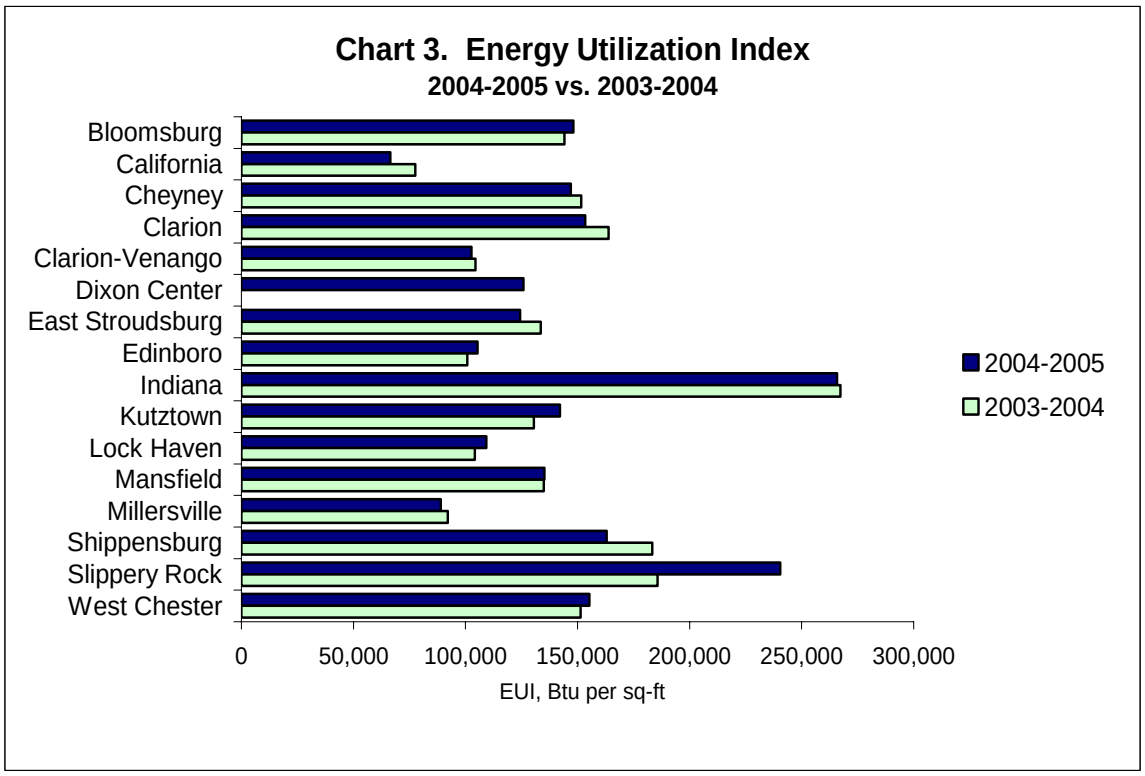


Chart 3. Energy Utilization Index
2004-2005 vs. 2003-2004
Bloomsburg
California
Cheyney
Clarion
Clarion-Venango
Dixon Center
East Stroudsburg
Edinboro
Indiana
Kutztown
Lock Haven
Mansfield
Millersville
Shippensburg
Slippery Rock
West Chester
2004-2005
2003-2004
0
50,000
100,000
150,000
200,000
250,000
300,000
EUI, Btu per sq-ft

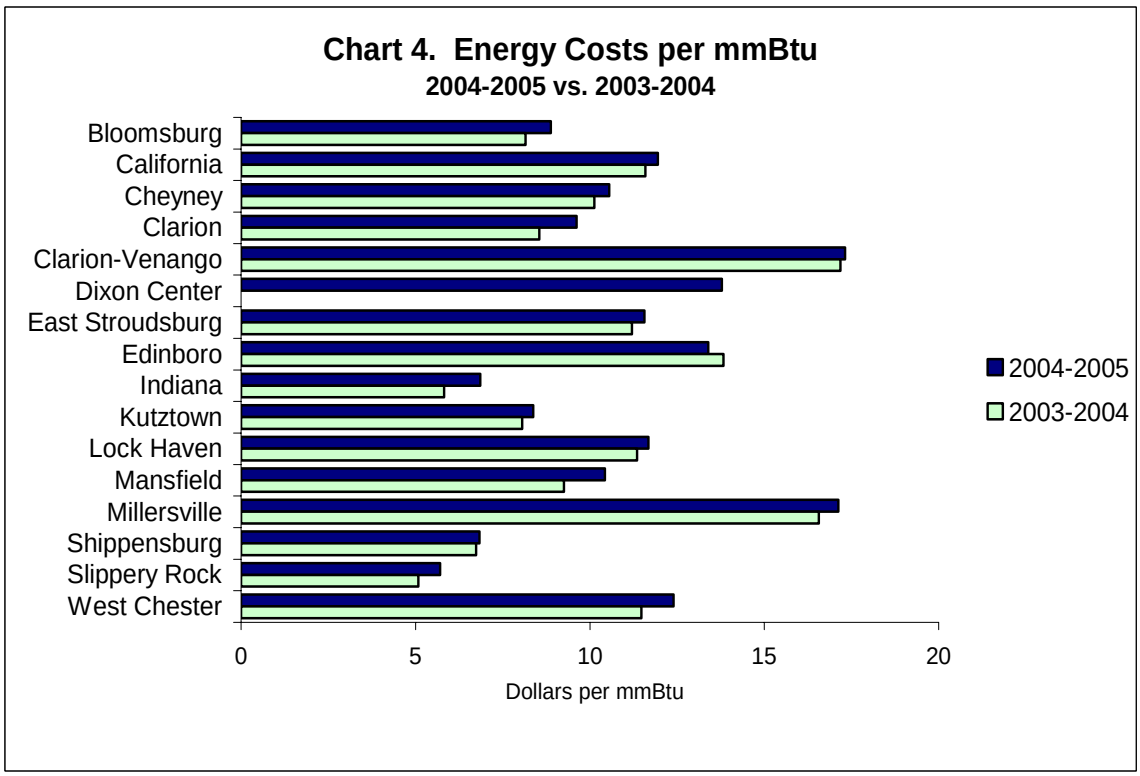
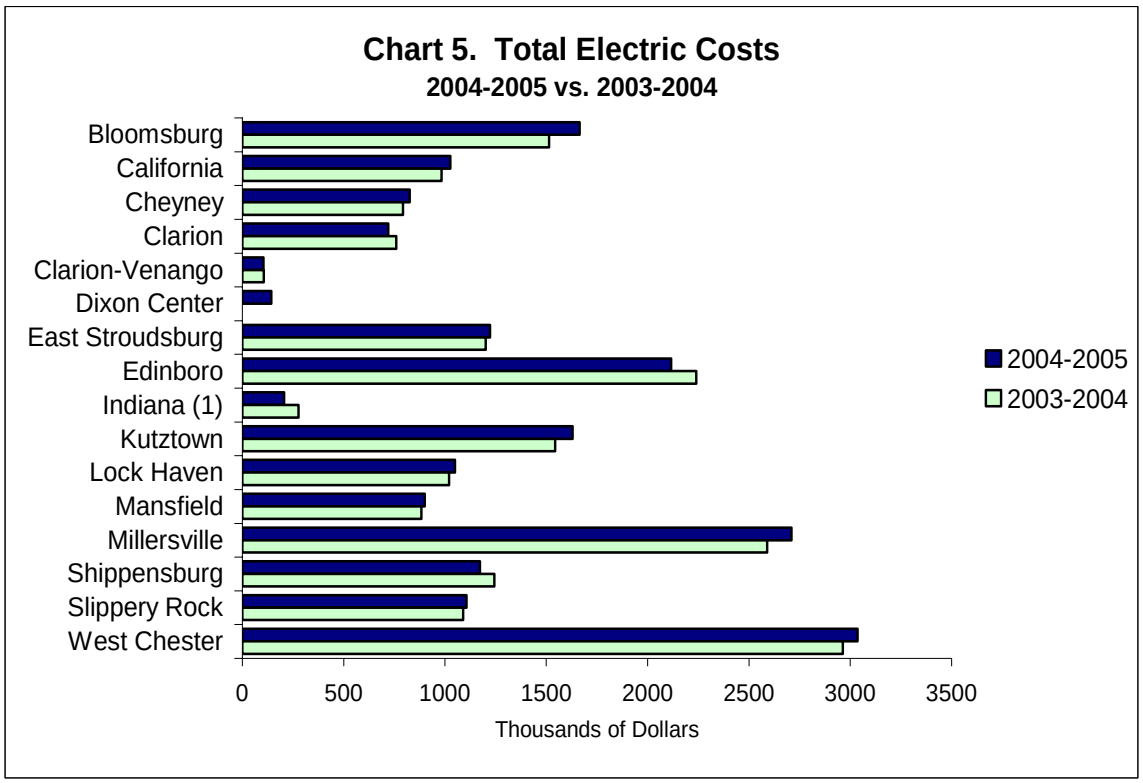
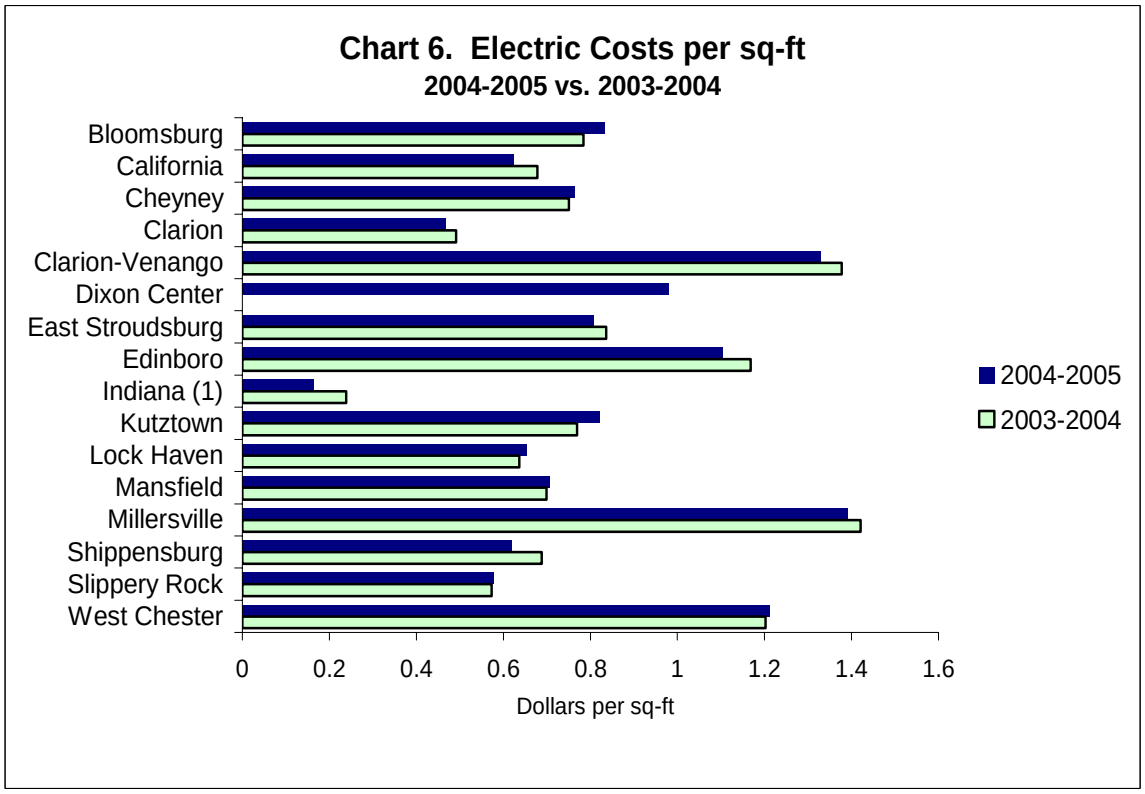


Chart 4. Energy Costs per mmBtu
2004-2005 vs. 2003-2004
Bloomsburg
California
Cheyney
Clarion
Clarion-Venango
Dixon Center
East Stroudsburg
Edinboro
Indiana
Kutztown
Lock Haven
Mansfield
Millersville
Shippensburg
Slippery Rock
West Chester
2004-2005
2003-2004
0
5
10
15
20
Dollars per mmBtu



(1) Electric purchased for campus.



(1) Electric purchased for campus.

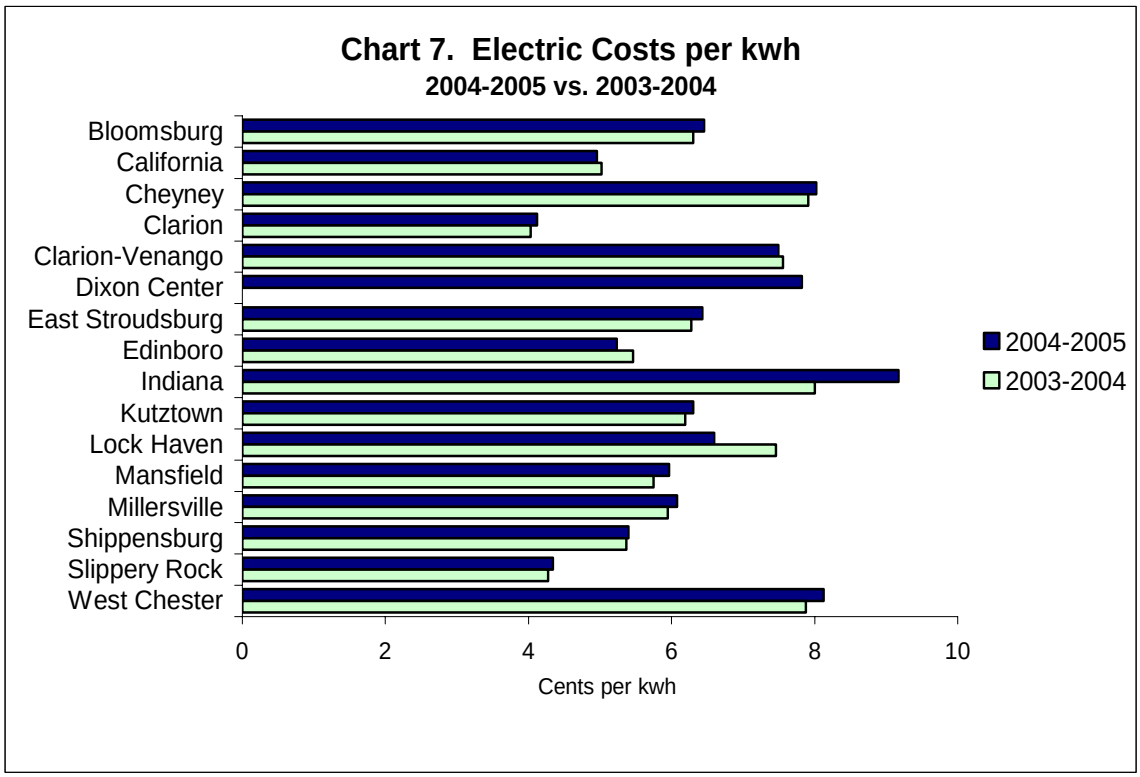


Chart 7. Electric Costs per kwh
2004-2005 vs. 2003-2004
Bloomsburg
California
Cheyney
Clarion
Clarion-Venango
Dixon Center
East Stroudsburg
Edinboro
Indiana
Kutztown
Lock Haven
Mansfield
Millersville
Shippensburg
Slippery Rock
West Chester
0
2
4
6
8
10
Cents per kwh
2004-2005
2003-2004

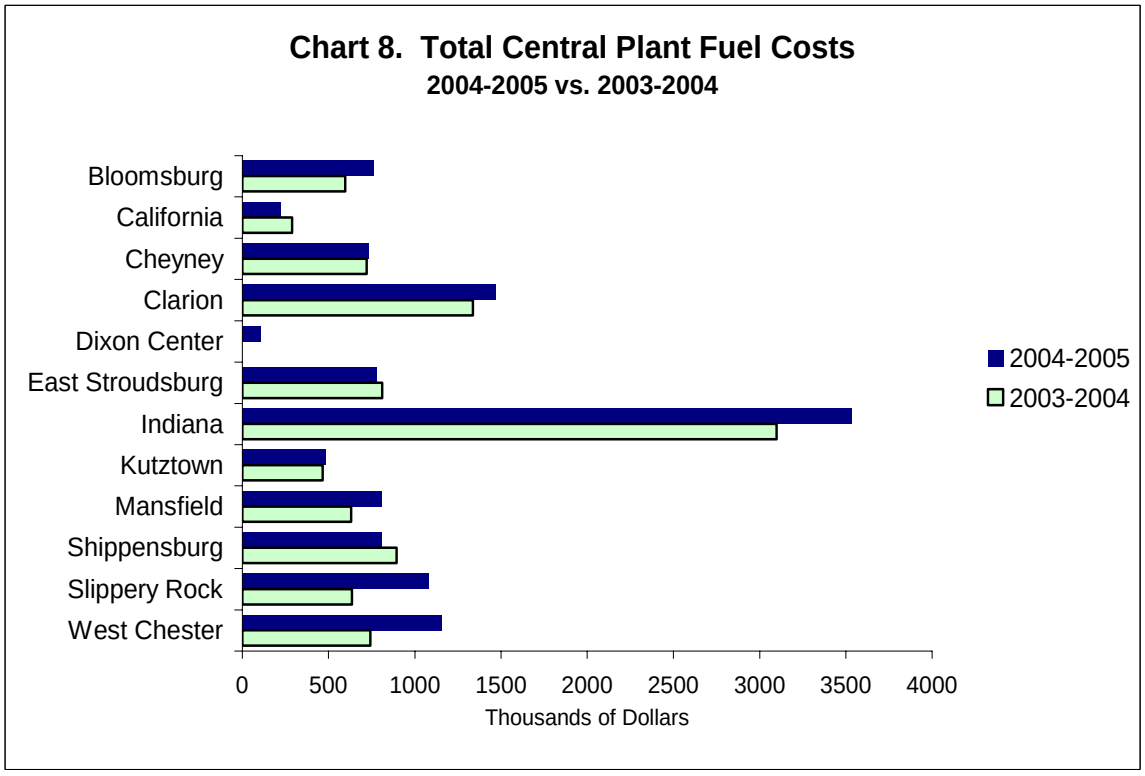


Chart 8. Total Central Plant Fuel Costs
2004-2005 vs. 2003-2004
Bloomsburg
California
Cheyney
Clarion
Dixon Center
East Stroudsburg
Indiana
Kutztown
Mansfield
Shippensburg
Slippery Rock
West Chester
0
500
1000
1500
2000
2500
3000
3500
4000
Thousands of Dollars
2004-2005
2003-2004

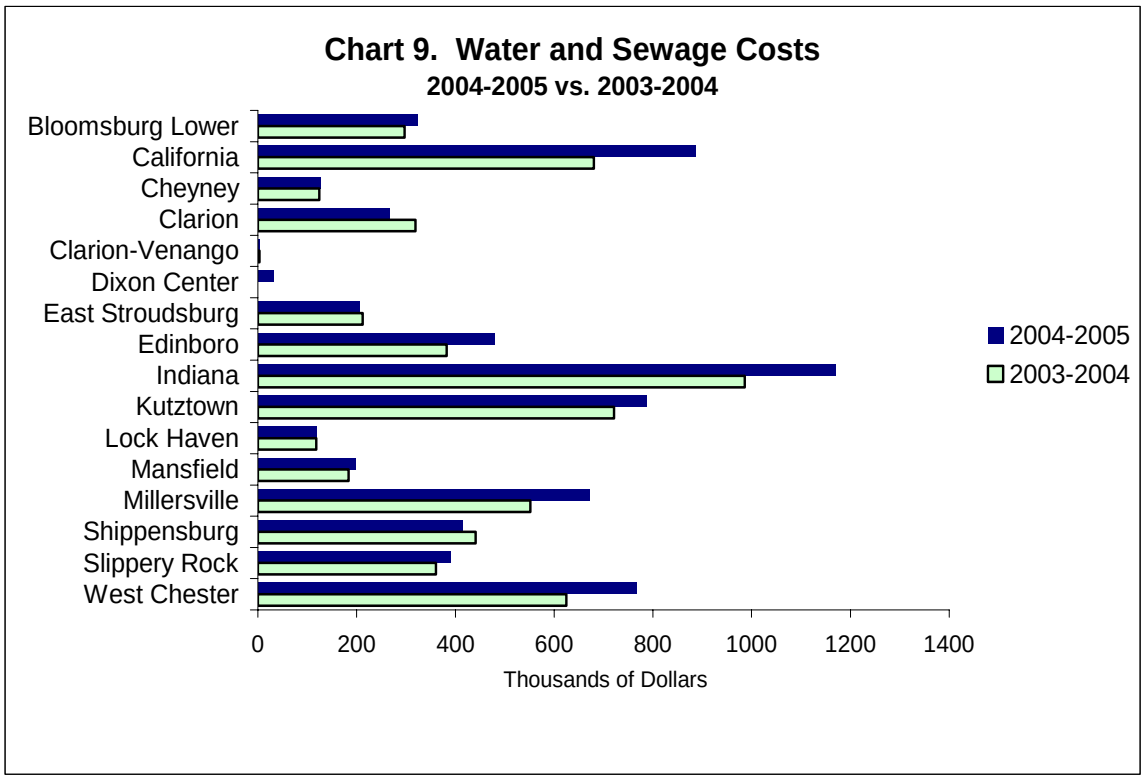
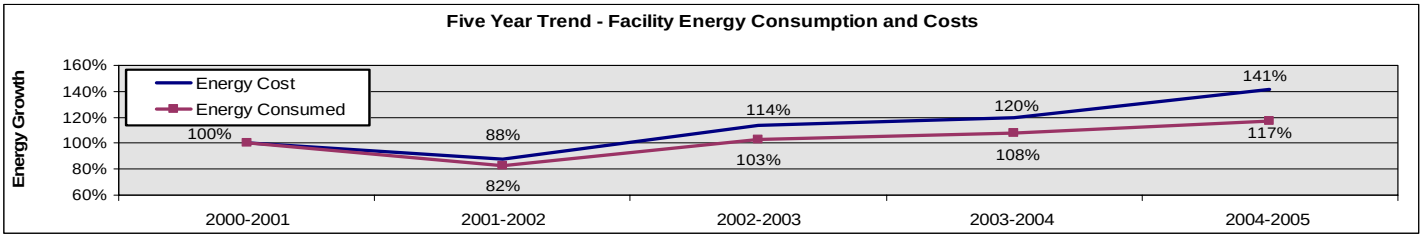
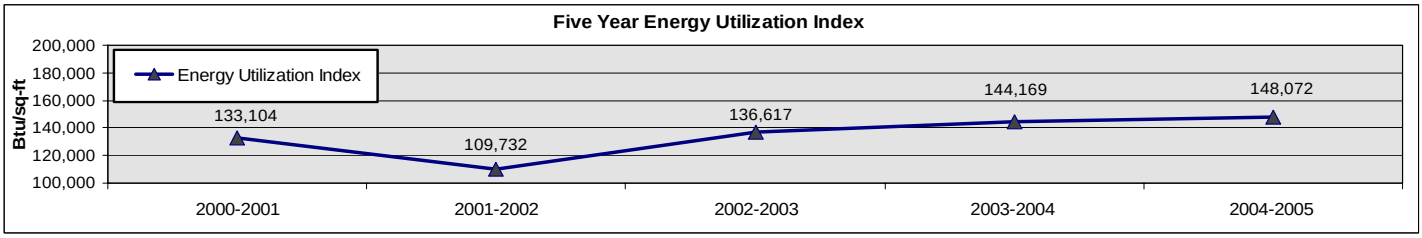


Chart 9. Water and Sewage Costs
2004-2005 vs. 2003-2004
Bloomsburg Lower
California
Cheyney
Clarion
Clarion-Venango
Dixon Center
East Stroudsburg
Edinboro
Indiana
Kutztown
Lock Haven
Mansfield
Millersville
Shippensburg
Slippery Rock
West Chester
0
200
400
600
800
1000
1200
1400
Thousands of Dollars
2004-2005
2003-2004

Five-Year University Utility Data, Costs, and Illustrations
Bloomsburg University

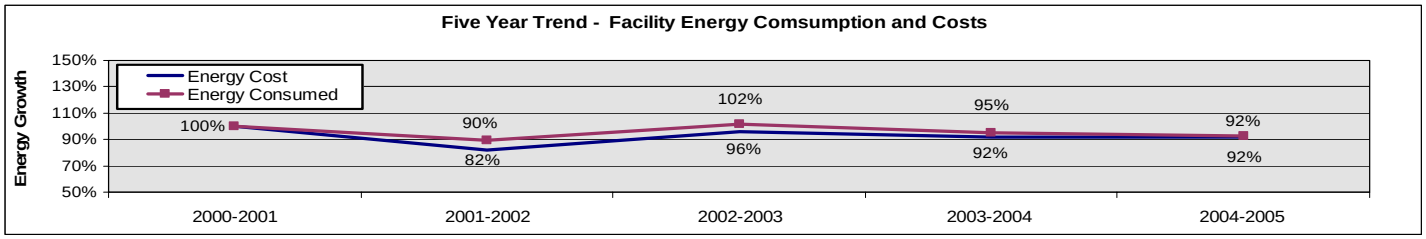


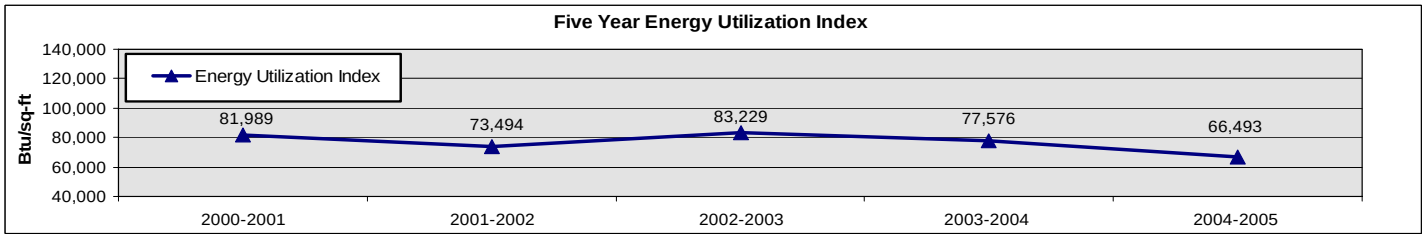


	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	6,669	5,279	6,042	6,729	6,979
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	10,354	8,610	24,923	20,251	30,527
Oil	gal	5,154	433	---	---	---
Electric	kwh	21,082,413	19,138,025	23,536,160	24,028,218	25,777,582
Energy Costs						
Anthracite Coal	$	$ 436,650	$ 345,773	$ 395,748	$ 511,856	$ 639,530
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 80,220	$ 74,429	$ 224,205	$ 201,386	$ 322,012
Oil	$	$ 5,184	$ 363	$ -	$ -	$ -
Electric	$	$ 1,337,803	$ 1,213,585	$ 1,491,631	$ 1,513,971	$ 1,664,551
Total	$	$ 1,859,857	$ 1,634,150	$ 2,111,584	$ 2,227,213	$ 2,626,093
Energy Consumption						
Anthracite Coal	mmBtu	168,726	133,559	152,863	170,244	176,569
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	10,561	8,782	25,421	20,656	31,138
Oil	mmBtu	722	61	---	---	---
Electric	mmBtu	71,954	65,318	80,329	82,008	87,979
Total	mmBtu	251,963	207,720	258,613	272,908	295,685
Energy Utilization Index	Btu/sq-ft	133,104	109,732	136,617	144,169	148,072
Unit Fuel Costs						
Anthracite Coal	$ / ton	$ 65.47	$ 65.50	$ 65.50	$ 76.07	$ 91.64
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 7.75	$ 8.64	$ 9.00	$ 9.94	$ 10.55
Oil	$ / gal	$ 1.01	$ 0.84	---	---	---
Electric	cts / kwh	6.35 ¢	6.34 ¢	6.34 ¢	6.30 ¢	6.46 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	$ 2.59	$ 2.59	$ 2.59	$ 3.01	$ 3.62
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 7.60	$ 8.47	$ 8.82	$ 9.75	$ 10.34
Oil	$ / mmBtu	$ 7.18	$ 5.99	---	---	---
Electric	$ / mmBtu	$ 18.59	$ 18.58	$ 18.57	$ 18.46	$ 18.92
Weighted Average	$ / mmBtu	$ 7.38	$ 7.87	$ 8.17	$ 8.16	$ 8.88
Misc Facility Costs						
Water Cost	$	$ 173,571	$ 149,652	$ 170,618	$ 170,897	$ 149,798
Sewage Cost	$	$ 120,363	$ 79,972	$ 143,867	$ 126,056	$ 173,831
Reported Information						
Gross Area	sq-ft	1,892,980	1,892,980	1,892,980	1,892,980	1,996,896
Reported Student Population		7,363	7,263	7,838	7,563	7,620
Reported Heating Degree Day	degree day	5,734	4,523	5,911	5,478	5,539
Reported Cooling Degree Day	degree day	713	561	887	885	834

1- Incomplete data received 2001-2002

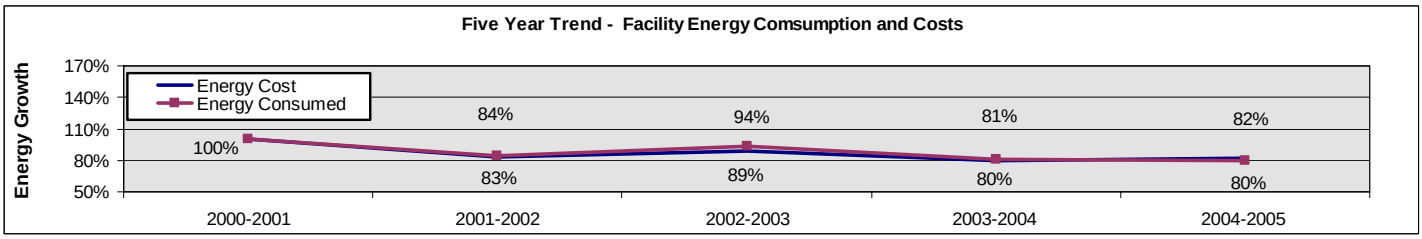
California University

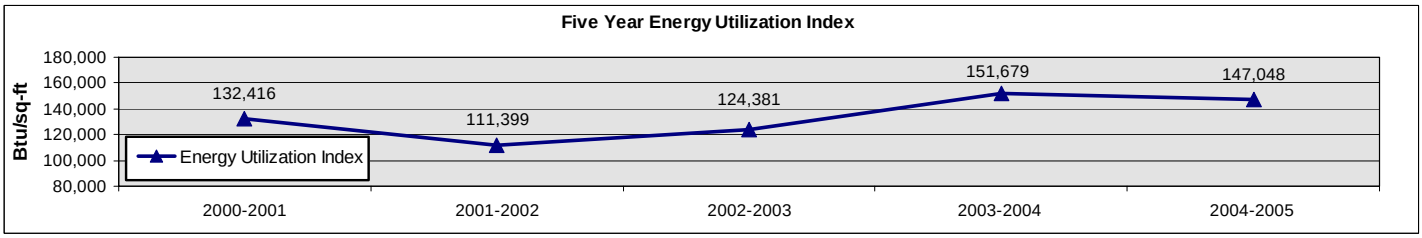




	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	50,163	42,321	48,420	44,712	37,969
Oil	gal	---	---	---	---	---
Electric	kwh	19,732,774	18,478,812	20,778,995	19,586,910	20,709,023
Energy Costs						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 445,735	$ 230,891	$ 317,186	$ 320,047	$ 280,408
Oil	$	---	---	---	---	---
Electric	$	$ 977,976	$ 931,725	$ 1,042,494	$ 983,231	$ 1,026,497
Total	$	$ 1,423,711	$ 1,162,616	$ 1,359,680	$ 1,303,277	$ 1,306,905
Energy Consumption						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	51,166	43,167	49,388	45,606	38,728
Oil	mmBtu	---	---	---	---	---
Electric	mmBtu	67,348	63,068	70,919	66,850	70,680
Total	mmBtu	118,514	106,236	120,307	112,456	109,408
Energy Utilization Index	Btu/sq-ft	81,989	73,494	83,229	77,576	66,493
Unit Fuel Costs						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 8.89	$ 5.46	$ 6.55	$ 7.16	$ 7.39
Oil	$ / gal	-	-	-	-	-
Electric	cts / kwh	4.96 ¢	5.04 ¢	5.02 ¢	5.02 ¢	4.96 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 8.71	$ 5.35	$ 6.42	$ 7.02	$ 7.24
Oil	$ / mmBtu	---	---	---	---	---
Electric	$ / mmBtu	$ 14.52	$ 14.77	$ 14.70	$ 14.71	$ 14.52
Weighted Average	$ / mmBtu	$ 12.01	$ 10.94	$ 11.30	$ 11.59	$ 11.95
Misc Facility Costs						
Water Cost	$	$ 153,650	$ 161,705	$ 178,875	$ 165,134	$ 191,075
Sewage Cost	$	$ 324,449	$ 350,364	$ 433,211	$ 515,387	$ 696,270
Reported Information						
Gross Area	sq-ft	1,445,498	1,445,498	1,445,498	1,449,622	1,645,404
Reported Student Population		5,623	5,191	5,652	5,499	5,813
Reported Heating Degree Day	degree day	5,968	4,991	6,029	5,924	5,529
Reported Cooling Degree Day	degree day	573	759	870	371	628

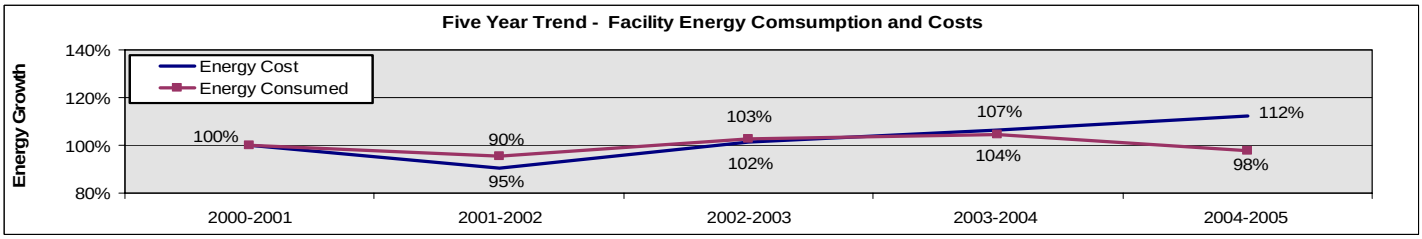
Cheyney University

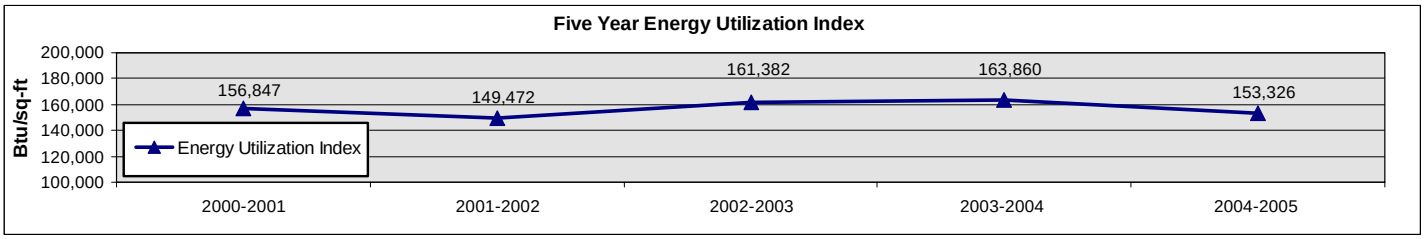




	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	153,279	130,247	141,718	116,915	105,586
Oil	gal	28,456	-	$ 30,344.00	48,284	115,531
Electric	kwh	11,214,100	10,028,690	11,060,700	10,023,000	10,303,000
Energy Costs						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 1,169,011	$ 895,943	$ 869,169	$ 777,231	$ 712,837
Oil	$	$ 32,724	$ -	$ 32,768.00	$ 52,114	$ 139,130
Electric	$	$ 834,244	$ 801,929	$ 904,778	$ 792,945	$ 826,651
Total	$	$ 2,035,979	$ 1,697,872	$ 1,806,715	$ 1,622,290	$ 1,678,618
Energy Consumption						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	156,344	132,851	144,552	119,253	107,698
Oil	mmBtu	3,984	-	$ 4,248.16	6,760	16,174
Electric	mmBtu	38,274	34,228	37,750	34,208	35,164
Total	mmBtu	198,602	167,079	186,551	160,222	159,036
Energy Utilization Index	Btu/sq-ft	132,416	111,399	124,381	151,679	147,048
Unit Fuel Costs						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 7.63	$ 6.88	$ 6.13	$ 6.65	$ 6.75
Oil	$ / gal	$ 1.15	-	$ 1.08	$ 1.08	$ 1.20
Electric	cts / kwh	7.44 ¢	8.00 ¢	8.18 ¢	7.91 ¢	8.02 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 7.48	$ 6.74	$ 6.01	$ 6.52	$ 6.62
Oil	$ / mmBtu	$ 8.21	---	$ 7.71	$ 7.71	$ 8.60
Electric	$ / mmBtu	$ 21.80	$ 23.43	$ 23.97	$ 23.18	$ 23.51
Weighted Average	$ / mmBtu	$ 10.25	$ 10.16	$ 9.68	$ 10.13	$ 10.55
Misc Facility Costs						
Water Cost	$	$ 69,331	$ 66,315	$ 62,902	$ 69,776	$ 68,441
Sewage Cost	$	$ 52,065	$ 46,207	$ 52,637	$ 54,724	$ 59,006
Reported Information						
Gross Area	sq-ft	1,499,834	1,499,834	1,499,834	1,056,317	1,081,527
Reported Student Population		1,444	1,204	1,531	1,191	1,322
Reported Heating Degree Day	degree day	4,848	3,984	4,624	4,686	4,629
Reported Cooling Degree Day	degree day	832	1,102	1,224	1,107	1,257

Clarion University

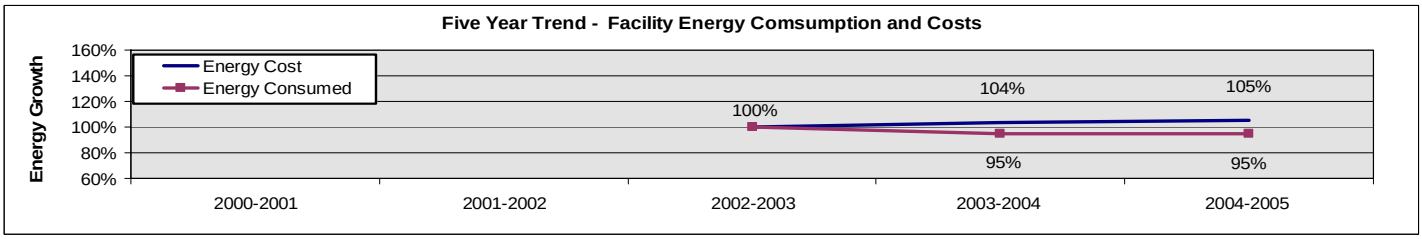


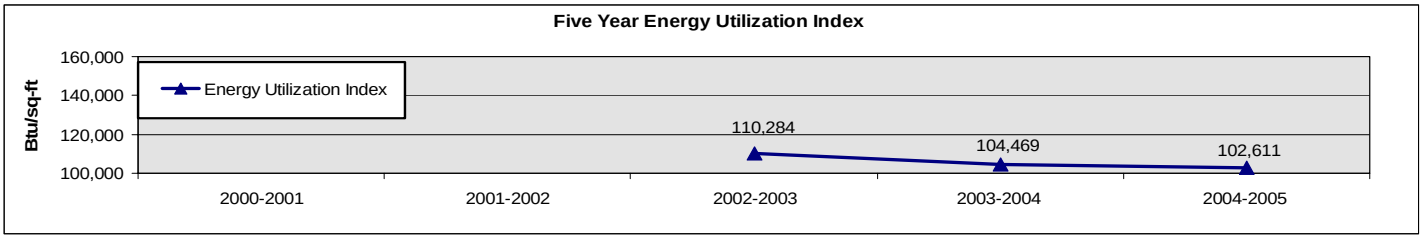


	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	182,023	167,258	181,833	185,081	173,532
Oil	gal	-	-	-	-	-
Electric[(1)]	kwh	16,588,800	17,663,554	18,697,944	18,849,084	17,481,082
Energy Costs						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 1,267,171	$ 1,031,624	$ 1,310,970	$ 1,405,246	$ 1,557,531
Oil	$	---	---	---	---	---
Electric[(1)]	$	$ 763,855	$ 803,349	$ 751,942	$ 759,561	$ 720,309
Total	$	$ 2,031,026	$ 1,834,973	$ 2,062,912	$ 2,164,808	$ 2,277,841
Energy Consumption						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	185,664	170,603	185,470	188,783	177,003
Oil	mmBtu	---	---	---	---	---
Electric[(1)]	mmBtu	56,618	60,286	63,816	64,332	59,663
Total	mmBtu	242,281	230,888	249,286	253,115	236,666
Energy Utilization Index	Btu/sq-ft	156,847	149,472	161,382	163,860	153,326
Unit Fuel Costs						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 6.96	$ 6.17	$ 7.21	$ 7.59	$ 8.98
Oil	$ / gal	---	---	---	---	---
Electric	cts / kwh	4.60 ¢	4.55 ¢	4.02 ¢	4.03 ¢	4.12 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 6.83	$ 6.05	$ 7.07	$ 7.44	$ 8.80
Oil	$ / mmBtu	---	---	---	---	---
Electric	$ / mmBtu	$ 13.49	$ 13.33	$ 11.78	$ 11.81	$ 12.07
Weighted Average	$ / mmBtu	$ 8.38	$ 7.95	$ 8.28	$ 8.55	$ 9.62
Misc Facility Costs						
Water Cost	$	$ 181,895	$ 154,531	$ 180,552	$ 214,054	$ 184,041
Sewage Cost	$	$ 95,268	$ 90,626	$ 86,684	$ 105,202	$ 83,102
Reported Information						
Gross Area	sq-ft	1,544,697	1,544,697	1,544,697	1,544,697	1,543,540
Reported Student Population		5,923	5,463	6,159	5,344	5,233
Reported Heating Degree Day	degree day	5,713	3,008	5,674	5,361	5,162
Reported Cooling Degree Day	degree day	443	483	334	440	471

(1) Data do not include Venango Campus

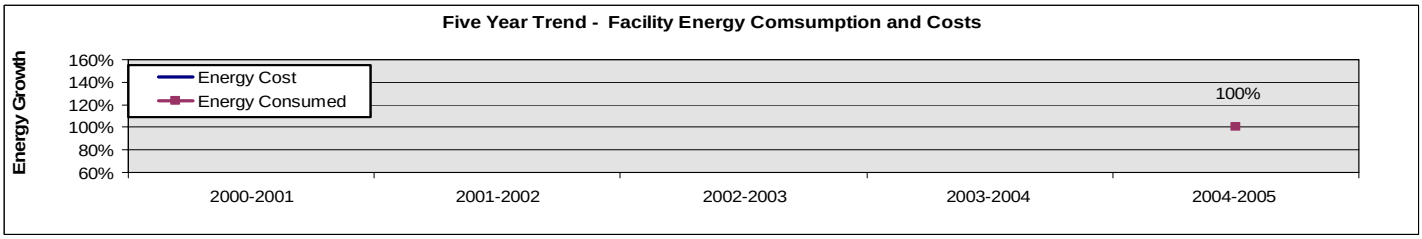
Clarion University – Venango Campus

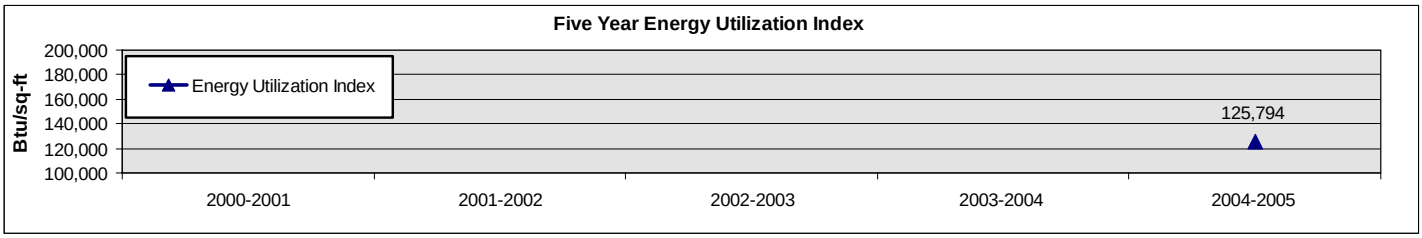




	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	---	---	3,877	3,188	3,241
Oil	gal	---	---	-	-	-
Electric	kwh	---	---	1,327,360	1,402,180	1,396,060
Energy Costs						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	---	---	---	---	---
Gas	$	---	---	$ 32,633	$ 32,141	$ 35,191
Oil	$	---	---	---	---	---
Electric	$	---	---	$ 100,555	$ 105,993	$ 104,587
Total	$	---	---	$ 133,188	$ 138,134	$ 139,778
Energy Consumption						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	---	---	3,955	3,252	3,306
Oil	mmBtu	---	---	---	---	---
Electric	mmBtu	---	---	4,530	4,786	4,765
Total	mmBtu	---	---	8,485	8,037	8,071
Energy Utilization Index	Btu/sq-ft	---	---	110,284	104,469	102,611
Unit Fuel Costs						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	---	---	$ 8.42	$ 10.08	$ 10.86
Oil	$ / gal	---	---	---	---	---
Electric	cts / kwh	---	---	7.58 ¢	7.56 ¢	7.49 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	---	---	$ 8.25	$ 9.88	$ 10.65
Oil	$ / mmBtu	---	---	---	---	---
Electric	$ / mmBtu	---	---	$ 22.20	$ 22.15	$ 21.95
Weighted Average	$ / mmBtu	---	---	$ 15.70	$ 17.19	$ 17.32
Misc Facility Costs						
Water Cost	$	---	---	$ 1,902	$ 1,652	$ 1,727
Sewage Cost	$	---	---	$ 1,437	$ 1,280	$ 1,280
Reported Information						
Gross Area	sq-ft	---	---	76,936	76,936	78,652
Reported Student Population		---	---	---	489	521
Reported Heating Degree Day	degree day	---	---	---	---	---
Reported Cooling Degree Day	degree day	---	---	---	---	---

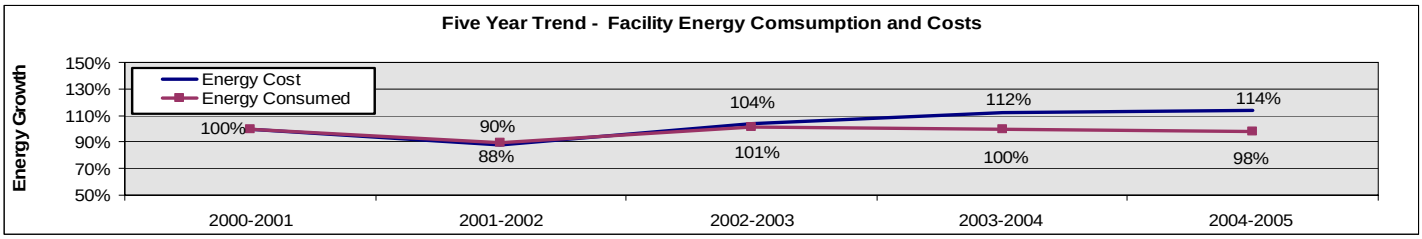
Dixon University Center

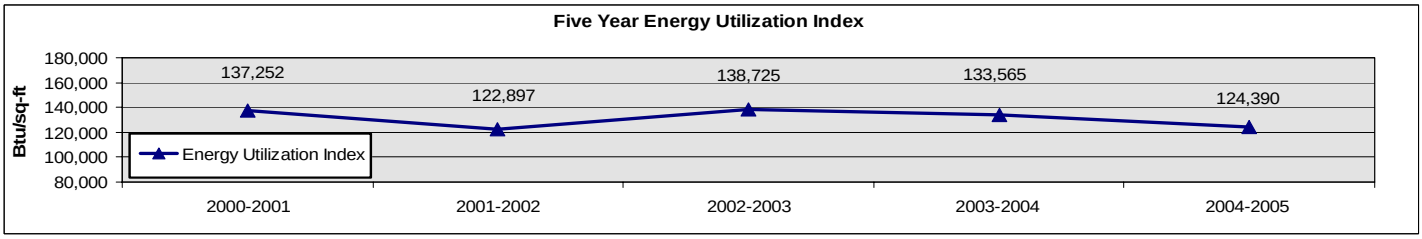




	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	---	---	---	---	11,864
Oil	gal	---	---	---	---	---
Electric	kwh	---	---	---	---	1,825,700
Energy Costs						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	---	---	---	---	---
Gas	$	---	---	---	---	$ 109,867
Oil	$	---	---	---	---	---
Electric	$	---	---	---	---	$ 142,828
Total	$	---	---	---	---	$ 252,695
Energy Consumption						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	---	---	---	---	12,101
Oil	mmBtu	---	---	---	---	---
Electric	mmBtu	---	---	---	---	6,231
Total	mmBtu	---	---	---	---	18,332
Energy Utilization Index	Btu/sq-ft	---	---	---	---	125,794
Unit Fuel Costs						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	---	---	---	---	$ 9.26
Oil	$ / gal	---	---	---	---	---
Electric	cts / kwh	---	---	---	---	7.82 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	---	---	---	---	$ 9.08
Oil	$ / mmBtu	---	---	---	---	---
Electric	$ / mmBtu	---	---	---	---	$ 22.92
Weighted Average	$ / mmBtu	---	---	---	---	$ 13.78
Misc Facility Costs						
Water Cost	$	---	---	---	---	$ 27,499
Sewage Cost	$	---	---	---	---	$ 4,640
Reported Information						
Gross Area	sq-ft	---	---	---	---	145,734
Reported Student Population		---	---	---	---	---
Reported Heating Degree Day	degree day	---	---	---	---	5,069
Reported Cooling Degree Day	degree day	---	---	---	---	1,196

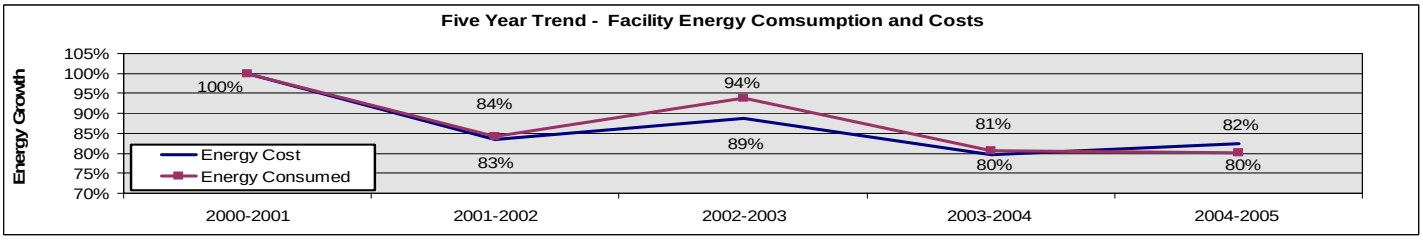
East Stroudsburg University

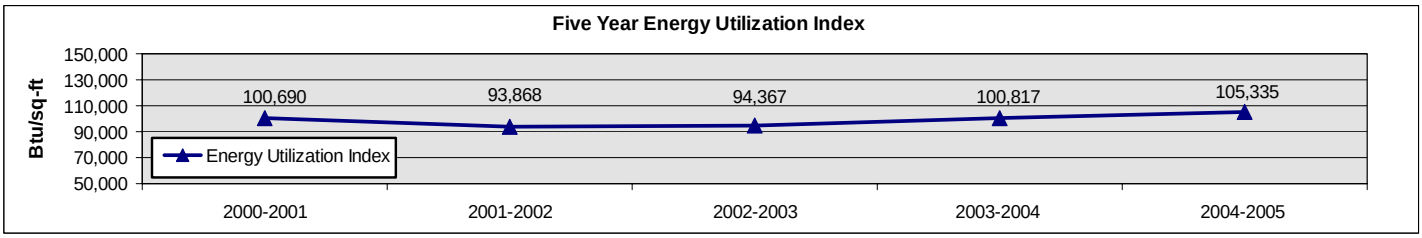




	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	65,059	111,555	131,050	123,123	119,911
Oil	gal	494,378	5,203	12,806	6,956	6,610
Electric	kwh	16,773,600	17,034,800	17,412,000	19,148,300	19,020,000
Energy Costs						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 436,014	$ 626,851	$ 872,091	$ 941,195	$ 940,300
Oil	$	$ 442,963	$ 3,195	$ 6,858	$ 8,274	$ 11,877
Electric	$	$ 1,033,336	$ 1,052,736	$ 1,107,599	$ 1,201,832	$ 1,222,889
Total	$	$ 1,912,313	$ 1,682,782	$ 1,986,548	$ 2,151,301	$ 2,175,066
Energy Consumption						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	66,360	113,786	133,671	125,586	122,310
Oil	mmBtu	69,213	728	1,793	974	925
Electric	mmBtu	57,248	58,140	59,427	65,353	64,915
Total	mmBtu	192,822	172,655	194,891	191,913	188,150
Energy Utilization Index	Btu/sq-ft	137,252	122,897	138,725	133,565	124,390
Unit Fuel Costs						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 6.70	$ 5.62	$ 6.65	$ 7.64	$ 7.84
Oil	$ / gal	$ 0.90	$ 0.61	$ 0.54	$ 1.19	$ 1.80
Electric	cts / kwh	6.16 ¢	6.18 ¢	6.36 ¢	6.28 ¢	6.43 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 6.57	$ 5.51	$ 6.52	$ 7.49	$ 7.69
Oil	$ / mmBtu	$ 6.40	$ 4.39	$ 3.83	$ 8.50	$ 12.84
Electric	$ / mmBtu	$ 18.05	$ 18.11	$ 18.64	$ 18.39	$ 18.84
Weighted Average	$ / mmBtu	$ 9.92	$ 9.75	$ 10.19	$ 11.21	$ 11.56
Misc Facility Costs						
Water Cost	$	$ 93,311	$ 105,469	$ 115,151	$ 110,213	$ 109,694
Sewage Cost	$	$ 85,075	$ 94,982	$ 104,778	$ 102,282	$ 97,022
Reported Information						
Gross Area	sq-ft	1,404,874	1,404,874	1,404,874	1,436,850	1,512,587
Reported Student Population		5,514	5,022	5,953	5,348	5,684
Reported Heating Degree Day	degree day	5,686	4,700	5,945	5,336	5,483
Reported Cooling Degree Day	degree day	669	695	800	551	536

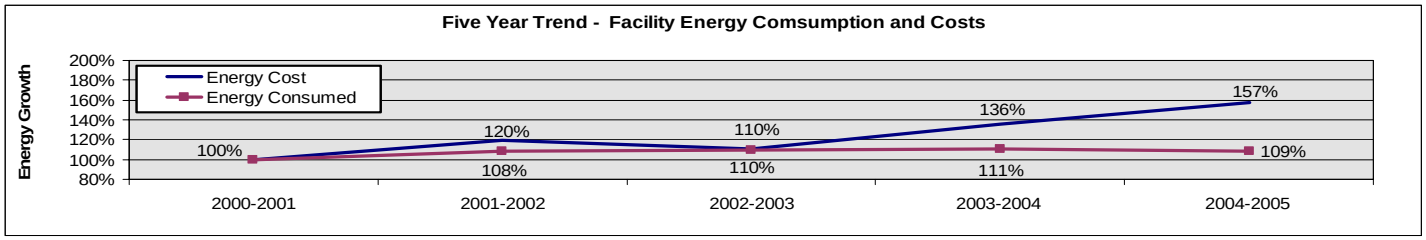
Edinboro University

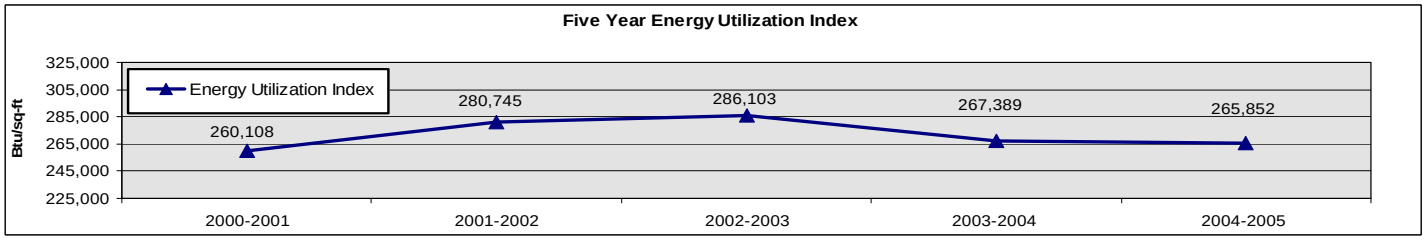




	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	42,675	38,997	39,926	52,233	62,673
Oil	gal	---	---	---	---	---
Electric	kwh	41,633,679	39,048,303	41,532,446	41,030,835	40,408,019
Energy Costs						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 346,257	$ 259,438	$ 300,327	$ 434,417	$ 587,453
Oil	$	---	---	---	---	---
Electric	$	$ 2,121,890	$ 2,069,283	$ 2,183,979	$ 2,239,884	$ 2,115,990
Total	$	$ 2,468,147	$ 2,328,721	$ 2,484,305	$ 2,674,301	$ 2,703,443
Energy Consumption						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	43,528	39,777	40,725	53,277	63,926
Oil	mmBtu	---	---	---	---	---
Electric	mmBtu	142,096	133,272	141,750	140,038	137,913
Total	mmBtu	185,624	173,048	182,475	193,315	201,839
Energy Utilization Index	Btu/sq-ft	100,690	93,868	94,367	100,817	105,335
Unit Fuel Costs						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 8.11	$ 6.65	$ 7.52	$ 8.32	$ 9.37
Oil	$ / gal	---	---	---	---	---
Electric	cts / kwh	5.10 ¢	5.30 ¢	5.26 ¢	5.46 ¢	5.24 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 7.95	$ 6.52	$ 7.37	$ 8.15	$ 9.19
Oil	$ / mmBtu	---	---	---	---	---
Electric	$ / mmBtu	$ 14.93	$ 15.53	$ 15.41	$ 15.99	$ 15.34
Weighted Average	$ / mmBtu	$ 13.30	$ 13.46	$ 13.61	$ 13.83	$ 13.39
Misc Facility Costs						
Water Cost	$	$ 131,863	$ 111,722	$ 115,835	$ 142,142	$ 203,783
Sewage Cost	$	$ 239,416	$ 156,340	$ 239,556	$ 240,150	$ 276,429
Reported Information						
Gross Area	sq-ft	1,843,522	1,843,522	1,933,676	1,917,482	1,916,156
Reported Student Population		6,805	6,809	7,224	6,456	6,747
Reported Heating Degree Day	degree day	6,657	5,762	7,013	6,583	6,893
Reported Cooling Degree Day	degree day	480	562	461	537	299

Indiana University

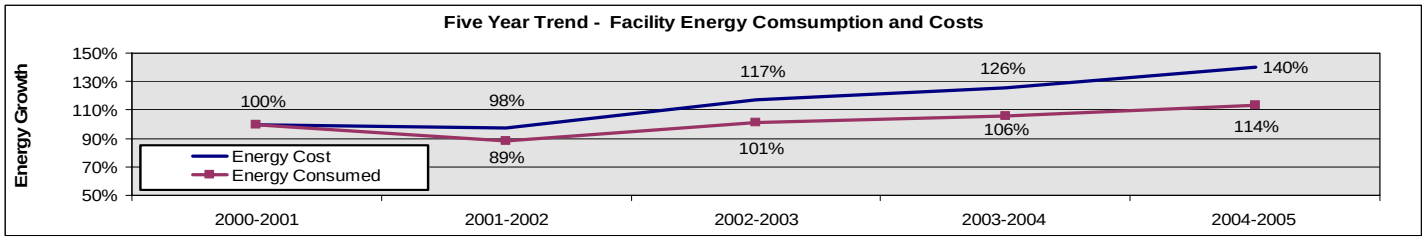


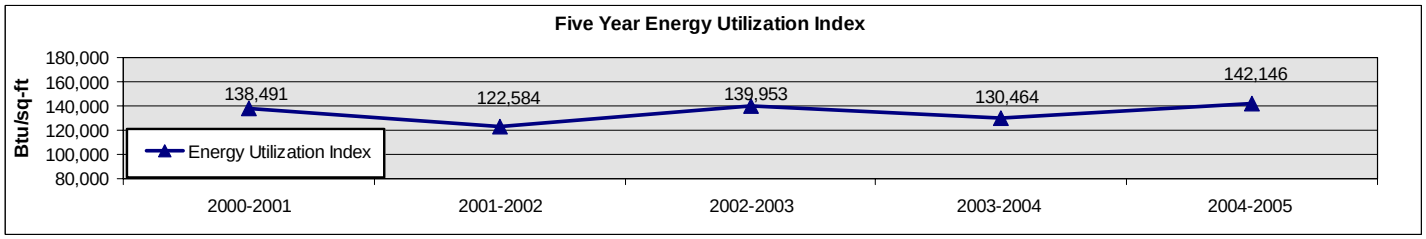


	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption[(1)]						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	734,712	799,688	813,172	817,077	799,992
Oil	gal	74,529	69,463	74,905	76,614	91,467
Electric	kwh	4,321,239	3,428,076	3,653,141	3,469,933	2,248,955
Energy Costs[(1)]						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 3,304,171	$ 4,053,123	$ 3,653,582	$ 4,607,379	$ 5,380,721
Oil	$	$ 77,078	$ 59,435	$ 82,359	$ 67,034	$ 152,419
Electric Purchased	$	$ 271,214	$ 260,531	$ 297,219	$ 277,688	$ 206,269
Total	$	$ 3,652,463	$ 4,373,089	$ 4,033,159	$ 4,952,101	$ 5,739,410
Energy Consumption[(1)]						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	744,414	809,227	824,311	828,189	815,991
Oil	mmBtu	10,355	9,644	9,644	10,650	12,805
Electric Purchased	mmBtu	14,748	11,700	12,468	11,843	7,676
Total	mmBtu	769,516	830,571	846,424	850,682	836,472
Energy Utilization Index	Btu/sq-ft	260,108	280,745	286,103	267,389	265,852
Unit Fuel Costs[(1)]						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 4.50	$ 5.07	$ 4.49	$ 5.64	$ 6.73
Oil	$ / gal	$ 1.03	$ 0.86	$ 1.10	$ 0.87	$ 1.67
Electric Purchased	cts / kwh	6.28 ¢	7.60 ¢	8.14 ¢	8.00 ¢	9.17 ¢
Unit Energy Costs[(1)]						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 4.44	$ 5.01	$ 4.43	$ 5.56	$ 6.59
Oil	$ / mmBtu	$ 7.44	$ 6.16	$ 8.54	$ 6.29	$ 11.90
Electric Purchased	$ / mmBtu	$ 18.39	$ 22.27	$ 23.84	$ 23.45	$ 26.87
Weighted Average	$ / mmBtu	$ 4.75	$ 5.27	$ 4.76	$ 5.82	$ 6.86
Misc Facility Costs						
Water Cost	$	$ 423,152	$ 307,980	$ 297,219	$ 500,681	$ 440,236
Sewage Cost (2)	$	$ 515,353	$ 628,129	$ 438,539	$ 485,190	$ 728,779
Reported Information						
Gross Area	sq-ft	2,958,454	2,958,454	2,958,454	3,181,437	3,146,384
Reported Student Population		12,628	11,503	#VALUE!	11,862	12,257
Reported Heating Degree Day	degree day	5,864	4,788	5,696	5,593	5,762
Reported Cooling Degree Day	degree day	331	611	809	570	455

(1) Data reflects campus usage only.
(2) Sewage costs for 2004-2005 include payments held during 2003-2004 service agreement negotiations.

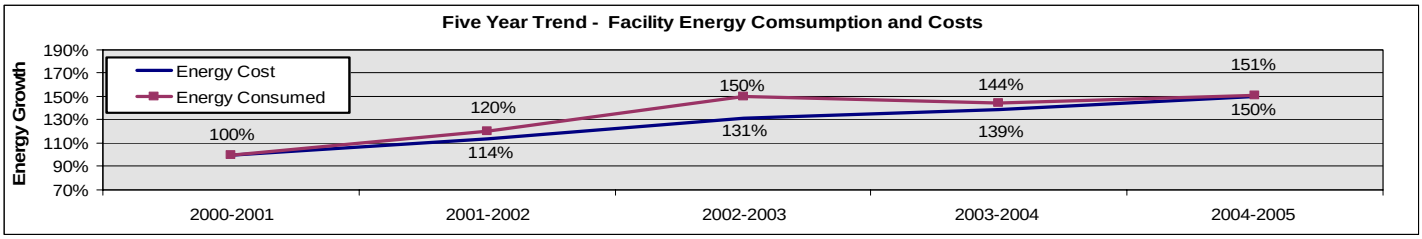
Kutztown University

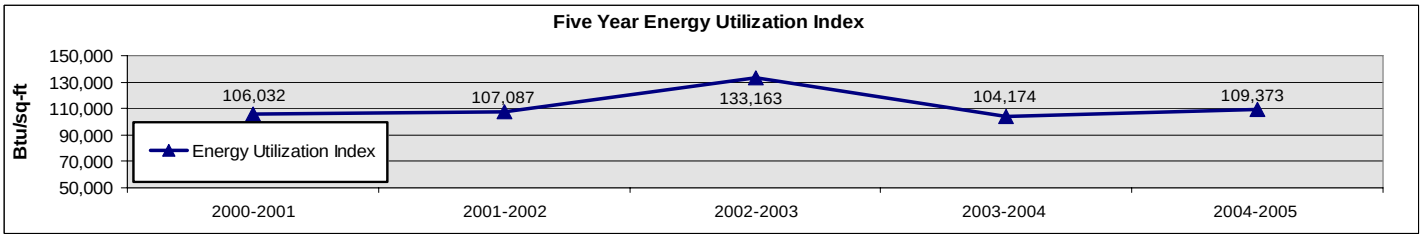




	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	5,962	4,706	5,904	5,758	5,906
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	27,147	27,534	23,705	30,561	43,023
Oil	gal	2,171	2,355	3,500	2,509	2,863
Electric	kwh	20,394,124	21,203,502	22,562,851	24,932,121	25,855,391
Energy Costs						
Anthracite Coal	$	$ 279,826	$ 217,671	$ 428,307	$ 426,811	$ 437,761
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 188,027	$ 101,512	$ 111,515	$ 136,737	$ 283,277
Oil	$	$ 2,043	$ 1,693	$ 3,803	$ 2,813	$ 5,749
Electric	$	$ 1,208,268	$ 1,315,618	$ 1,419,886	$ 1,544,055	$ 1,628,977
Total	$	$ 1,678,164	$ 1,636,495	$ 1,963,511	$ 2,110,416	$ 2,355,764
Energy Consumption						
Anthracite Coal	mmBtu	150,242	118,591	148,781	145,102	148,820
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	27,690	28,085	24,179	31,172	43,883
Oil	mmBtu	304	330	490	351	401
Electric	mmBtu	69,605	72,368	77,007	85,093	88,244
Total	mmBtu	247,841	219,373	250,457	261,718	281,348
Energy Utilization Index	Btu/sq-ft	138,491	122,584	139,953	130,464	142,146
Unit Fuel Costs						
Anthracite Coal	$ / ton	$ 46.93	$ 46.25	$ 72.55	$ 74.12	$ 74.13
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 6.93	$ 3.69	$ 4.70	$ 4.47	$ 6.58
Oil	$ / gal	$ 0.94	$ 0.72	$ 1.09	$ 1.12	$ 2.01
Electric	cts / kwh	5.92 ¢	6.20 ¢	6.29 ¢	6.19 ¢	6.30 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	$ 1.86	$ 1.84	$ 2.88	$ 2.94	$ 2.94
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 6.79	$ 3.61	$ 4.61	$ 4.39	$ 6.46
Oil	$ / mmBtu	$ 6.72	$ 5.14	$ 7.76	$ 8.01	$ 14.34
Electric	$ / mmBtu	$ 17.36	$ 18.18	$ 18.44	$ 18.15	$ 18.46
Weighted Average	$ / mmBtu	$ 6.77	$ 7.46	$ 7.84	$ 8.06	$ 8.37
Misc Facility Costs						
Water Cost	$	$ 132,440	$ 284,105	$ 297,967	$ 312,823	$ 339,556
Sewage Cost	$	$ 398,388	$ 472,260	$ 436,849	$ 408,282	$ 448,534
Reported Information						
Gross Area	sq-ft	1,789,579	1,789,579	1,789,579	2,006,055	1,979,285
Reported Student Population		7,220	7,246	7,831	8,037	8,490
Reported Heating Degree Day	degree day	5,204	4,607	5,583	5,097	5,054
Reported Cooling Degree Day	degree day	953	982	1,101	997	1,533

Lock Haven University

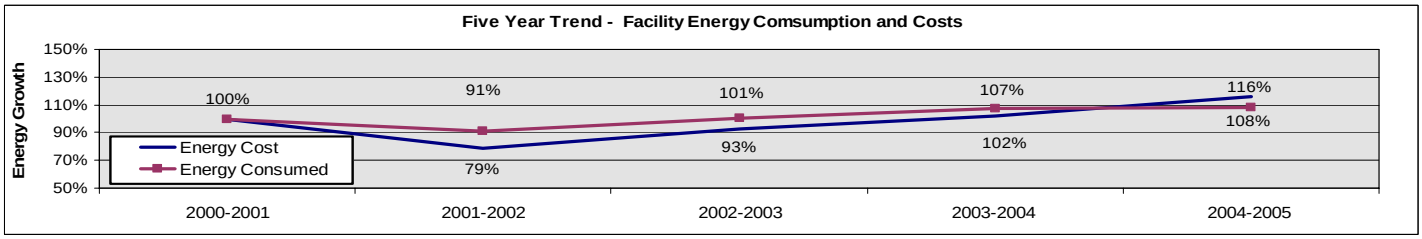


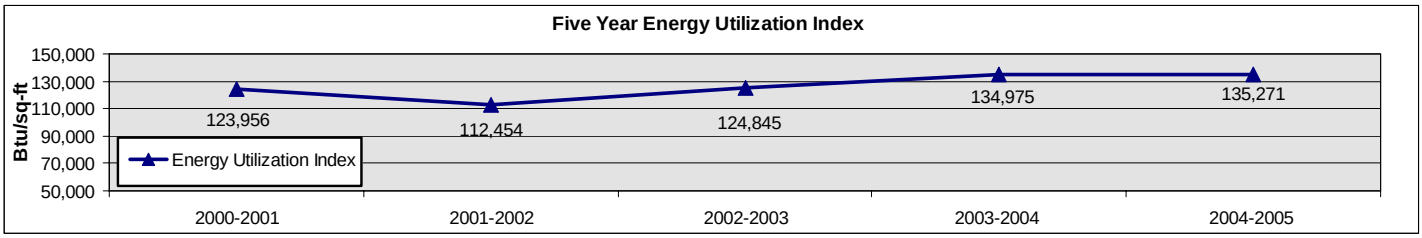


	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	73,525	94,943	116,973	109,890	118,097
Oil	gal	7,111	295	64,611	58,871	4,368
Electric	kwh	11,705,400	12,536,000	13,278,600	13,689,817	15,915,706
Energy Costs						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 540,166	$ 640,492	$ 733,017	$ 818,922	$ 992,768
Oil	$	$ 7,247	$ 192	$ 67,745	$ 57,504	$ 6,304
Electric [2]	$	$ 815,615	$ 907,180	$ 985,569	$ 1,021,011	$ 1,049,824
Total	$	$ 1,363,028	$ 1,547,864	$ 1,786,331	$ 1,897,437	$ 2,048,896
Energy Consumption						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	74,996	96,842	119,312	112,088	120,459
Oil	mmBtu	996	41	9,046	8,242	612
Electric	mmBtu	39,951	42,785	45,320	46,723	54,320
Total	mmBtu	115,942	139,669	173,678	167,053	175,391
Energy Utilization Index	Btu/sq-ft	106,032	107,087	133,163	104,174	109,373
Unit Fuel Costs						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 7.35	$ 6.75	$ 6.27	$ 7.45	$ 8.41
Oil	$ / gal	$ 1.02	$ 0.65	$ 1.05	$ 0.98	$ 1.44
Electric	cts / kwh	6.97 ¢	7.24 ¢	7.42 ¢	7.46 ¢	6.60 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 7.20	$ 6.61	$ 6.14	$ 7.31	$ 8.24
Oil	$ / mmBtu	$ 7.28	$ 4.65	$ 7.49	$ 6.98	$ 10.31
Electric	$ / mmBtu	$ 20.42	$ 21.20	$ 21.75	$ 21.85	$ 19.33
Weighted Average	$ / mmBtu	$ 11.76	$ 11.08	$ 10.29	$ 11.36	$ 11.68
Misc Facility Costs						
Water Cost	$	$ 57,439	$ 63,499	$ 55,435	$ 51,953	$ 55,841
Sewage Cost	$	$ 76,495	$ 74,702	$ 72,194	$ 66,121	$ 63,395
Reported Information						
Gross Area [1]	sq-ft	1,093,458	1,304,255	1,304,255	1,603,597	1,603,597
Reported Student Population		3,836	3,785	4,455	4,144	4,711
Reported Heating Degree Day	degree day	5,242	5,246	6,438	5,972	5,211
Reported Cooling Degree Day	degree day	1,203	550	823	723	465

(1) Note revised Gross Area
(2) Electric data prior to 2004-2005 did not include electric kwh from all accounts

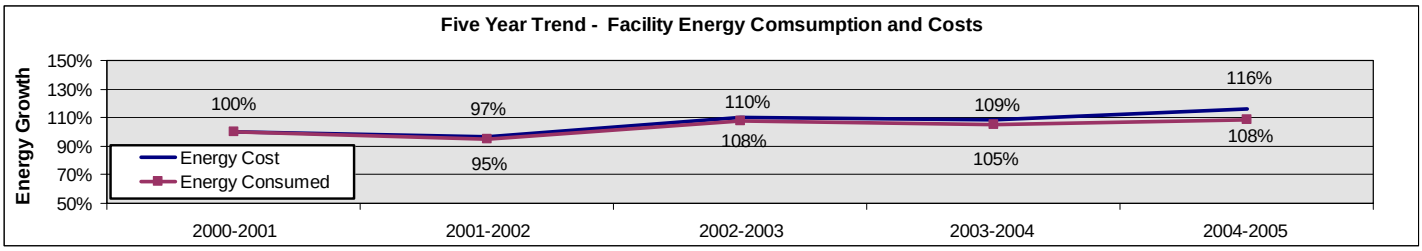
Mansfield University

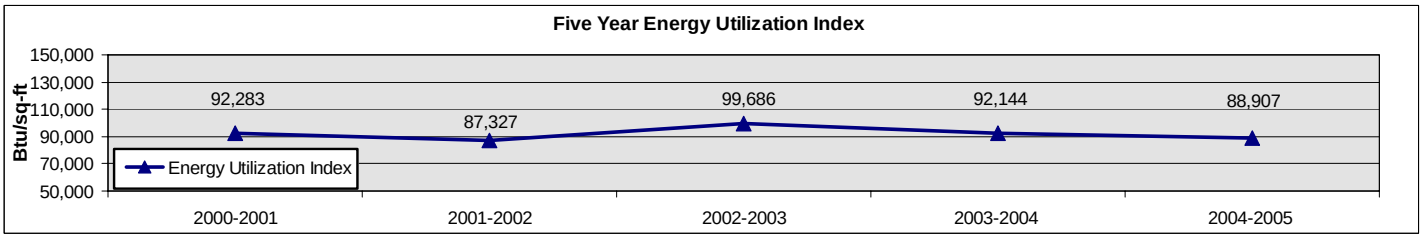




	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	104,439	99,107	107,198	115,612	118,086
Oil	gal	42,584	---	---	---	---
Electric	kwh	13,501,983	12,531,027	14,757,401	15,366,840	15,079,438
Energy Costs						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 742,333	$ 493,259	$ 553,674	$ 694,180	$ 894,772
Oil	$	$ 36,509	---	---	---	---
Electric	$	$ 772,693	$ 731,799	$ 882,321	$ 882,925	$ 899,182
Total	$	$ 1,551,535	$ 1,225,058	$ 1,435,995	$ 1,577,105	$ 1,793,955
Energy Consumption						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	106,528	101,090	109,342	117,924	120,448
Oil	mmBtu	5,962	---	---	---	---
Electric	mmBtu	46,082	42,768	50,367	52,447	51,466
Total	mmBtu	158,572	143,858	159,709	170,371	171,914
Energy Utilization Index	Btu/sq-ft	123,956	112,454	124,845	134,975	135,271
Unit Fuel Costs						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 7.11	$ 4.98	$ 5.16	$ 6.00	$ 7.58
Oil	$ / gal	$ 0.86	---	---	---	---
Electric	cts / kwh	5.72 ¢	5.84 ¢	5.98 ¢	5.75 ¢	5.96 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 6.97	$ 4.88	$ 5.06	$ 5.89	$ 7.43
Oil	$ / mmBtu	$ 6.12	---	---	---	---
Electric	$ / mmBtu	$ 16.77	$ 17.11	$ 17.52	$ 16.83	$ 17.47
Weighted Average	$ / mmBtu	$ 9.78	$ 8.52	$ 8.99	$ 9.26	$ 10.44
Misc Facility Costs						
Water Cost	$	$ 53,443	$ 42,563	$ 56,337	$ 66,142	$ 77,315
Sewage Cost	$	$ 108,675	$ 88,541	$ 117,500	$ 117,500	$ 121,340
Reported Information						
Gross Area	sq-ft	1,279,259	1,279,259	1,279,259	1,262,238	1,270,884
Reported Student Population		2,890	2,832	3,212	3,114	3,023
Reported Heating Degree Day	degree day	6,683	4,729	6,741	6,029	5,984
Reported Cooling Degree Day	degree day	554	577	653	704	849

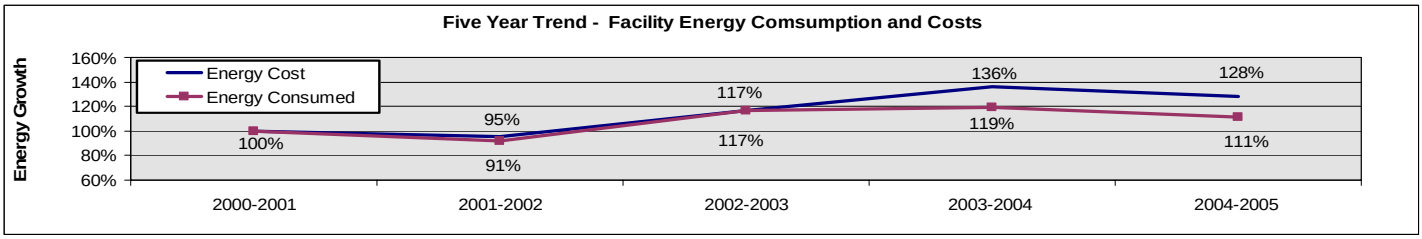
Millersville University

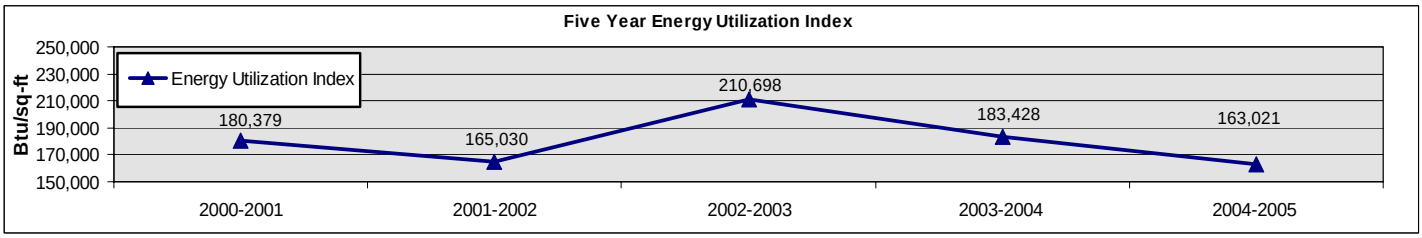




	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	3,489	4,427	11,281	13,791	14,929
Oil	gal	40,276	33,001	45,611	37,749	40,325
Electric	kwh	44,209,345	41,708,554	45,424,244	43,531,477	44,605,425
Energy Costs						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 37,815	$ 42,742	$ 120,748	$ 151,326	$ 189,086
Oil	$	$ 39,663	$ 22,314	$ 46,498	$ 41,089	$ 65,381
Electric	$	$ 2,476,850	$ 2,410,338	$ 2,650,519	$ 2,589,200	$ 2,710,559
Total	$	$ 2,554,328	$ 2,475,394	$ 2,817,765	$ 2,781,615	$ 2,965,026
Energy Consumption						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	3,559	4,516	11,507	14,067	15,227
Oil	mmBtu	5,639	4,620	6,386	5,285	5,646
Electric	mmBtu	150,886	142,351	155,033	148,573	152,238
Total	mmBtu	160,084	151,487	172,925	167,925	173,111
Energy Utilization Index	Btu/sq-ft	92,283	87,327	99,686	92,144	88,907
Unit Fuel Costs						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 10.84	$ 9.65	$ 10.70	$ 10.97	$ 12.67
Oil	$ / gal	$ 0.98	$ 0.68	$ 1.02	$ 1.09	$ 1.62
Electric	cts / kwh	5.60 ¢	5.78 ¢	5.84 ¢	5.95 ¢	6.08 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 10.63	$ 9.47	$ 10.49	$ 10.76	$ 12.42
Oil	$ / mmBtu	$ 7.03	$ 4.83	$ 7.28	$ 7.77	$ 11.58
Electric	$ / mmBtu	$ 16.42	$ 16.93	$ 17.10	$ 17.43	$ 17.80
Weighted Average	$ / mmBtu	$ 15.96	$ 16.34	$ 16.29	$ 16.56	$ 17.13
Misc Facility Costs						
Water Cost	$	$ 79,613	$ 80,711	$ 80,931	$ 80,805	$ 90,746
Sewage Cost	$	$ 355,478	$ 361,480	$ 361,187	$ 470,829	$ 579,655
Reported Information						
Gross Area	sq-ft	1,734,705	1,734,705	1,734,705	1,822,427	1,947,112
Reported Student Population		7,119	6,363	7,632	6,792	6,971
Reported Heating Degree Day	degree day	5,404	4,914	5,957	5,310	5,340
Reported Cooling Degree Day	degree day	861	1,271	1,197	1,122	980

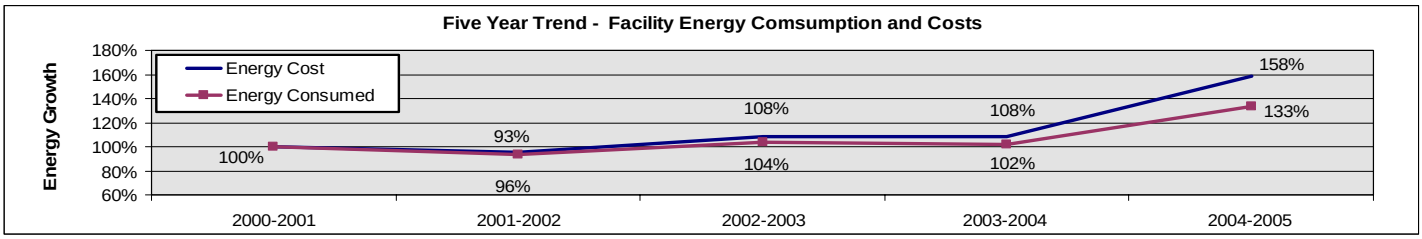
Shippensburg University

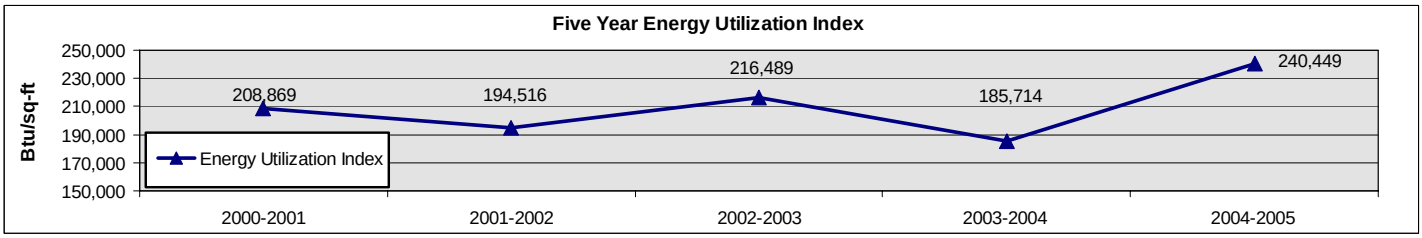




	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	7,462	6,823	9,317	8,242	8,522
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	17,495	14,372	14,758	44,112	19,147
Oil	gal	---	---	---	---	---
Electric	kwh	21,145,089	19,863,822	21,960,379	23,177,650	21,724,144
Energy Costs						
Anthracite Coal	$	$ 399,980	$ 390,407	$ 654,082	$ 683,383	$ 796,445
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 113,442	$ 93,247	$ 79,517	$ 306,647	$ 138,841
Oil	$	---	---	---	---	---
Electric	$	$ 1,128,987	$ 1,080,480	$ 1,185,781	$ 1,244,242	$ 1,172,188
Total	$	$ 1,642,409	$ 1,564,134	$ 1,919,380	$ 2,234,272	$ 2,107,474
Energy Consumption						
Anthracite Coal	mmBtu	188,042	171,940	234,788	207,698	214,754
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	17,845	14,659	15,053	44,994	19,530
Oil	mmBtu	---	---	---	---	---
Electric	mmBtu	72,168	67,795	74,951	79,105	74,145
Total	mmBtu	278,055	254,394	324,792	331,798	308,429
Energy Utilization Index	Btu/sq-ft	180,379	165,030	210,698	183,428	163,021
Unit Fuel Costs						
Anthracite Coal	$ / ton	$ 53.60	$ 57.22	$ 70.20	$ 82.91	$ 93.46
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 6.48	$ 6.49	$ 5.39	$ 6.95	$ 7.25
Oil	$ / gal	---	---	---	---	---
Electric	cts / kwh	5.34 ¢	5.44 ¢	5.40 ¢	5.37 ¢	5.40 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	$ 2.13	$ 2.27	$ 2.79	$ 3.29	$ 3.71
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 6.36	$ 6.36	$ 5.28	$ 6.82	$ 7.11
Oil	$ / mmBtu	---	---	---	---	---
Electric	$ / mmBtu	$ 15.64	$ 15.94	$ 15.82	$ 15.73	$ 15.81
Weighted Average	$ / mmBtu	$ 5.91	$ 6.15	$ 5.91	$ 6.73	$ 6.83
Misc Facility Costs						
Water Cost	$	$ 216,539	$ 259,055	$ 273,065	$ 295,226	$ 315,264
Sewage Cost	$	$ 330,603	$ 146,702	$ 91,851	$ 145,975	$ 99,734
Reported Information						
Gross Area	sq-ft	1,541,507	1,541,507	1,541,507	1,808,874	1,891,961
Reported Student Population		6,406	6,351	6,953	6,767	6,752
Reported Heating Degree Day	degree day	5,387	4,095	5,491	5,114	5,173
Reported Cooling Degree Day	degree day	1,051	1,207	1,159	1,083	939

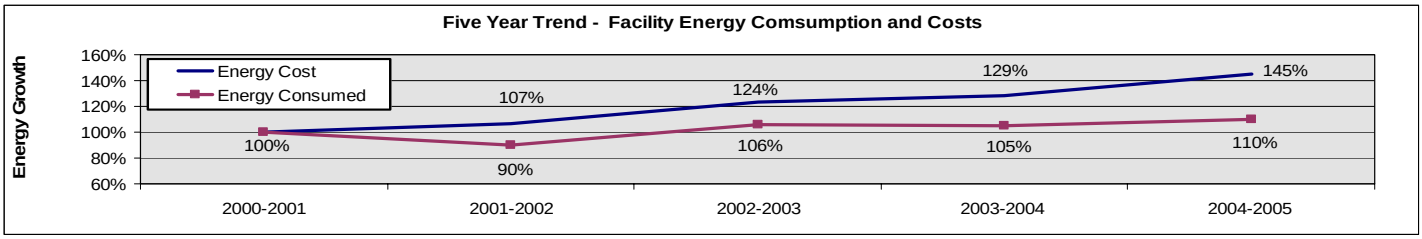
Slippery Rock University

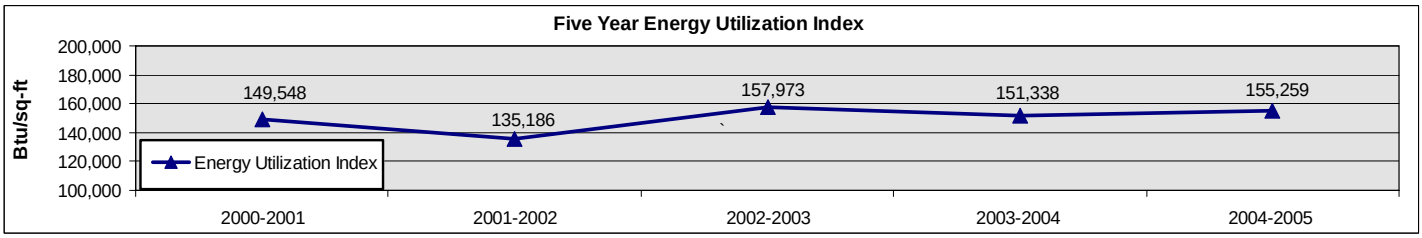




	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	---	---	---	---	---
Bituminous Coal	tons	8,214	7,577	8,059	7,777	7,807
Gas	mcf	45,344	44,094	57,835	58,065	162,834
Oil	gal	---	---	---	---	---
Electric	kwh	23,596,945	21,983,143	24,762,894	25,479,827	25,481,084
Energy Costs						
Anthracite Coal	$	---	---	---	---	---
Bituminous Coal	$	$ 344,628	$ 356,804	$ 379,615	$ 359,534	$ 671,005
Gas	$	$ 318,604	$ 283,929	$ 354,079	$ 344,357	$ 852,117
Oil	$	---	---	---	---	---
Electric	$	$ 996,942	$ 947,419	$ 1,064,129	$ 1,089,170	$ 1,106,597
Total	$	$ 1,660,174	$ 1,588,152	$ 1,797,823	$ 1,793,060	$ 2,629,719
Energy Consumption						
Anthracite Coal	mmBtu	---	---	---	---	---
Bituminous Coal	mmBtu	218,492	201,548	214,369	206,868	207,666
Gas	mmBtu	46,251	44,976	58,992	59,226	166,091
Oil	mmBtu	---	---	---	---	---
Electric	mmBtu	80,536	75,028	84,516	86,963	86,967
Total	mmBtu	345,280	321,552	357,877	353,057	460,724
Energy Utilization Index	Btu/sq-ft	208,869	194,516	216,489	185,714	240,449
Unit Fuel Costs						
Anthracite Coal	$ / ton	---	---	---	---	---
Bituminous Coal	$ / ton	$ 41.96	$ 47.09	$ 47.10	$ 46.23	$ 85.95
Gas	$ / mcf	$ 7.03	$ 6.44	$ 6.12	$ 5.93	$ 5.23
Oil	$ / gal	---	---	---	---	---
Electric	cts / kwh	4.22 ¢	4.31 ¢	4.30 ¢	4.27 ¢	4.34 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	---	---	---	---	---
Bituminous Coal	$ / mmBtu	$ 1.58	$ 1.77	$ 1.77	$ 1.74	$ 3.23
Gas	$ / mmBtu	$ 6.89	$ 6.31	$ 6.00	$ 5.81	$ 5.13
Oil	$ / mmBtu	---	---	---	---	---
Electric	$ / mmBtu	$ 12.38	$ 12.63	$ 12.59	$ 12.52	$ 12.72
Weighted Average	$ / mmBtu	$ 4.81	$ 4.94	$ 5.02	$ 5.08	$ 5.71
Misc Facility Costs						
Water Cost	$	$ 153,872	$ 142,138	$ 138,696	$ 133,130	$ 150,871
Sewage Cost	$	$ 195,021	$ 166,149	$ 213,137	$ 227,371	$ 238,122
Reported Information						
Gross Area	sq-ft	1,653,094	1,653,094	1,653,094	1,901,078	1,916,095
Reported Student Population		6,760	6,632	7,178	7,178	7,467
Reported Heating Degree Day	degree day	4,724	4,713	6,357	5,748	5,654
Reported Cooling Degree Day	degree day	851	766	1,167	860	861

West Chester University





	Units	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005
Fuel Consumption						
Anthracite Coal	tons	6,967	4,572	5,075	5,606	6,729
Bituminous Coal	tons	---	---	---	---	---
Gas	mcf	35,745	55,361	66,960	54,583	52,630
Oil	gal	214,209	212,566	390,379	332,244	263,400
Electric	kwh	32,427,332	34,489,667	35,794,434	37,617,051	37,365,576
Energy Costs						
Anthracite Coal	$	$ 470,948	$ 306,802	$ 375,241	$ 442,876	$ 739,758
Bituminous Coal	$	---	---	---	---	---
Gas	$	$ 230,885	$ 427,229	$ 520,772	$ 564,682	$ 615,276
Oil	$	$ 249,317	$ 179,940	$ 323,905	$ 308,218	$ 433,727
Electric	$	$ 2,373,523	$ 2,642,198	$ 2,887,883	$ 2,963,997	$ 3,036,201
Total	$	$ 3,324,672	$ 3,556,169	$ 4,107,801	$ 4,279,774	$ 4,824,963
Energy Consumption						
Anthracite Coal	mmBtu	176,954	116,131	128,905	142,392	170,917
Bituminous Coal	mmBtu	---	---	---	---	---
Gas	mmBtu	36,460	56,468	68,299	55,675	53,683
Oil	mmBtu	29,989	29,759	54,653	46,514	36,876
Electric	mmBtu	110,674	117,713	122,166	128,387	127,529
Total	mmBtu	354,077	320,072	374,024	372,968	389,004
Energy Utilization Index	Btu/sq-ft	149,548	135,186	157,973	151,338	155,259
Unit Fuel Costs						
Anthracite Coal	$ / ton	$ 67.60	$ 67.10	$ 73.94	$ 79.00	$ 109.94
Bituminous Coal	$ / ton	---	---	---	---	---
Gas	$ / mcf	$ 6.46	$ 7.72	$ 7.78	$ 10.35	$ 11.69
Oil	$ / gal	$ 1.16	$ 0.85	$ 0.83	$ 0.93	$ 1.65
Electric	cts / kwh	7.32 ¢	7.66 ¢	8.07 ¢	7.88 ¢	8.13 ¢
Unit Energy Costs						
Anthracite Coal	$ / mmBtu	$ 2.66	$ 2.64	$ 2.91	$ 3.11	$ 4.33
Bituminous Coal	$ / mmBtu	---	---	---	---	---
Gas	$ / mmBtu	$ 6.33	$ 7.57	$ 7.62	$ 10.14	$ 11.46
Oil	$ / mmBtu	$ 8.31	$ 6.05	$ 5.93	$ 6.63	$ 11.76
Electric	$ / mmBtu	$ 21.45	$ 22.45	$ 23.64	$ 23.09	$ 23.81
Weighted Average	$ / mmBtu	$ 9.39	$ 11.11	$ 10.98	$ 11.47	$ 12.40
Misc Facility Costs						
Water Cost	$	$ 264,858	$ 298,960	$ 328,348	$ 405,656	$ 464,098
Sewage Cost	$	$ 199,383	$ 211,827	$ 252,384	$ 219,473	$ 302,120
Reported Information						
Gross Area	sq-ft	2,367,644	2,367,644	2,367,644	2,464,469	2,505,516
Reported Student Population		11,080	10,217	11,583	10,628	10,768
Reported Heating Degree Day	degree day	4,876	3,875	4,938	4,668	4,616
Reported Cooling Degree Day	degree day	1,071	1,282	1,404	1,005	1,186

Glossary

Energy Utilization Index (Btu/sq-ft) – Determined by dividing energy, Btu's by total space, sq-ft.

Load Factor – a measure of effective use of electricity, the ratio of the average load over a designated period of time to the peak load occurring during that period. Load Factor is determined by dividing the kwh by the product of the KW demand and 730 (the average number of hours in a month).

The value of a load factor ranges from 0.0 to 1.0. Facilities with higher load factors (0.7-0.9) realize a lower cost per kwh. Very low load factors (0.3-0.5) point toward higher kwh costs and indicate the need for review of electric use.

Miscellaneous Gas Used, Oil Used – the amount of gas or oil used to operate those buildings not served by the central boiler plant.

Steam Capacity – plant steam capacity based on the continuous output rating for all boilers in the central plant.

Total Energy (Btu) – the total amount of all energy, coal, gas, oil, and electric, converted to Btu's as delivered to the institution.

Total Energy Cost – total cost of all energy used at the facility. Energy cost includes coal, gas, oil, purchased steam, wood, and electricity.

Total Fuel Cost – all fuel cost for coal, gas, and oil combined.

Total Space – the gross total space at a facility measured in square feet. This includes heated and non-heated space.

Unit Energy Cost ($/mmBtu) – determined by dividing the energy cost by the total million Btu's.

Unit Cost of Steam ($/mlb) – the total cost to produce 1,000 pounds of steam in the boiler plant. It is determined by dividing the steam into the total operating cost including charges for fuel, labor, parts, services, and suppliers.

Weighted Average – A statistical method used when individual figures are dependent upon another factor that varies by facility. For example, a straight average of per unit energy cost would be misleading because it is dependent upon two variables at each facility – Total Energy Consumed and Total Energy Cost. Each value differs by facility.