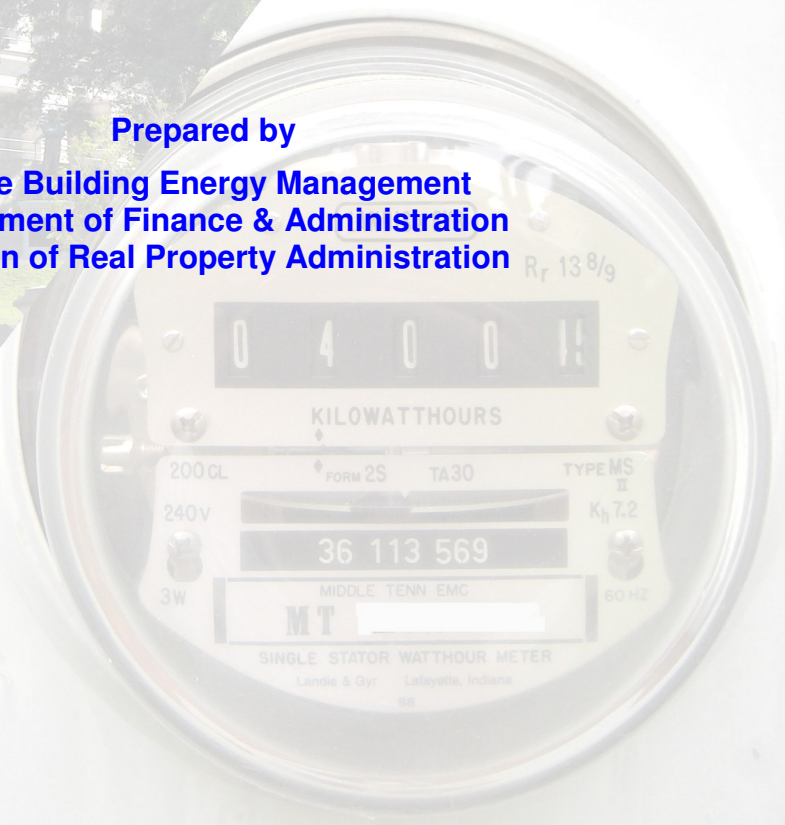


**STATE BUILDING ENERGY MANAGEMENT PROGRAM
STATUS REPORT
FY 2010**

**Prepared by
State Building Energy Management
Department of Finance & Administration
Division of Real Property Administration**



PREFACE

This report on state energy costs and efforts to control and reduce energy consumption in state buildings has been prepared by the Department of Finance and Administration as required by TCA 4-3-1018(d)(4).

The state building energy management program (SBEM), part of the Department of Finance & Administration, Division of Real Property Administration, is charged with the responsibility for reporting energy usage by the state in its facilities, coordinating energy conservation efforts within state government and encouraging the use renewable energy sources in state operations and procedures. All efforts are intended to reduce energy consumption in state owned facilities. SBEM currently has a staff of two, consisting of a program director and program administrator and is supplemented by personnel of Capital Projects Management within the Division of Real Property Administration.

This report provides information energy use, energy management activities within the state building energy management program, and other issues of relevance to energy use and management in state buildings.

Annual Statewide Energy Costs

The State of Tennessee spent approximately \$72 million for energy to operate the approximately 72,000,000 square feet of state-owned buildings in 1988. Currently, there are eleven executive branch agencies, the Tennessee Board of Regents and the University of Tennessee System that own and/or operate the more than 7,000 buildings. In 2009 those Executive branch agencies and the Tennessee Higher Education Commission actually spent just under \$122 million for energy for 92,000,000 square feet of state owned space, reflecting a 69% increase in total energy cost in 20 years and a 33% increase in the cost per square foot of building space. The numbers do not necessarily indicate decreased efficiency in operation of state buildings. The increased prices of electricity, natural gas and other forms of energy make direct comparison of energy utilization efficiencies over time impossible without knowledge of the actual amounts of energy (e.g., kilowatt-hrs, cubic feet or decatherms of natural gas) consumed. All departments, agencies and institutions within state government did not routinely collect information regarding units of consumption in the process of paying utility bills for this reporting period.

Annual costs have been escalating at a fairly consistent annual rate of 2.2% through 2006 and were flat from FY'06 to FY'07. In 2009, the latest year for which data is available, saw total energy costs remain essentially unchanged statewide from the previous year. In 2008 TVA implemented substantial increases in the rates it charges distributors within the TVA service region (7% in April, followed by a 20% increase in August). The lack of similar increases in 2009 coupled with relatively low natural gas prices, and efforts by the state to reduce consumption have contributed to lower energy costs. As seen in Fig. 1 energy costs for state building space (current inventory) are expected to increase by 60% over current levels by 2028¹ in the absence of significant efforts to increase energy efficiency in existing buildings and incorporate energy efficient design in new buildings.

STATE BUILDING ENERGY COSTS, 1988 - 2028

Source 2010 - 2028 Projections: US Energy Information Administration

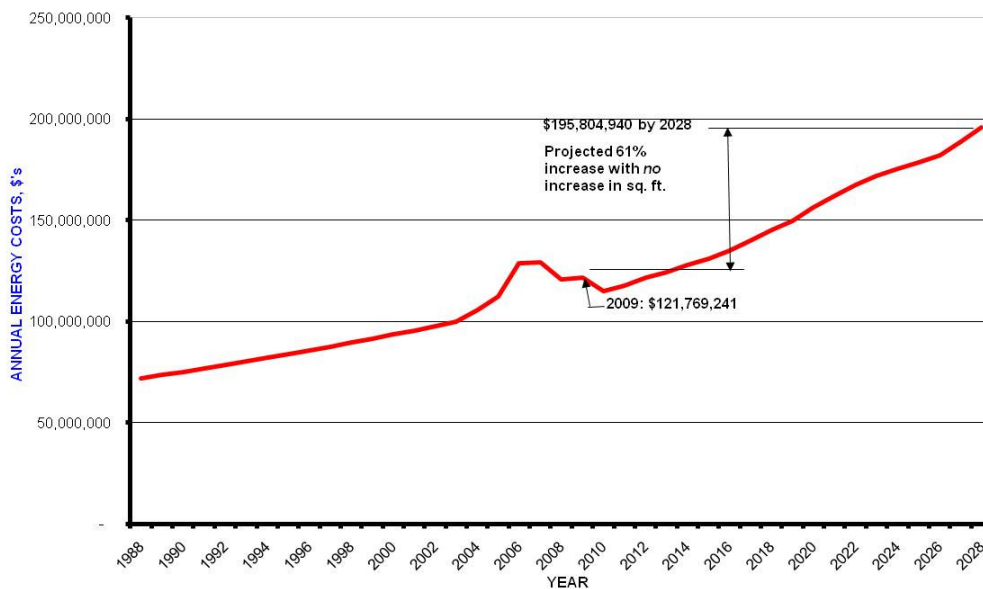


FIG. 1

¹ Source: U.S. Energy Information Agency

“Energy Action Plan for Tennessee Buildings”

This action plan, prepared in 2001, defined the broad range of goals and objectives of State Building Energy Management (SBEM). Approximately 80% of state owned building space, 54.8 million square feet, was committed under specific voluntary partnership agreements with state departments, agencies, colleges, universities and other institutions. All executive branch agencies, the Tennessee Board of Regents and the University of Tennessee support and participate in meeting the requirements of applicable statutes (T.C.A. 4-3-1017, 1018, 1019). The Department of General Services, Tennessee Board of Regents, the Tennessee Department of Environment & Conservation, the University of Tennessee, Tennessee Department of Correction and TRICOR signed voluntary Agency Partnership Agreements.

Since 2001 the state-owned building space has since increase to approximately 92 million square feet.

Energy Savings Performance Contracting (ESPC)

A key element to the action plan was energy savings performance contracting. A methodology commonly known as “performance contracting” typically utilizes energy services companies (ESCO’s) to develop, fund and implement projects. The ESCO’s are then compensated through savings resulting from the projects. The state has not utilized this method of funding energy projects, but instead funded them in like manner to other capital projects.

Historically since 2000 there have been seven contracts with five ESCO’s. All contracts have expired.

- The Department of Finance and Administration entered into five-year contracts with Johnson Controls, Inc. and Siemens Buildings Technologies, Inc. in 2003. A total of fourteen projects were developed for departments within general government under these contracts with a total value of \$21,634,000. An earlier project completed in 2005 at the Andrew Jackson and Rachel Jackson Buildings was executed by Nashville Electric Service with TVA acting as the ESCO at a cost of \$3,999,000. Combined, the fifteen projects will result in an *annual* projected savings of at least \$2,648,000. Energy (electricity and fuel) costs for departments and agencies exclusive of higher education were over \$65 million in 2009. Energy project executed through performance contracting are listed in Table 1.

Performance Contracting Projects for General Government

PROJECT NAME	SBC No.	PROJECTED ANNUAL SAVINGS	CONTRACT AMOUNT	STATUS
Andrew Jackson, Rachel Jackson Buildings	529/000-07-00	\$734,680*	\$3,999,608	Completed
James K. Polk, Andrew Johnson, David Crockett Buildings	529/000-01-03	\$265,029**	\$3,681,530	Completed
Henry Horton, Pinson Mounds State Parks	126/000-03-04	\$66,300	\$1,922,524	Completed
Ten Parks (David Crockett, Cumberland Mtn., Paris Landing, etc.)	126/000-03-05	\$149,169	\$1,301,954	Completed
Five Parks (Norris Dam, Sycamore Shoals, etc.)	126/000-08-05	\$125,130	\$979,956	Completed
Northeast/Northwest Correctional Complex, Phase 1	140/001-02-04	\$140,390	\$987,657	Completed
Northeast/Northwest Correctional Complex, Phase 2	140/001-03-04	\$193,750	\$1,475,174	Completed
Turney Center Industrial Prison	142/005-01-06	\$343,784	\$4,500,000	Completed
Riverbend Correctional Facility	142/020-01-06	\$218,875	\$1,925,976	Completed
Woodland Hills Youth Dev. Center	144/002-01-06	\$105,648	\$840,012	Completed
Mountain View Youth Dev. Center	144/013-01-06	\$82,840	\$756,478	Completed
Alvin C. York Agricultural Institute	168/001-03-05	\$66,798	\$711,950	Completed
Tennessee School for the Blind	168/005-2-05	\$72,768	\$702,130	Completed
Tennessee Schools for the Deaf (Knoxville, Jackson)	168/007-05-05	\$160,594	\$1,417,080	Completed
Tullahoma Readiness Center	361/093-01-05	\$6,666	\$432,080	Completed

* Actual four-year average

** Actual first year

Table 1

- The Tennessee Board of Regents has also utilized the same methodology to implement energy projects. In the spring of 2001 the SBC approved a \$10 million-dollar performance contract for MTSU and an \$8.5 million-dollar project at TSU. ESPC contracts were awarded to Siemens Building Technologies in separate competitive procurements for each site. Not long after these contracts were awarded, the TBR issued an RFP for all the remaining TBR sites not presently under (ESPC) contract. In November 2002, the TBR awarded the contract for a system wide ESPC to three different ESCOs, namely LG&E Enertec, Siemens Building Technologies, and Energy Systems Group (ESG). They currently have seventeen projects with a total cost of \$66 million

underway or completed with a projected savings of at least \$18 million annually. TBR spent \$42.3 million dollars in FY 2009 for energy. Projects executed through performance contracting are listed in Table 2².

Performance Contracting Projects for Tennessee Board of Regents

FACILITY NAME	PROJECTED ANNUAL SAVINGS	CONTRACT AMOUNT	BUILDINGS	STATUS
Middle Tennessee State University DO#1	\$295,496	\$1,675,000	26	Completed
Tennessee State University DO#1	\$285,567	\$2,131,000	27	Completed
Tennessee State University DO#3 (DO#2 cancelled)	\$408,262	\$3,300,000	30	Completed
East Tennessee State University DO#1	\$425,992	\$3,164,000	27	Completed
East Tennessee State University DO#2	\$836,696	\$7,500,000	26	Completed
Chattanooga State Tech CC	\$309,01	\$2,316,000	16	Completed
Cleveland State CC	\$67,194	\$426,000	12	Completed
Northeast State Tech CC	\$64,544	\$500,000	10	Completed
Pellissippi State Tech CC DO#1	\$136,347	\$990,000	18	Completed
Pellissippi State Tech CC DO#2	\$122,882	\$1,643,000	7	Completed
Pellissippi State Tech CC DO#3	\$9,000	\$193,000	NA	Construction
Roane State CC	\$221,504	\$1,670,000	14	Completed
Walters State CC	\$143,547	\$1,116,000	12	Completed
Tennessee Tech University DO#2	\$311,390	\$2,110,000	68	Completed
Nashville State CC	\$94,803	\$797,000	7	Completed
University of Memphis	\$1,366,000	\$11,205,000	24	Completed
Southwest CC-Macon & Union	\$365,914	\$2,350,000	24	Completed
Jackson State	\$95,000	\$900,000	8	Construction

* These projects include a performance contracting energy savings component and a utility rate restructuring component. Indicated savings are based on participation in a TVA variable pricing rate program that has since been cancelled.

Table 2

- University of Tennessee System: The state building commission approved energy projects for UT Chattanooga in the amount of \$4.5 million dollars and UT Memphis in the amount of \$3.0 million dollars in the fall of 2001. The UT system does not utilize the performance contracting process to execute projects that reduce energy costs. The University of Tennessee system spent more than \$23.4 million dollars in FY 2009 for energy.

² Information supplied by Tennessee Board of Regents

Energy Management Projects and Technical Support

- The State Building Energy Management Program is continuing to provide technical support for the expansion of the Southeast Regional Correctional Complex in Pikeville. During the design phase of the project, SBEM reviewed design documents and recommended modifications intended to improve constructability and energy efficiency of the geothermal heating and cooling system. On-site construction observation is being provided to help assure the geothermal system, the largest geothermal system yet constructed in Tennessee, proceeds through construction in accordance with the design intent, providing space conditioning and domestic hot water for the completed facility.
- An additional geothermal heating and cooling project is currently being developed in support of the Department of Correction's effort to convert all housing units (16) at the Northwest Correctional Complex in Tiptonville to ground source geothermal heat pumps. The prototypical housing unit utilizing this technology was retrofitted in 2002, providing the performance data needed to evaluate the viability of the technology, particularly when used to heat and cool correctional facilities.
- The Upper Cumberland Regional Health Facility to be constructed in Cookeville will incorporate multiple sustainable design features including geothermal heating and cooling. A photovoltaic system for the production of electrical energy from sunlight was incorporated into the project. The goal is to qualify the completed building for a LEED (Leadership in Energy and Environmental Design) Platinum level certification by the United States Green Building Council. The photovoltaic (PV) system will generate up to 13 kilowatts of electric power to be sold to TVA under provisions of their Green Power Switch Generation Partners program, an initiative intended to provide economic incentives for homeowners and businesses to generate energy using sustainable technologies.



Fig. 2

- Eleven buildings operated by the Department of General Services constituting over 570,000 square feet will be partially or wholly retrofitted with updated, more energy efficiency lighting under a program that will be completed in late 2010. The total cost of performing this work under an accelerated schedule will be \$600,000 with a projected annual savings in electrical energy of \$135,000.

End of Report