

ENERGY EFFICIENCY IN STATE BUILDINGS

One of the largest operating expenses the state incurs is for energy use in its buildings; totaling more than \$200 million for all state facilities for all energy sources.

Background. The State of Connecticut owns and occupies more than 1,140 facilities¹ for which it pays utilities. In FY 10, the state, excluding all of higher education, paid almost \$109 million in energy costs – almost \$72.5 million in electricity alone. If higher education facility energy costs were included, estimated costs would more than double—and total more than \$200 million. In FY 07, the total cost estimates were about \$123 million, an increase of more than 60 percent in three years.

In early 2005, a task force established by the governor proposed a number of recommendations for reducing electricity use in state buildings including assigning responsibility for energy use to each state agency and establishing an energy reduction goal – 10% in 2005, and an additional reduction of 5% in 2006. The recommendations were not implemented and the goals were not achieved.

Many state buildings are very energy inefficient. Beginning in 2005 through 2008, the Institute for Sustainable Energy² engaged in a number of separate projects in which 110 facilities were assessed for energy use and “benchmarked” using the U.S. EPA’s Energy Portfolio Manager (which can be used at no charge and scores buildings compared to similar facilities). Table V-2 shows the agencies, the facilities, and other pertinent information from those benchmarking projects. Facilities receiving a 75 or above are very energy efficient and are eligible for Energy Star recognition; the lower the rating the less energy efficient.

Agency	Year	# Facilities	# at 75+	# at 50-75	# 26-49	# at 25 or below
Various State Bldgs	2005	6	3	3	0	0
Judicial Courthouses	2005	23	11	9	1	2
SCSU Residences	2005	11	8	2	1	0
Reg. Voc/Tech Schools	2005	19	1	0	4	14
DMV	2006	6	0	2	0	4
DPS	2006	22	0	0	1	21
DPW (DPH lab and DEP)	2006	2	0	0	0	2
Ag. Exp. Station	2006	4	0	0	1	3
Dept. of Correction	2008	15	0	0	2	13
Total		108	23	16	10	59
Source: Reports Conducted for OPM by Institute for Sustainable Energy						

¹ The state owns more than 3,600 buildings and facilities, but many of those are maintenance and storage facilities. To better analyze buildings where energy is being used and utilities paid, CEOA staff used only facilities where building value was \$1 million or more.

² Institute for Sustainable Energy, located at Eastern Connecticut State University is to “identify, develop, and implement the means for achieving a sustainable energy future.” ISE website. ISE is funded by the Connecticut Energy Efficiency Fund.

EXCERPT from: Final Report of Commission on Enhancing Agency Outcomes, Dec. 2010, Connecticut General Assembly, Sec. V, pp. 88 through 92

There is no single agency, department or area that is responsible for energy use or costs in state facilities, energy ratings, or projects slated for upgrades or projects completed. To assess the results of the benchmarking project alone, CEAO had to obtain the information from three different areas of state government.

Of the 108 facilities benchmarked, more than half (59) had energy ratings of 25 or below. These buildings would appear to be extremely energy inefficient, and would provide prime targets for facility improvements to reduce energy consumption and costs. It is unclear what buildings have been targeted for energy upgrades, which ones are underway or even completed, since that information does not reside in any one place.

Potential funding sources. There are currently five major ways to fund measures or projects to improve energy efficiency in state facilities. One or a combination of sources can be used.

- **General Fund monies or bond funds.** Because of the budget situation, these funds have been virtually nonexistent recently.
- **Connecticut ratepayer funds** -- CT Energy Efficiency Fund (CEEF) and CT Clean Energy Fund. In 2001, \$12 million was diverted from the fund just for improving energy efficiency in state buildings. From July 2010 DPW reports, it appears 20 projects have been completed, but it seems clear not all of the \$12 million has been spent. Incentives (in addition to the \$12 million are also allowed if projects meet criteria and funding capacity of CEEF.) While the Clean Energy Fund has been used to fund several municipal projects, the state has only once tapped into the Clean Energy Fund.
- **Demand response funds** have been available since 2005 from Independent System Operator New England ISO (the region's electric grid operator) for facilities that lower demand (or have alternative supply) during periods of peak electric demand. Thirteen state agencies (54 facilities) have participated since 2005 and generated \$6.4 million in payments to the state. These funds are then distributed back to the agencies for improving facilities' energy efficiency.

Potential Savings: The Department of Correction has been a primary participant in this program. Over the past four years, DOC has completed several projects at its facilities costing \$2.7 million, using almost \$2.4 million from ISO in demand response funding. **According to DOC, the actual saving thus far have been almost \$1.28 million, a payback of almost 50 percent, often in less than three years. (For other projects, DOC estimates another \$861,267 in potential savings)**

- **Federal stimulus funds.** There is approximately \$15 million in federal stimulus money allocated solely for energy efficiency projects for state agencies:

- \$5 million in ARRA³ through federal Department of Energy funds. DPW reports indicate 12 projects completed using \$1.3 million of the ARRA monies, indicating there is a considerable amount left. Part of that stimulus funding is also being used to support the Building Operators Certificate (BOC) program, a nationally recognized program that trains and certifies facility employees in operating energy efficient buildings. Since 2006, OPM indicates 142 of the 334 employees receiving level one training, and 55 of the 177 at level two, have been from state agencies.
 - Another \$10 million (of a Connecticut allocation of approximately \$36 million) in ARRA funding under the Qualified Energy Conservation Bond Program reserved for state agencies. No state agency has even applied for any of the \$10 million.
 - The Clean Energy Fund also received about \$19 million in separate federal stimulus money to fund alternative energy projects in four different categories (e.g., fuel cells, geothermal, etc). No state agency has yet applied for any of those funds.
- **Energy performance contracting (EPC).** Another method of funding energy upgrades is to use performance contracting, whereby a private company, typically known as a energy services company (ESCO) assesses what facility improvement measures (FIMs) will need to be taken to reduce energy and save costs.

The ESCO typically pays for the costs of the project and is paid back (with financing added) with the energy savings. In other cases, the purchaser obtains the financing, and contracts for the facility improvement measures (FIMs) that the contractor will install. In either case, the contractor is paid through the savings in energy costs. The provisions for this are written in the contract.

While the state has been statutorily mandated since 2003 (P.A. 03-132) to establish a pilot program for an energy performance contract in a state facility, and cited in a 2008 PRI study for not having done so, the state still has not engaged in performance contracting for state facilities. OPM staff in the energy division indicate that since financing through bonding can be obtained at less expense, it does not make sense to engage in performance contracting. However, this assumes that bond funding is available for this purpose, which has not been the case recently. Further, energy performance contracting is just one of a number of ways to finance energy efficiency projects in state facilities. But, as discussed above, state agencies responsible for facilities improvements have demonstrated a lack of initiative in securing alternative financing, including energy performance contracting.

Public Sector is Using Energy Performance Contracting

East Hartford. The town of East Hartford engaged Johnston Controls Inc. (JCI) about two years ago to retrofit and install FIMs in several town facilities. East Hartford borrowed \$5 million through Bank of America over a 12-year repayment period. JCI indicated the FIMs

³ Connecticut was awarded \$38 million in energy federal stimulus funds, \$5 million of that was targeted at state facilities. Another \$65 million was targeted at weatherizing housing for low-income and elderly, some of which was to be used in state-owned or financed housing. As of October 2010, 2,368 units had been weatherized. 233 of those were state-financed.

would save the town about 30 percent on energy costs in those buildings. East Hartford hired an independent energy consultant to verify JCI's estimates and calculations. To date, East Hartford states it is saving at least 30 percent on its energy costs.

East Hartford is embarking on a second phase of energy performance contracting for \$7.3 million, and has again engaged JCI to do the work in many of the town's schools and education facilities. The town has coupled the energy performance contracting with qualified energy conservation bond funding (discussed on page 1 of summary) to finance the second phase.

Massachusetts. Massachusetts is using energy performance contracting extensively. More than 180 state projects are currently underway, typically using combination of EPC with other financing, like federal stimulus money, rebates or ratepayer funds. Further, Massachusetts has developed model contracting language around energy performance contracting. Other model language has been developed by the Building Owners and Management Association (BOMA) and the Energy Services Coalition.⁴

“Test-bed” legislation. Commission members expressed concern that there has been little, if any, agency participation in the 2009 energy efficiency “test-bed” legislation, P.A. 09-7(Section 63). That legislation authorized the Office of Policy and Management to direct agencies to test whether the use of new technologies would promote energy conservation or efficiency, and to validate the effectiveness of the technology. **The commission strongly recommends that the state fully implement this legislation and that agencies participate in this “test-bed” program as way of reducing energy consumption in state buildings. (Proposal #30)**

In summary:

- State energy costs continue to rise substantially, 60 percent over the past four years, and now total more than \$200 million.
- The state has done little to reduce energy costs through making its facilities more energy efficient.
- The state has not taken advantage of ARRA funding, has not followed a statutory mandate to engage in performance contracting, and not participated in energy “test-bed” programs.
- The lack of initiative is due to a set of factors: no financial incentives for agencies bring energy costs down; no managerial accountability for energy costs in agency budgets; and diffused responsibility for energy projects (and facility management in general) in state government.

⁴Links to the websites of the organizations with model language are:
www.mass.gov/Eoaf/docs/dcam/energy/model_comprehensive_esa_rec10_06.pdf
www.energystar.gov/index.cfm?c=comm_real_estate.bus_comm_real_estate.boma
www.energyservicescoalition.org/espc/tools/practices02/Model_EPC_Legislation.pdf

- There has been no clear direction or leadership for energy consumption reduction in state facilities. In Massachusetts, Governor Patrick in 2007 issued an executive order calling for reducing state government energy consumption by 20 percent by 2010 (off 2004 levels) and by 35 percent by 2030. No similar order has been issued in Connecticut.

Cost savings from reducing energy use can be significant. In a November 30, 2010 *Governing Magazine* article entitled *7 Best Practices for States in Trouble*, Initiative # 3 is to reduce energy use. *Even if conservative estimates of 10 percent savings are used (and the DOC experience has been that savings are much greater), this could mean a savings of \$20 million a year for the state.*

To achieve these savings, the commission recommends state agencies reduce energy costs by 10 percent from FY 10 levels, by the end of FY 12. State agency commissioners should be responsible for ensuring that reduction by whatever means they choose, including training facility management in the Building Operators Certification (BOC) program, using the Connecticut Energy Efficiency Fund, the Connecticut Clean Energy Fund, and energy performance contracting, and participation in the energy efficiency “test-bed” program. In the longer-term, the commission recommends a reduction of energy use by 30 percent by 2023. (Proposal #30)

It would be beneficial if the state had a more comprehensive analysis of where it was using energy and expending its energy dollars. However, the state has made such little progress in the energy efficiency and conservation area, the commission believes it is urgent that state government employ all measures now to target such reductions, rather than continue to wait for a wide-ranging assessment. Further, the commission believes that a first step of contracting with an energy services company will be for the company to do such an energy assessment.

[Link to Full Report and Report Appendices \(From GAE Website\)](#)

CEAO Final Report:

<http://cgalites/gae/CEAO/docs/2010/CEAO%20Final%20Report%20Tuesday%20Jan%203.pdf>

CEAO Final Report Appendices

<http://cgalites/gae/CEAO/docs/2010/Final%20Report%20APPENDICES%20A-X.pdf>