

STATE OF UTAH



STATE BUILDING ENERGY EFFICIENCY PROGRAM 2009/2010 ANNUAL REPORT

**STATE OF UTAH
STATE BUILDING ENERGY EFFICIENCY PROGRAM
SBEEP
ANNUAL REPORT TO THE GOVERNOR AND THE LEGISLATURE
2009/10
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DFCM Energy Director**

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SUMMARY

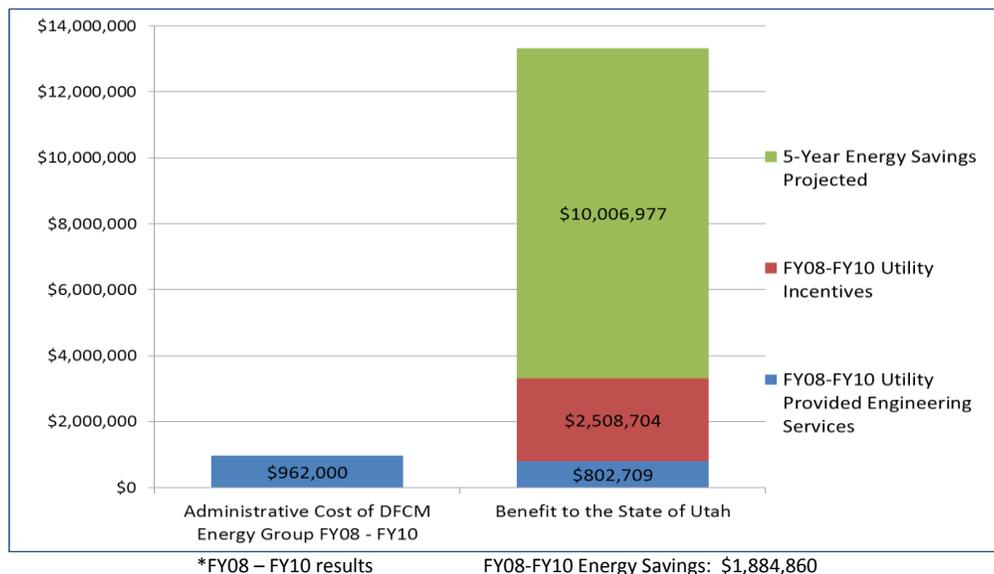
Increasing energy efficiency is an important goal for the State of Utah. The Legislature’s commitment to energy conservation as a means of reducing operating costs can be seen in the creation of the State Building Energy Efficiency Program (SBEEP) in the Quality Growth Act of 1999.1 (1 Chapter 24, laws of Utah 1999.) Efforts to increase energy efficiency in response to the directives issued by both the Governor and the Legislature have focused on state-owned buildings. Together, the actions taken by Governor Herbert and the Legislature articulate an understanding that improving energy efficiency can provide long-term economic and environmental benefits to the state.

The State Building Energy Efficiency Program strives to carry out the goal of improving energy efficiency measures and reducing the energy costs for state facilities. The efficiency programs being targeted by the State Building Energy Efficiency Program are:

- High Performance Building Standard for Capital Development Projects
- Commissioning
- Air Infiltration
- Energy Efficiency Incentives Programs for New and Existing Buildings
- Renewable Energy Projects through American Recovery & Reinvestment Act Funding
- State Facility Energy Efficiency Fund
- Lighting retrofits and re-commissioning projects to optimize energy efficiency in existing buildings
- Energy Saving Performance Contracts
- Energy Efficiency Projects through American Recovery & Reinvestment Act Funding
- State Employee Behavior Partnership for Energy Efficiency

From design to operations, the costs incurred by the state in implementing energy efficient measures in state owned buildings will, over time, yield monetary benefits that exceed costs of the project. Additional measures that are of value and included in the portfolio of efficiency measures undertaken by SBEEP, include efforts to educate, train, and make employees aware of the critical role they play in meeting the state’s energy efficiency goals. SBEEP is a resource for state facilities to help guide monetarily conscious energy efficiency decision.

SBEEP Costs and Benefits*



BACKGROUND

This report is provided annually in response to policy directives from the Governor's Office and the Legislative Branch that officially established improving energy efficiency as a priority policy goal for the State of Utah.

Policy Directives for Energy Efficiency in State Facilities

Directives focusing on energy efficiency in state facilities were created by the Utah State Legislature in amendments made to UCA §63-9-638 and UCA §63-9-679 during the 2006 General Session. With regard to energy efficiency in state facilities, the Legislature declared in UCA §63-9-63 that it is the policy of the state to:

- undertake aggressive programs to reduce energy use in state facilities in order to reduce operating costs of government and to set an example for the public
- utilize alternative funding sources and methods of financing to minimize state appropriations
- employ private sector management incentive principles
- develop incentives to encourage state entities to conserve energy, reduce energy costs, and utilize renewable energy sources where practical
- procure and use energy efficient products

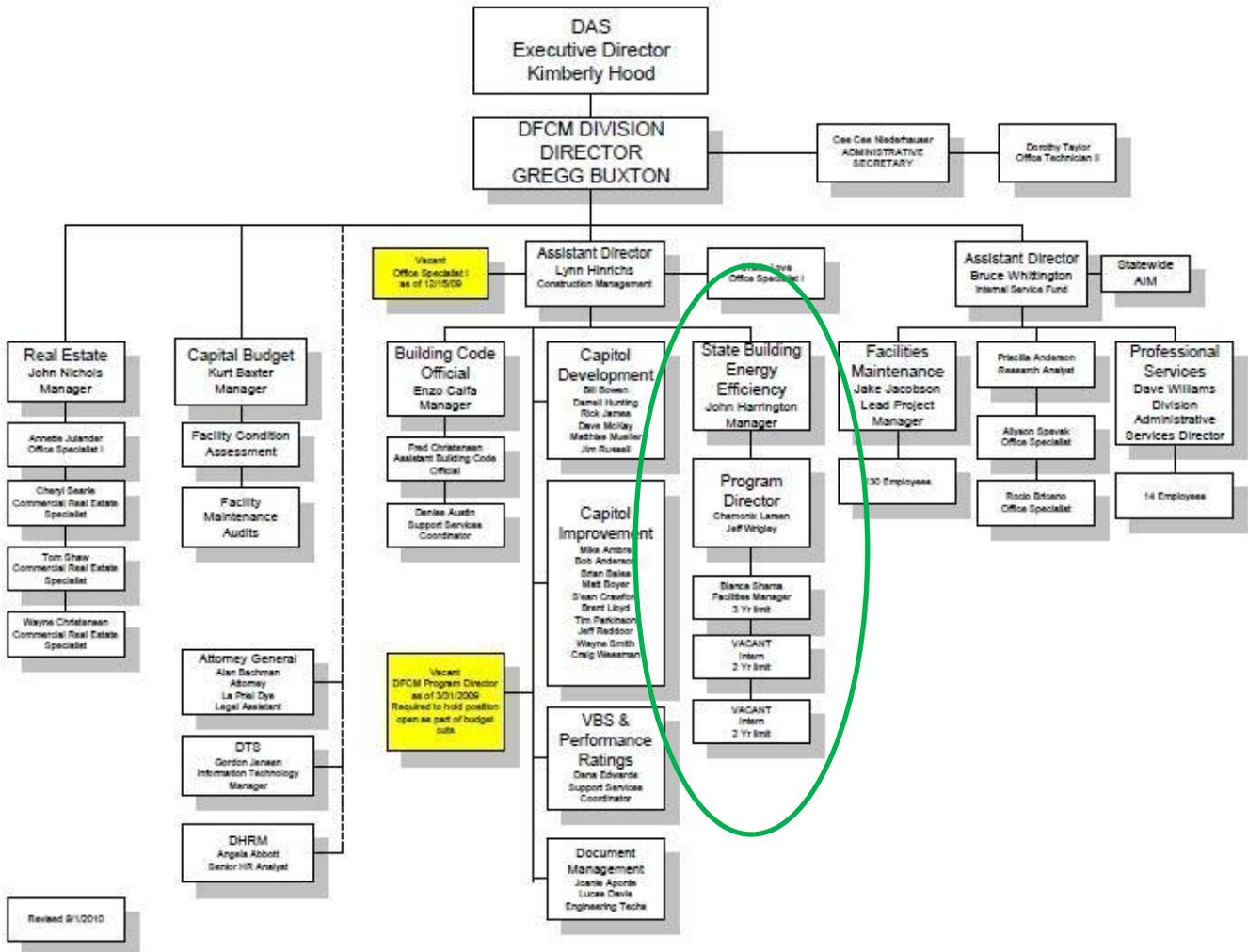
Amendments to UCA §63-9-67(2) in 2006 transferred responsibility over SBEEP to DFCM, and directed the division to:

- develop and administer the state building energy efficiency program, including guidelines and procedures to improve energy efficiency in the maintenance and management of state facilities
- provide information and assistance to state agencies in their efforts to improve energy efficiency
- analyze energy consumption by state agencies to identify opportunities for improved energy efficiency
- establish an advisory group composed of representatives of state agencies to provide information and assistance in the development and implementation of the state building energy efficiency program; and
- submit to the Governor and to the Capital Facilities and Administrative Services Appropriations Subcommittee¹⁰ an annual report that:
 - identifies strategies for long-term improvement in energy efficiency
 - identifies goals for energy conservation for the upcoming year
 - details energy management programs and strategies that were undertaken in the previous year to improve the energy efficiency of state agencies and the energy savings achieved

Finally, the Legislature authorized state agencies to enter into an energy savings agreement for a term of up to 20 years under the provisions of UC 63-9-67(4). However, the state agency may enter into an energy savings agreement only if it agrees to:

- utilize DFCM to oversee the project unless the project is exempt from the division's oversight or the oversight is delegated to the agency
- obtain prior approval of the governor or the governor's designee
- provide the Office of the Legislative Fiscal Analyst with a copy of the proposed agreement before the agency enters into the agreement

State Building Energy Efficiency Staff



Staff Bios:

John Harrington CEM, DFCM Energy Director:

John Harrington has been a State of Utah employee for 5 years. John is the State Building Energy Efficiency Program (SBEEP) Manager. He is a Certified Energy Manager. John manages all aspects of the SBEEP program including new construction and existing buildings. In 2010 John was the recipient of the Governor's Award for Excellence in Energy and Environment. John is the current President of the Association of Energy Engineers Utah Chapter. In 2009 John was named the National Energy Manager of the Year for Region 5 for AEE. Prior to working with the State of Utah John managed in Energy within the Private sector for 34+ years.

Chamonix Larsen LEED AP BD&C, Energy Program Director:

Chamonix Larsen joined DFCM in 2007 as the Energy Program Director for new construction. Major parts of her work with the State include managing renewable energy projects and performance contracts, and overseeing the implementation of the State's High Performance Building Standard. She also works on state initiatives such as State facility energy performance measurement, policy and program research related to energy, integrating utility incentive programs, and participating on the Utah Building Energy Efficiency Strategies (UBEES) team, an entity charged with promoted energy performance measurement, above code programs, workforce development, and education. Within the DFCM, she coordinates training for State construction project managers on topics related to energy and sustainable building. She has also helped in Utah being selected as one of 7 states to participate in the National Governor's Association Policy Academy for Advanced Energy

Strategies for Buildings. Chamonix is a LEED accredited professional and has holds a Master of Architecture Degree from the University of Utah.

Chamonix is affiliated with the Utah Chapter of the U.S. Green Building Council where she serves each on the Board of Directors. She currently serves as the Salt Lake Sustainable Building Conference Organizing Committee Chair. She serves on the Advisory Committee for the Salt Lake Community College Energy Management Program. Chamonix was recognized by Utah Business Magazine as one of 30 Women to Watch 2010.

Jeff Wrigley, Energy Project Manager:

Jeff Wrigley joined the DFCM in 2008 as an Energy Project Manager. He is primarily responsible for managing energy conservation, efficiency and renewable energy projects in state owned facilities. Prior to working for the State of Utah Jeff worked as a Project Manager for a nationally ranked commercial construction firm. He is a licensed journeyman electrician and has commercial construction experience in Utah and Nevada. Jeff completed a Bachelor's Degree in Architectural Studies from the University of Utah and is currently pursuing a degree in Energy Management. Jeff is a member of the Illuminating Engineering Society (IES) and is affiliated with the U.S. Green Building Council (USGBC). In 2010 Jeff started the Utah Energy Manager working group, increasing the collaborative efforts of energy management practices in facilities throughout the State of Utah. He also served on the allocations committee for DOE Energy Efficiency and Conservation Block Grants.

Energy Management Programs and Strategies Undertaken in Previous Years

ENERGY EFFICIENCY IN NEW CONSTRUCTION PROJECTS

High Performance Building Standard for Capital Development Projects

In May of 2009 the Building Board approved changes to the State Building High Performance Energy Standard. This standard applies to major new construction projects with a budget above \$2.5 million. The requirements for this standard can be found in section five of the DFCM Design Requirements. Adopted changes to the standard include requirements to obtain LEED Silver Certification, and incorporate enhanced commissioning activities. LEED is a program developed by the United States Green Building Council (USGBC) and the certification process is reviewed by the Green Building Certification Institute (GBCI). Projects are awarded certification post construction and post commissioning. DFCM capital development projects are in the process of obtaining LEED for New Construction Certification. Using this program has given clarity to the design and construction community as well as State facilities staffs by using nationally accepted standards for calculating building efficiencies. For example, each project is modeled according to the American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) Energy Standard for Building 90.1 Appendix G to quantify energy cost savings of the proposed project. As a result of this standardization the High Performance Building Program has been applied to more capital development projects than in previous years. The LEED program typically adopts the most recent national energy code into their baseline criteria so newly designed state facilities will continue to improve in energy performance regardless of the locally adopted energy code. Projects must also commit to reporting energy use data for a minimum of five years in the EPA Portfolio Manager database. Reporting is currently a State requirement for all buildings but contributing to this database helps to give meaningful data back to the national design and construction community about how design or construction concepts and methods actually perform. See Appendix A-Table 1 for an overview of the benefits of the new LEED standard. See table 2 on Appendix A for a full list of projects, and their energy savings based on the proposed design. See table 3 for a list of project in progress under the High Performance Building Program.

Policies and Changes to Other Standards for New Buildings

Commissioning

Verifying that a building design has been executed and works properly is the primary goal for the commissioning process. The State engages commissioning entities on most all capital development projects. With the help of utility incentive programs DFCM adds scope to the commissioning process to ensure that energy efficiency measures and associated energy savings are realized. This process includes verification of proper construction and installation of envelope, mechanical and electrical systems, and also the creation of trend logs to illustrate the performance of these systems in action. This added scope promoted DFCM to upgrade their standards and documents that are used to hire commissioning entities.

Envelope Performance Standards and Commissioning

DFCM has undertaken efforts to increase energy efficiency by reducing air infiltration. Many reports suggest that a good building envelope can save as much as 30% in energy use. A pilot program has been created and is under review to provide guidance for design, construction inspection and testing procedures to ensure building envelopes are designed and constructed to a high performance standard. Costs and benefits associated with this process are being evaluated in pilot projects and the standard will reflect the knowledge gained via the outcomes of the projects.

Incentive Programs for New and Existing Facilities

As one of the largest customers to the local utilities, the State participates in utility incentive programs wherever feasible. Major electric and gas utilities offer incentives for efficient new construction and retrofit projects in the form of cash, utility bill credits, and design assistance. Incentives motivate projects to go beyond typical energy codes and increase long-term savings to the State. Since July 2006 the state has received over \$3.5M in utility incentives for energy efficiency projects in addition to any resulting energy savings over time. SBEEP facilitates the process to work with the utilities and take advantage of these programs by coordinating energy analysis, design and implementation of energy saving strategies that qualify for utility incentives.

Utilities fund incentives from fees they charge customers on a monthly basis. The State can recoup some of the cost of their energy service by reclaiming cash or by receiving credits on utility bills.

RENEWABLE ENERGY PROJECTS

Renewable Energy Projects funded through American Recovery and Reinvestment Act

DFCM was awarded ARRA funds to implement renewable energy projects on State facilities. Parameters for size and installation locations were given in ARRA requirement passed on to DFCM from the State Energy Program in the Utah Department of Natural Resources. A grant application was created by SBEEP to identify institutions and facilities interested in developing or implementing renewable energy projects. Projects were selected by committee based on viability, the ability to provide educational outreach on renewable energy technology and ability to leverage funding to create more valuable and effective projects. See Appendix A-table 4 for a list of projects identified to be completed under this funding source.

IMPROVEMENTS IN EXISTING BUILDINGS

Equipment and system upgrades, recommissioning, and conservation measures combine to reduce energy use and avoid unnecessary costs. Funding vehicles for creating projects to improve energy efficiency in existing buildings are energy saving performance contracting, the State Facility Energy Efficiency Fund (revolving loan fund), and grants from the American Recovery and Reinvestment Act (ARRA). See table 5 for a full breakdown of all Improvement projects in existing buildings.

State Facility Energy Efficiency Fund

The State Facility Energy Efficiency Fund (SFEEF) was established in fiscal year 2008 to provide the State Building Energy Efficiency Program with a revolving loan fund from which agencies and institutions can borrow to complete energy efficiency improvement projects. Repayment of the loan is achieved by capturing cost savings from reduced energy use and demand and by capturing utility incentives. Borrowed funds are paid back into the SFEEF so that it can be lent out again. The fund total is \$2.15 million. Funding requests must be approved by the SBEEP Manager and the Utah State Building Board.

Ten energy efficiency improvement projects were approved by the Utah State Building Board in fiscal year 2010. These projects are listed, along with their projected costs, energy savings, energy-cost savings and estimated utility incentives in Appendix A-Table 6.

The UDOT Aeronautics Lighting project was approved, designed and completed during FY10. As of June 30, 2010, the nine other projects that were approved by the Building Board during FY10 are in various stages of development. Most of these projects have been impacted by funding provided from the American Recovery and Reinvestment Act (ARRA) and are being expanded in scope to capture greater energy savings. For example, the projects for the Davis, Ogden-Weber and Bridgerland Applied Technology Colleges are expanding through the use of ARRA funding to pursue larger scale recommissioning efforts.

In addition to the 10 SFEEF projects approved by the Building Board in FY10, three FY09 SFEEF projects were active during the last year. The Utah State University HPER Gyms Lighting Retrofit and the Department of Transportation Murray and Wanship Stations Lighting Retrofit projects are under contract and in the course of construction. The Human Services Decker Lake Youth Center Lighting Retrofit project, which was completed in FY09 was in repayment during FY10 with its final payment due on June 30, 2010. Loan payments made during FY10 were based on \$4,194 in realized utility cost savings and \$16,827 in captured utility incentives.

Energy Saving Performance Contracts

Larger campuses have the potential to bundle energy efficiency projects to maximize their impact without using State funds through Energy Saving Performance Contracts with guaranteed savings from Energy Services Companies (ESCO). An ESCO project uses third party financing; the typical funding source is a tax exempt municipal lease/purchase. Payment to the contractor is made through a guaranteed stream of future energy cost savings. The project is self-funded and does not require state appropriations to proceed. This public-private partnership provides an agency or institution with the following:

- A campus wide energy audit
- Prioritization of energy projects relative to payback and maintenance needs
- An expedited project timeline to receive more immediate energy savings
- Bundled energy projects and cohesive project management
- A funding vehicle for needed infrastructure upgrades

There are previous examples in the State of Utah of significant energy efficiency increases that were achieved by implementing large ESCO projects. These examples include the following facilities:

- University of Utah
- Utah Valley University
- UDC - Draper Prison
- Ogden Regional Center
- DHS - Utah State Hospital
- Utah National Guard Headquarters

To aid institutions and agencies in the selection of ESCOs, the State Building Energy Efficiency Program oversaw the selection of a pre-qualified list of contractors to provide services in the Energy Performance Contract Program (EPCP). This was facilitated by SBEEP in order for agencies and institutions to be able to reduce their costs and time associated with solicitation and selection. This allowed for better quality control, and ESCO projects were able to be initiated more quickly to expedite receipt of cost savings from energy improvements.

SBEEP is utilizing Energy Savings Performance Contracts with Energy Savings Companies as a means of implementing and financing large comprehensive energy efficiency projects. In addition, utility incentives will be used to help finance ESCO projects. ARRA stimulus funds were offered as an incentive to agencies and institutions willing to explore comprehensive energy efficiency projects at their facilities.

The following projects will be funded in this manner:

- Salt Lake Community College
- Utah Valley University (Phase 3 ESCO)
- Utah National Guard
- Dixie State College

Some agencies and institutions went through campus-wide energy audit with ESCOs and ultimately decided that a performance contract was not the method they wished to pursue. These institutions and agencies, understanding the significant payback to their facilities by increasing efficiency, instead chose to do

comprehensive energy efficiency projects at their facilities using other methods for funding. Some examples of funding that have been used to carry out these projects include: endowment, revolving loan funds, and ARRA funding to complete these projects. The following projects are being executed in this manner:

- Weber State University
- Capitol Complex
- Utah State University
- Southern Utah University

Energy Efficiency Projects Through American Recovery and Reinvestment Act Funding

Funding from the Recovery Act is being used to complement the State Facility Energy Efficiency Fund. \$1.5 Million has been committed to the following institutions and agencies to be used for energy efficiency improvements in existing buildings:

- Utah State University
- Division of Facilities Construction and Management
- Department of Transportation
- Department of Human Services
- Snow College
- College of Eastern Utah
- Utah Colleges of Applied Technology

During FY10 projects were started for the Department of Human Services, the College of Eastern Utah, Snow College and the Utah Colleges of Applied Technology. These projects include in-depth energy audits for five Division of Juvenile Justice facilities, lighting retrofits in four CEU and Snow College buildings, and recommissioning projects at Davis, Ogden-Weber and Bridgerland Applied Technology Colleges. Many more projects were in the process of development during FY10 including lighting retrofits, electrical upgrades and HVAC upgrades.

State Employee Behavior Partnership for Energy Efficiency

Even well managed facilities that employ the most innovative technologies may experience unnecessary energy consumption as a result of building occupant behavior. Simple modifications to daily tasks or habits can lead to large energy savings.

SBEEP participated in launching a program to identify leaders within State Agencies that can understand both office culture and its related energy impact. These leaders are tasked with finding employee behavior changes that will save energy over time.

In the program's pilot year, agencies stepped up and reduced energy consumption by changing their office cultures in terms of energy efficiency. As the program moves forward there is a continued effort from within the agencies to implement ground level changes to eliminate wasted energy. For example, plug loads are being reduced by ridding workplaces of unnecessary equipment and appliances such as superfluous refrigerators.

Goals for Energy Conservation for Upcoming Year

Support the Goals of Energy Efforts throughout the State

The SBEEP serves as a resource and liaison to the various entities throughout the state whose focus is on energy efficiency and energy resources. SBEEP serves as a resource and works at collaborate the efforts of these various groups to maximize the impact of energy efficiency on state buildings by continually being involved in meetings throughout the state that address energy issues.

State Facility Energy Efficiency Fund

The State Facility Energy Efficiency Fund (SFEEF) will continue to be available to agencies that develop viable energy efficiency projects that show energy cost savings. SBEEP will work with the State agencies to identify opportunities for improved energy efficiency and assist them to define scope of work that will maximize on return.

Energy Internship

Salt Lake Community College created a new Energy Management Applied Science Associates degree. SBEEP staff serves on the Program Advisory Committee. DFCM's intention is to support energy management needs within State facilities, as well as the College's program by hiring interns in fiscal year 2011. Interns can assist with energy benchmarking, developing state facility case studies and collecting documentation needed for obtaining utility incentives.

Future ESCO Projects

Additional projects are being identified for Energy Saving Performance Contracts. Some institutions and agencies that were able to enter into initial agreements with Energy Saving Companies (ESCOs) are identifying new creative ways to expand the scope of their original projects. SBEEP is facilitating this process by managing these agreements to ensure agencies choose projects that best address energy payback and maintenance needs for their facilities. As projects are developed SBEEP staff will obtain governor's approval of the defined scope of work prior to moving to contract.

Continued Partnership with Agency Occupants

SBEEP continues to partner with agency staff and leaders throughout the State of Utah to ensure that the daily building occupant behavior is administered in a way that fosters an energy efficient environment. SBEEP continues to work with individuals and groups throughout a multitude of agencies to address energy relevant behaviors that can be modified in ways that will result in a reduction of unnecessary utility usage within agencies and institutions without disrupting occupant work flow.

Continued Assessment of High Performance Building Standard (HPBS)

SBEEP will continue to work with new buildings from the start of design as a resource in implementing the HPBS for the state. The SBEEP staff is also working with new building occupants to ensure that decisions made in the design process are translated into efficient operations once a building is occupied and running. SBEEP is looking into the measurement and verification for new buildings built under this standard.

High Performance Building Standard for Housing Projects

While in commercial applications the HPBS has shown tremendous impact on efficiency, it has not shown itself to be tailored correctly when applied to housing projects such as dormitories attached to a central plant. The staff of SBEEP is working to adapt this standard to best apply to the application of housing on campuses through a series of project specific investigations. The result will be a guide that is specific to this special facility type.

Building Performance Measurement

State agencies are implementing measures to improve energy efficiency. SBEEP, as a program tasked with coordinating statewide building efforts to improve energy efficiency, is working towards methods to support the organizational structure needed for a statewide effort to report and track progress towards further increasing the state's energy efficiency.

American Recovery and Reinvestment Act Funding

All ARRA funding must be expended by April of 2012. The SBEEP has earmarked the \$6 million in grant funds that has been allocated for energy efficiency projects and the \$4 million in renewable grant money and will continue to roll out these projects in the upcoming year. The goal is to expend 50% of the funds by July of 2011.

Strategies for Long-Term Improvement in Energy Efficiency

Creative Financing

The State Building Energy Efficiency Program (SBEEP) strives to identify all potential sources of funding available for efficiency projects to maximize the impact for savings throughout state buildings. SBEEP continues to collaborate with other state agencies and non-profits to follow any potential sources of funding that might be applicable to state building energy efficiency work.

Construction management of energy projects

SBEEP strives to keep costs of energy projects low for all agencies and institutions by employing DFCM's procurement efficiency and credibility. SBEEP is staffed with knowledge of cost-effective energy project pricing and quality and works to keep the staff educated in all new technologies so that over the long term they are providing the most cost effective solutions to energy efficiency in State owned buildings. SBEEP has a continuous learning process in place.

Integrated approach with DFCM project management to:

- Prioritize energy efficiency in all construction project
- Reduce disruption related to renovations for energy needs
- Learn from facility performance and improve DFCM processes
- Connect with facility management to verify energy saving strategies
- Engage in early stages of design and construction
- Create knowledge base and peer groups that understand how to do energy projects correctly and cost effectively

APPENDIX A

TABLE 1

Benefits of the New Standard

- Increased energy savings
- We have common terms for evaluating “Green Building” by using common standards of measurement. LEED is a program that is recognized by the public both locally and nationally and so it can readily communicate the State’s goals. Designers, builders and subs oftentimes have already learned the methods and have invested staff and resources into streamlining these processes, which likely result in decreased overhead costs as no additional training is necessary.
- We gain 3rd party review of documentation of each of the measures in the categories defined by the program, which are sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, and innovation in design
- Goals are met via performance based criteria and therefore facilitate a measurable outcome as opposed to a prescriptive measure in which savings are not quantified.
- We can utilize tools created by entities working nationally on efforts to enhance building energy performance. LEED is constantly undergoing review on a national basis for improvement with input from hundreds of building professionals. It’s most recent revision puts more emphasis on water and energy efficiency surpassing the State’s standard.
- Increased first costs will be mitigated by lower operational costs. Studies indicate operational savings are ten times greater than first costs.
- State Buildings will use resources more efficiently
- Buildings will contribute to increased productivity and improved employee health and comfort by providing better work environments.
- The State institute life-cycle cost evaluation methods.

**See http://dfcm.utah.gov/downloads/design_manual/design_requirements.pdf section 5 to review current version of the High Performance Building Rating System.*

TABLE 2

FY2010 High Performance Building Program Projects

Project Name	Total Utility Incentive	Energy Saving (kWh)	Demand Saving (KW)	Energy Savings (therms)	Annual Energy Cost Savings	% Cost Saving Over Code	Utility supplied energy modeling costs	Simple Payback in Years
Utah Museum of Natural History	\$41,594	287,420	85	59272	\$72,081	23%	\$25,000.00	3.4
Unitah Basin Applied Technology Center	\$22,724	157703	76	9677	\$23,432	-	\$18,775.00	10.2
MATC North Utah County Design	N/A	150,632	63	3018	\$21,154	24%	n/a	9.5
USTAR--Bio Innovation Research Institute	\$124,304	632,858	111	241777	\$210,307	37%	\$33,508.50	12.9
USU Early Childhood Development	N/A	159,900	78	5360	\$21,010	36%	n/a	-
Unified Lab Dept. of Health	\$119,279	846693	216	4900	\$57,414	21%	\$36,624.47	6.9
UU College of Nursing Renovation	\$43,843	302,450	151	5553	\$69,048	41%	\$19,844.00	4.1
Northern Region State Veterans Nursing Home	\$21,209	145,625	50	32037	\$44,525	38%	\$19,239.75	2.5
Multi-Agency State Government Office Building	\$111,604	882684	17	code	\$53,152	29%	\$36,394.26	12.9
USU Vernal Bingham Energy	\$42,468	118,930	35	41857	\$37,394	34%	\$12,974.50	8.3
UU Neuropsych. Institute Expansion	\$44,182	337,352	74	3922	\$36,878	25%	\$17,938.00	3.4
total	\$571,207	4,143,477	956	429717	\$676,685	32%	\$220,298	7.4

TABLE 3

Projects in Progress Under the High Performance Building Program

Project Name	Total Utility Incentive	Energy Saving (kWh)	Demand Saving (KW)	Energy Savings (therms)	Annual Energy Cost Savings	% Cost Saving Over Code	Est of energy modeling costs	Simple Payback in Years
UU School of Business Replacement/ Expansion	\$20,275	471,941	TBD	TBD	\$53,259	27%	\$34,194.50	TBD
USTAR - Neuroscience & Biomedical Research Technology Facility	\$685,246	4,799,250	TBD	50667	\$234,997	22%	\$34,850.00	TBD
SUU Gibson Science Center Addition	TBD	TBD	TBD	30000	\$22,724	23%	\$5,205.00	TBD
USU College of Agriculture/ Ag Science Replacement	\$0	TBD	TBD	TBD	TBD	TBD	\$0.00	TBD
UU Student Life Center	TBD	TBD	TBD	TBD	TBD	TBD	\$25,000.00	TBD
DSC Holland Centennial Commons Building	\$0	TBD	TBD	TBD	TBD	TBD	\$0.00	TBD
UU L.S. Skaggs Pharmacy Building	TBD	TBD	TBD	TBD	\$142,943	23%	\$1,855.00	TBD
UVU Health Science Building	TBD	TBD	TBD	TBD	TBD	TBD	\$0.00	TBD
OWATC Health Technology Building Addition	TBD	TBD	TBD	TBD	TBD	TBD	\$0.00	TBD
SLCC South City CFNM	\$28,725	TBD	TBD	TBD	\$23,270	TBD	\$18,255.00	TBD
SLCC South City CTE	\$14,851	111,605	TBD	TBD	\$13,207	29%	\$21,200.00	TBD
SLCC South City annex	\$0	TBD	TBD	TBD	\$0	TBD	\$0.00	TBD
UU Sorenson Arts and Education Complex	TBD	TBD	TBD	TBD	TBD	TBD	\$25,000.00	TBD
UU South campus housing	TBD	TBD	TBD	TBD	TBD	TBD	\$15,000.00	TBD
SLCC Instructional Admin building	TBD	TBD	TBD	TBD	TBD	TBD	\$25,000.00	TBD

WSU Wasatch Hall Renovation Housing I	\$8,094	77,431	TBD	19215	\$14,301	25%	\$15,000.00	TBD
WSU Housing II	\$8,094	TBD	TBD	TBD	TBD	TBD	\$15,000.00	TBD
USU Regional Campuses/ Distance Ed	TBD	TBD	TBD	TBD	TBD	TBD	\$0.00	TBD
UU Data Center	TBD	TBD	TBD	TBD	TBD	TBD	\$15,342.00	TBD
Southern Utah Museum of Art	TBD	TBD	TBD	TBD	TBD	TBD	\$25,000.00	TBD
Total Calculated to Date	\$791,791	5,460,227	0	99882	\$504,701		\$333,201.50	

TABLE 4**Renewable Energy Projects**

ATC Davis Solar Array	\$261,843
UNG RE Solar Array	\$170,000
Unified State Lab Solar Array	\$400,000
WSU Shepard Union Building Solar Array	\$236,000
SUU Facilities Area Campus Solar Array	\$160,000
UVU Facilities Building GSHP -	\$150,000
UVU Storage Buildings Solar Array	\$150,000
USU College of Agriculture Solar Array	\$700,000
WSU Davis Solar Array	\$68,000
U of U Main Campus Financed Solar Project	\$1,000,000
UDOT Solar Thermal Strawberry Hwy Maintenance Stn.	\$40,000
UDOT Station 2425 Solar Array	\$33,000
DNR Edge of Cedars Museum Solar Array	\$160,000
U of U Rio Mesa Solar Array	\$21,900
SLCC Campus Solar Array	\$160,000
DSC Covered Parking Solar Array	\$160,000
PPA Consulting Services	\$100,000

TABLE 5**FY08 Energy Efficiency Projects**

Project	Electricity Savings (kWh)	Demand Savings (kW)	Natural Gas Savings (Dth)	Annual Savings (\$)	Project Costs (\$)	Simple Payback (years)	Utility Incentives (\$)	Self Direction Credits (\$)	RCx Engineering Study (\$)
Efficiency Projects	6,405,252	1363.8	0	377,444	1,754,035	2.1	5,027	968,754	0
Subtotals	6,405,252	1363.8	0	377,444	1,754,035	2.1	5,027	968,754	0

FY08 Recommissioning Projects

Project	Electricity Savings (kWh)	Demand Savings (kW)	Natural Gas Savings (Dth)	Annual Savings (\$)	Project Costs (\$)	Simple Payback (years)	Utility Incentives (\$)	Self Direction Credits (\$)	RCx Engineering Study (\$)
USU SDL	324,350	7.3	0	9,414	9,990	1.1	0	0	33,000
NG Readiness	267,100	82	0	74,191	9,990	0.1	0	0	33,000
DIX Cox	312,510	21	0	16,902	9,990	0.6	0	0	33,000
DIX McD	113,188		0	5,890	9,990	1.7	0	0	33,000
Tax			0	12,000	9,990	0.8	0	0	33,000
WFS Admin	187,826	11	0	6,908	9,990	1.4	0	0	33,000
UU Bio	173,234	61.4	0	6,733	9,990	1.5	0	0	33,000
UU Eccles	2,107,435	175	0	61,452	9,990	0.2	0	0	33,000
WSU Student Cannon	250,200	59	0	30,944	9,990	0.3	0	0	33,000
WSU Student Cannon	185,314	145.5	0	26,986	9,990	0.4	0	0	33,000
SUU Student	186,059	33	0	9,048	9,990	1.1	0	0	33,000
SUU Sharwan	421,962	116	0	25,532	9,990	0.4	0	0	33,000
SUU Centrum	203,849	54	0	11,657	9,990	0.9	0	0	33,000
Subtotals	4,733,027	765.2	0	297,657	129,870	0.4	0	0	429,000
FY08 Totals	11,138,279	2,129	0	675,101	1,883,905	1.3	5,027	968,754	429,000

FY09 Energy Efficiency Projects

Project	Electricity Savings (kWh)	Demand Savings (kW)	Natural Gas Savings (Dth)	Annual Savings (\$)	Project Costs (\$)	Simple Payback (years)	Utility Incentives (\$)	Self Direction Credits (\$)	*RCx Engineering Study (\$)
Courts - Ogden Juvenile Occupancy Sensors	104,694	28	--	7,259	19,844	0.8	13,893	0	0
UTNG Draper Complex - Energy Project	346,101	53	900	25,275	263,771	6.9	88,364	0	0
DSC Smith Computer - Lighting	31,725	7.2	--	2,047	9,990	4.9	0	0	0
DSC Eccles Health - Lighting	24,948	4.1	--	1,343	7,769	5.8	0	0	0
DSC Maintenance - Lighting	19,930	3.8	--	1,153	1,875	1.6	0	0	0
SLCC Applied Tech. - Lighting	290,852	63.8	--	19,448	34,561	0.4	0	27,648	0
DJJS Cache Valley - Lighting Control	42,259	--	--	2,112	960	0.5	0	0	0
Schools for Deaf/Blind (Highland) - Lighting	125,573	33.8	--	8,794	36,385	2.4	0	15,714	0
ABC Store # 1 - Lighting	23,477	5.3	--	1,490	5,944	2.6	0	2,010	0
ABC Store # 4 - Lighting	5,411	1.6	--	400	2,245	4.1	0	600	0
ABC Store # 35 - Lighting	14,014	3.2	--	971	5,857	5.0	0	1,017	0
DWS Admin Parking Terrace - Time Clocks	54,464	--	--	1,634	3,204	2.0	0	0	0

DWS Midvale - Lighting	33,996	9.7	--	2,486	7,713	1.9	0	3,043	0
CEU Blanding Arts& Events Ctr. - Lighting	29,158	8.5	--	2,178	8,363	3.8	0	0	0
Rio Grande - Lighting	58,544	21.4	--	5,438	18,469	1.7	0	9,235	0
WSU Boiler #3 Economizer	--	--	1,730	14,337	64,000	4.5	0	0	0
DNR - Edge of Cedars Museum Int Lighting	58,023	13.6	--	4,053	28,968	7.1	0	0	0
DJJS - Decker Lake Lighting Retrofit	50,919	14.2	-	3,646	26,261	1.7	0	20,081	0
Subtotals	1,314,088	271	2,630	104,064	546,179	3.5	102,257	79,348	0

FY09 Recommissioning Projects

Project	Electricity Savings (kWh)	Demand Savings (kW)	Natural Gas Savings (Dth)	Annual Savings (\$)	Project Costs (\$)	Simple Payback (years)	Utility Incentives (\$)	Self Direction Credits (\$)	*RCx Engineering Study (\$)
Tax Commission – RCX	222,900	13.6	800	14,912	8,500	0.6	0	0	33,000
WSU Browning Ctr. - RCX	217,810	29	1,535	21,330	39,448	1.8	0	0	33,000
Subtotals	440,710	43	2,335	36,242	47,948	1.3	0	0	66,000
FY09 Totals	1,754,798	314	4,965	140,306	594,127	2.9	102,257	79,348	66,000

FY10 Energy Efficiency Projects (SFEF)

Project	Electricity Savings (kWh)	Demand Savings (kW)	Natural Gas Savings (Dth)	Annual Savings (\$)	Project Costs (\$)	Simple Payback (years)	Utility Incentives (\$)	Self Direction Credits (\$)	*RCx Engineering Study (\$)
USU - HPER Gyms lighting retrofit	194,084	22.9	-	12,281	62,470	5.1	0	0	0
UDOT - Murray & Wanship Lighting	29,764	7.8	-	2,046	7,868	1.8	0	4,272	0
UDOT - Aeronautics Lighting Retrofit	22,523	8.2	-	1,911	12,752	4.8	3,574	0	0
Subtotals	246,371	39	0	16,238	83,090	4.6	3,574	4,272	0

FY10 Recommissioning Projects

Project	Electricity Savings (kWh)	Demand Savings (kW)	Natural Gas Savings (Dth)	Annual Savings (\$)	Project Costs (\$)	Simple Payback (years)	Utility Incentives (\$)	Self Direction Credits (\$)	*RCx Engineering Study (\$)
UDC - Central Utah Correctional Facility	694,625	77.7	-	32,812	10,570	0.3	0	0	33,000
Subtotals	694,625	78	0	32,812	10,570	0.3	0	0	33,000
FY10 Totals	940,996	117	0	49,050	93,660	1.7	3,574	4,272	33,000

Totals: FY08-FY10 13,834,073 2,559 4,965 864,457 2,571,692 1.6 110,858 1,052,374 528,000

TABLE 6

FY 2010 Projects Approved by the Utah State Building Board

Project	Estimated Cost	Savings (kWh)	Savings (kW)	Savings (DTH)	Savings (\$)	Incentives
Ogden Weber ATC - Various Energy Projects	\$80,300	273,000	7.1	3,300	\$39,700	\$38,400
Davis ATC - Various Energy Projects	\$11,300	62,000	0	0	\$1,650	\$8,200
Bridgerland ATC - Various Energy Projects	\$80,100	161,700	29.0	750	\$16,800	\$0
Uintah Basin ATC - Various Energy Projects	\$37,800	77,100	1.8	490	\$7,500	\$0
UDOT Region 4 Lighting	\$87,900	152,000	5.8	0	\$15,400	\$19,900
DHS/DJJS - Various Energy Projects	\$366,800	613,000	0.0	3,600	\$51,000	\$74,600
Capitol Hill - Various Energy Projects	\$975,000	TBD	TBD	TBD	\$115,000	\$175,000
DHS/DJJS - Ogden O & A - Various Energy Projects	\$10,000	21,621	6.7	0	\$2,377	\$1,861
UDOT Southeast Region 4 Lighting	\$40,000	69,384	0.0	0	\$6,498	\$9,923
UDOT Aeronautics - Lighting	\$10,000	22,523	8.2	0	\$1,911	\$3,394
Totals	\$1,699,200	1,452,328	58.6	8140	\$257,836	\$331,278