

STATE OF UTAH



STATE BUILDING ENERGY EFFICIENCY PROGRAM FISCAL YEAR 2011 ANNUAL REPORT

STATE OF UTAH
STATE BUILDING ENERGY EFFICIENCY PROGRAM
FY 2011 ANNUAL REPORT TO THE GOVERNOR AND THE LEGISLATURE

Prepared by
John Harrington
DFCM Energy Director

The Department of Administrative Services

Division of
**Facilities Construction
& Management**

SERVICES ELEVATED



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SUMMARY

Increasing energy efficiency is one of the many important goals for the State of Utah. Energy efficiency is the process of doing more with less. The goal is to accomplish the same tasks and functions as before while using less energy now and for the life of the building. Utah boasts some of the most diverse and abundant natural resources in the nation which has resulted in some of the lowest utility rates in the United States. Utah has the lowest natural gas prices in the U.S. while electricity rates are among the lowest in the nation. The Legislature's commitment to and cogitation of energy conservation and energy efficiency has driven the creation of the State Building Energy Efficiency Program (SBEEP). This can be found in the Quality Growth Act of 1999.1 (1 Chapter 24, laws of Utah 1999). In his 2010 State of the State address, Governor Gary R. Herbert announced his 10-year energy plan, which is, to utilize the State's diverse natural resources and combine that with innovative and entrepreneurial minds to have Utah at the forefront of helping the world solve its energy challenges. 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. Efforts to increase energy efficiency in response to the directives issued by both the Governor and the Legislature have focused on state-owned buildings.

The State Building Energy Efficiency Program strives to carry out the goal of improving energy efficiency while reducing the energy costs for state facilities. The program looks to reduce operating costs and lower maintenance costs which will in turn extend the life of the building equipment. The efficiency programs being targeted by the State Building Energy Efficiency Program are:

- Energy retrofits to optimize energy efficiency in existing buildings
- High Performance Building Standard for Capital Development Projects
- Building Systems Commissioning
- Building Envelope Commissioning
- Energy Efficiency Incentive Programs for New and Existing Buildings
- Renewable Energy Projects through American Recovery & Reinvestment Act Funding
- State Facility Energy Efficiency Loan Fund
- Energy Saving Performance Contracts
- Energy Efficiency Projects through American Recovery & Reinvestment Act Funding
- State Employee Behavior Partnership for Energy Conservation
- Utility Auditing Services

From design to operations, the costs incurred by the state for implementing energy efficient measures in state owned buildings will, over time, yield monetary benefits which far exceeds the costs of those measures undertaken. Also of value are those additional measures included in the portfolio of efficiency measures undertaken by SBEEP, which include efforts to educate, train, and raise employees awareness 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 decisions. The program provides funding resources as well as tools and cost-effective methods for energy efficient design, construction and operations. SBEEP aims to reduce the impact of energy usage in buildings while maintaining high quality spaces for State building occupants.

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

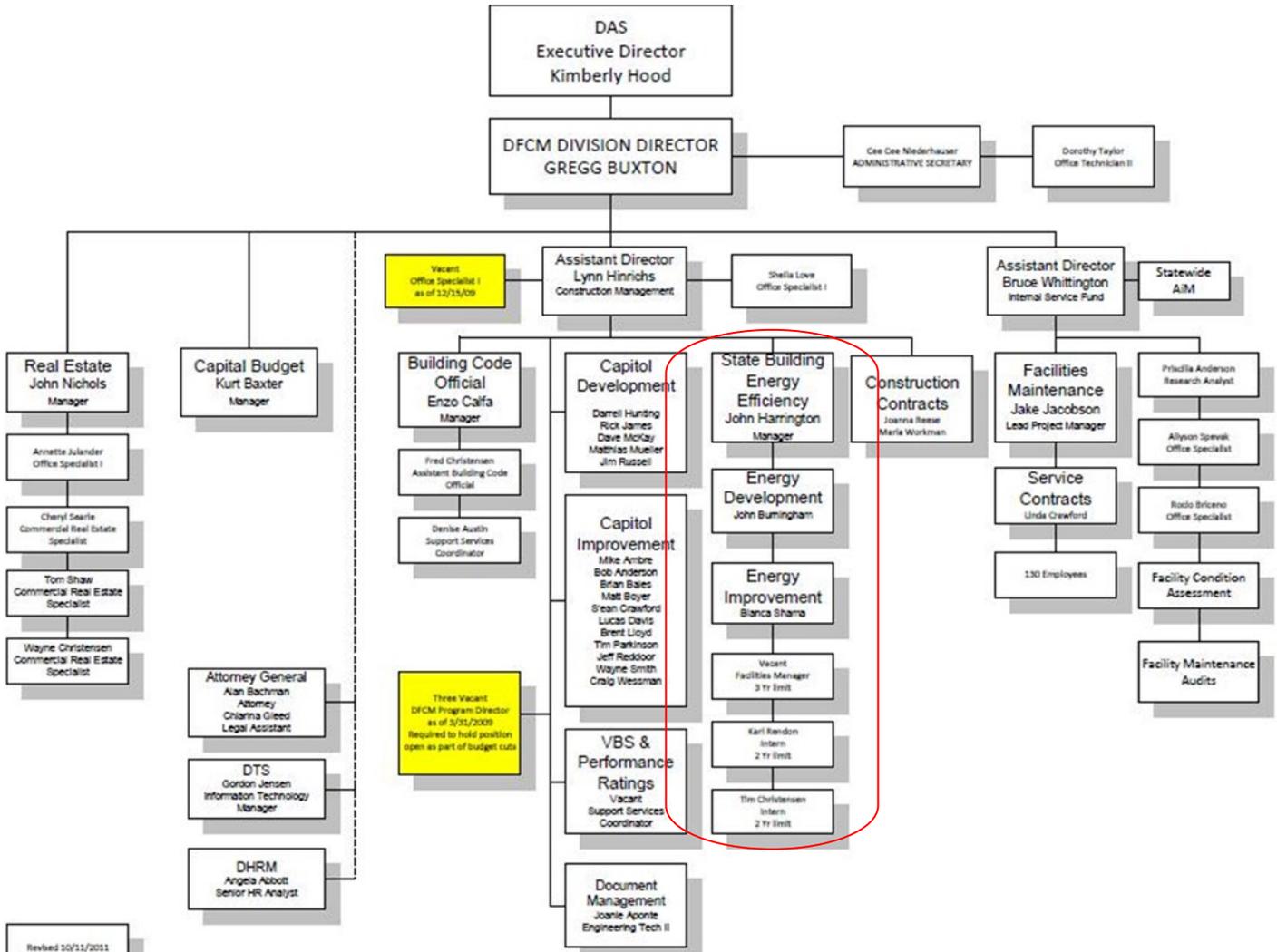
Amendments to UCA §63-9-67(2) in 2006 transferred responsibility over SBEEP to DFCM, and directed the division to:

- 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 Subcommittee an annual report that accomplishes the following:
 - ⇒ 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



Revised 10/11/2011

Staff Biographies

John Harrington CEM, DFCM Energy Director:

John Harrington has over 40 years experience in energy efficiency. He has worked in the private sector of energy for over 34 years and is currently employed with the State of Utah for 6 years. He is the State Building Energy Efficiency Program (SBEEP) Manager. He manages all aspects of the SBEEP program including new construction and existing buildings. He is an Energy Manager certified through the Association of Energy Engineers (AEE) and is the current President of the AEE Utah Chapter. In 2009 John was named the National Energy Manager of the Year for Region 5 from the Association of Energy Engineers. In 2010 John was the recipient of the Governor's Award for Excellence in Energy and Environment.

Bianca Shama, MPA, Energy Program Director:

In 2009 Bianca joined the State to assist in the facilitation of a \$10 million grant awarded to the DFCM to perform energy efficiency work. In August of 2011 Bianca's role shifted and expanded to focus on project management of energy conservation, efficiency and renewable energy projects in state owned facilities. Bianca's responsibilities with the DFCM include managing the allocation of the revolving loan fund, collaborating with State agencies and institutions to develop energy efficiency projects and assisting them in exploring resources in which to make efficiency work possible at their facilities. Bianca works on initiatives such as identifying and making best use of utility incentive programs for efficiency work and coordinating with other project managers at the State to ensure available incentives are collected from the utility companies. Prior to working for the State of Utah, Bianca worked as a consultant focusing on behavioral energy change. Her work focused on the people side of energy management and looked to find cost effective solutions to reducing utility usage without the disruption of occupant comfort. Bianca served as a member of the Climate Action Plan Task Force at the University of Utah in 2009. Bianca holds a Masters in Psychology from Adelphi University and in 2011 completed a Masters of Public Administration from the University of Utah. In 2010 Bianca was inducted into the National Honor Society for Public Affairs and Administration.

John Burningham, LEED AP, Assoc AIA, Energy Program Director:

John joined DFCM in the fall of 2011. His work includes overseeing the implementation of the State's High Performance Building Standard as well as analyzing the effects thereof and revising the standard as necessary to further enhance the performance of state owned buildings. Additionally, he provides technical advice and support to design teams working on state buildings as it relates to energy and the High Performance Building Standard. He works with the state agencies and institutions to develop agency wide energy management plans and programs as well as identifying feasible energy efficiency projects. He also works on state initiatives such as State facility energy performance measurement, integrating and maximizing 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. John holds a Masters of Architecture from the University of Utah and has practiced architecture locally for several years. He is also a LEED Accredited Professional and worked as a consultant to the EPA, DOE and United States Green Building Council prior to coming to DFCM.

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 the Leadership in Energy and Environmental Design (LEED) Silver Certification and incorporate enhanced building commissioning activities. LEED is a program developed by the United States Green Building Council (USGBC) and administered by the Green Building Certification Institute (GBCI). Projects are awarded certification post construction and post commissioning. All of 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. 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. The standardization of the High Performance Building Program has required the design team, building occupants and contractors to set energy efficiency goals during the early design phases of a project. As the goals and strategies are implemented during the design phase the energy and cost savings are realized providing immediate and long term operational savings to the states newly constructed buildings. Additionally, these goals and strategies receive a third party review and verification by the GBCI helping to ensure that the building performs as intended. 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 design review under the High Performance Building Program.

Policies and Changes to Other Standards for New Buildings

Building System Commissioning

Building commissioning was implemented in 2009 and is utilized for each new capital development project. ASHRAE Guideline 0, The Commissioning Process, defines commissioning as "a quality-oriented process for achieving, verifying, and documenting that the performance of facilities, systems, and assemblies meets defined objectives and criteria". Commissioning is a quality assurance-based process which when done properly accomplishes many great tasks, such as: greater energy efficiency, healthier environment, safety of occupants and the improvement of indoor air quality by making certain the building components are working properly and implemented with the greatest possible efficiency. The State engages commissioning agents on most 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 is key to ensuring that each new building is operating as efficiently as possible. As this process has been implemented in dozens of buildings over the last several years DFCM is pleased but not satisfied and will consistently evaluate and look for ways to further the energy efficiency of upcoming projects.

Envelope Performance Standards and Commissioning

DFCM has undertaken efforts to provide a more comprehensive and thorough approach to increase energy efficiency by increasing the quality and tightness of the State's building envelopes. Industry research and corresponding reports have provided substantial evidence that one of the most cost effective ways to increase energy efficiency is through a building's envelope.

Some findings suggest that a good building envelope can save as much as 30% in energy use. The pilot program which was implemented in 2009 has been applied to twelve buildings. These include: the Southern Utah University Gibson Science Building, Dixie State College Holland Centennial Commons Building and Weber State University's Davis Building. Most of these buildings are still under construction or have been recently completed. DFCM is in the early stages of analyzing these projects to determine the effectiveness of the pilot program. Findings will be used in conjunction with industry research and reputable case studies. Additionally, each of these buildings energy use will be tracked over time and compared to other DFCM buildings and similar buildings in similar climates across the country. The associated costs with a high performance envelope and envelope commissioning will be reviewed along with the realized energy savings. It is expected that a review of the associated costs and benefits will provide valuable insight for future DFCM buildings.

Incentive Programs for New and Existing Facilities

As one of the largest customers to local utility companies, the State participates in incentive programs wherever feasible. Incentives are offered by utility companies to motivate customers to be more energy conscious and reduce ones carbon imprint by implementing energy efficient equipment or measures and as a result will get rewarded monetarily for it. This can be in the form of cash, utility bill credits, and design assistance. Incentives can be for efficient new construction or retrofit projects. Incentives often provide a means for projects to implement energy efficient strategies that result in energy efficiency levels beyond levels required by current energy codes. These heightened levels also reduce the yearly operating costs thus providing long-term savings to the State over the life of the building. Since July 2006 the State has received over \$4.3 million 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. Over the course of dozens of projects DFCM has developed a healthy working relationship with each utility provider allowing for both incentive dollars and energy savings to be maximized.

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 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 that are being 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 in the State's existing buildings. Funding vehicles for creating projects to improve energy efficiency include 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 Loan 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. The Building Board approved projects are listed, in Appendix A-Table 6.

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 (Multiple Phases)
- 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 (Multiple Phases)
- Utah Valley University (Phase 3 ESCO)
- Utah National Guard (Multiple Phases)
- Dixie State College (Multiple Phases)
- University of Utah (Multiple Phases)

Some agencies and institutions went through a campus-wide energy audit with an ESCO and ultimately decided that a performance contract was not the method they wished to pursue. These institutions and agencies because of the significant payback to their facilities by increasing efficiency, chose instead 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. \$1.35 Million has been committed to the following institutions and agencies to be used for energy efficiency improvements in existing buildings:

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

These projects include in-depth energy audits for eight Division of Juvenile Justice facilities, chiller replacements, HVAC upgrades, lighting retrofits and recommissioning projects

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 a building's occupancy 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 has moved 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 and hundred of blankets were distributed to be used in place of space heaters.

Utility Auditing Services

Utility Cost Management Consultant (UCMC) have provided auditing services to the State of Utah to review utility data and research and collect on any errors in the billings so that the State is reimbursed any funds owed to them from any errors. A savings summary for State Government entities dating from October 1, 2009 to December 29, 2011, is outlined in Appendix A- Table 7. In summary, UCMC services have produced substantiated savings of over \$2.4 million from October 1, 2009, and recent (within the past 24 months) utility-account modifications are anticipated to produce a minimum of continued annual cost reductions of approximately \$870,000 for 2012 and forward. Additional future savings forecasts have not been included in calculations where UCMC recommendations are dated back beyond 24 months. In other words, future savings forecasts are on the conservative side.

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 works to 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 Loan Fund

The State Facility Energy Efficiency Loan 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 (SLCC) started offering a few years ago an A.A.S. Degree in Energy Management. Students are trained in alternative and renewable energy, introduced to LEED training, HVAC controls and equipment, and energy audits. DFCM supports energy management needs within State facilities, as well as SLCC's program by hiring interns, starting in fiscal year 2011. Interns assist DFCM with energy benchmarking, developing state facility case studies, energy audits 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.

Development of Agency Energy Programs

SBEEP will build upon existing relationships with state agencies including the States higher educational institutions that have yet to develop their own energy programs. SBEEP will use program examples from other agencies and institutions within the state to help administration identify values and priorities relating energy efficiency. These values and priorities will be used as a basis for the agency's energy program. It is critical to have the support of administration to ensure the successful implementation of an agency energy program. Program elements often state priorities in relation to energy efficiency projects, financing mechanisms, projects to be pursued, and return on investment goals. Each program will be unique and tailored to the priorities of the agency and institution.

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 and facilities managers to ensure that decisions made in the design process are translated into efficient operations once a building is occupied and running. Additionally, an increased effort will be made to bridge the gap between the building design and construction process and the actual day to day operations of the building. Efforts to promote a greater collaboration between designers and facilities managers will be explored within the HPBS. Current efforts to review and develop specific case studies of the effectiveness of the HPBS, HVAC commissioning and envelope commissioning will continue. As part of the development of the HPBS the implementation of measurement and verification of energy use and building performance will be explored.

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. Energy benchmarking efforts will continue in conjunction with a review of buildings recently completed under the HPBS.

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 complete these projects by April of 2012.

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, 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.

Ongoing education of DFCM consultants and service providers.

Since the implementation of the HPBS and the LEED certification process in 2009 significant improvements in the service levels of DFCM's service providers has been made. Architects, Engineers, Contractors and related consultants are becoming experts in issues related to the HPBS. The amount of time required to implement the HPBS has diminished while the effectiveness of the energy efficiency measures has increased. The design and construction means and methods required by the standard are continually being improved as each new building is designed and built resulting in a significantly better building.

Integrated approach with DFCM project management to:

- Prioritize energy efficiency in all construction projects
- 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
- Provide technical support and educational opportunities to each agency and design and construction teams.
- Create knowledge base and peer groups that understand how to do energy projects correctly and cost effectively

APPENDICIES

APPENDIX A

TABLE 1

ROCKY MOUNTAIN POWER INCENTIVES

State Of Utah DFCM 2006-2009				
# Projects Completed	Energy Savings (KWH)	Demand Savings (KW)	Total Incentive Paid	Engineering Services Provided
197	23,081,498	4,388	\$3,322,073	\$227,270
State Of Utah DFCM 2010-2011				
# Projects Completed	Energy Savings (KWH)	Demand Savings (KW)	Total Incentive Paid	Engineering Services Provided
28	8,788,406	1,688	\$1,051,253	\$165,266

TABLE 2
High Performance Building Standard
Projects

DFCM Projects	Total Utility Incentive	Electrical Incentive Amount	Nat. Gas Incentive Amount	Energy Savings (kWh)	Energy Savings (therms)	Annual Utility Savings	Simple Payback
SLCC South City CFNM	\$28,725	\$28,725	\$0	201,458	TBD	\$24,614	\$7
SLCC South City CTE	\$19,802	\$19,802	\$0	142,390	-	\$14,790	\$8
SLCC South City Annex	\$8,468	\$8,468	\$0	62,600	-	\$5,651	\$2
SUU Museum of Art	\$12,223	\$12,223	\$0	TBD	TBD	TBD	TBD
Tooele ATC	\$16,258	\$16,258	\$0	117,148	TBD	\$11,899	\$3
UU School of Business Replacement/ Expansion Phase I	\$20,275	\$20,275	\$0	471,941	TBD	\$25,337	\$9
UU USTAR - Neuroscience & Biomedical Research Technology Institute	\$685,246	\$685,246	\$0	5,398,975	30,380	\$268,698	\$7
SUU Gibson Science Center Addition	\$12,320	\$12,320	\$0	95,166	30,000	TBD	TBD
UU L.S. Skaggs Pharmacy Building	\$126,437	\$126,437	\$0	1,047,394	TBD	\$39,381	\$2
WSU Wasatch Hall Renovation Housing I	\$8,094	\$8,094	\$0	112,202	19,215	\$6,462	\$5
Utah Museum of Natural History	\$41,594	\$41,594	\$0	391,311	59,272	\$72,081	\$3
Uintah Basin ATC	\$49,170	\$18,810	\$30,360	134,080	30,360	\$15,166	\$13
USU USTAR--Bio Innovation Research Institute	\$68,485	\$68,485	\$0	531,707	3,018	\$42,309	\$10

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pg. III

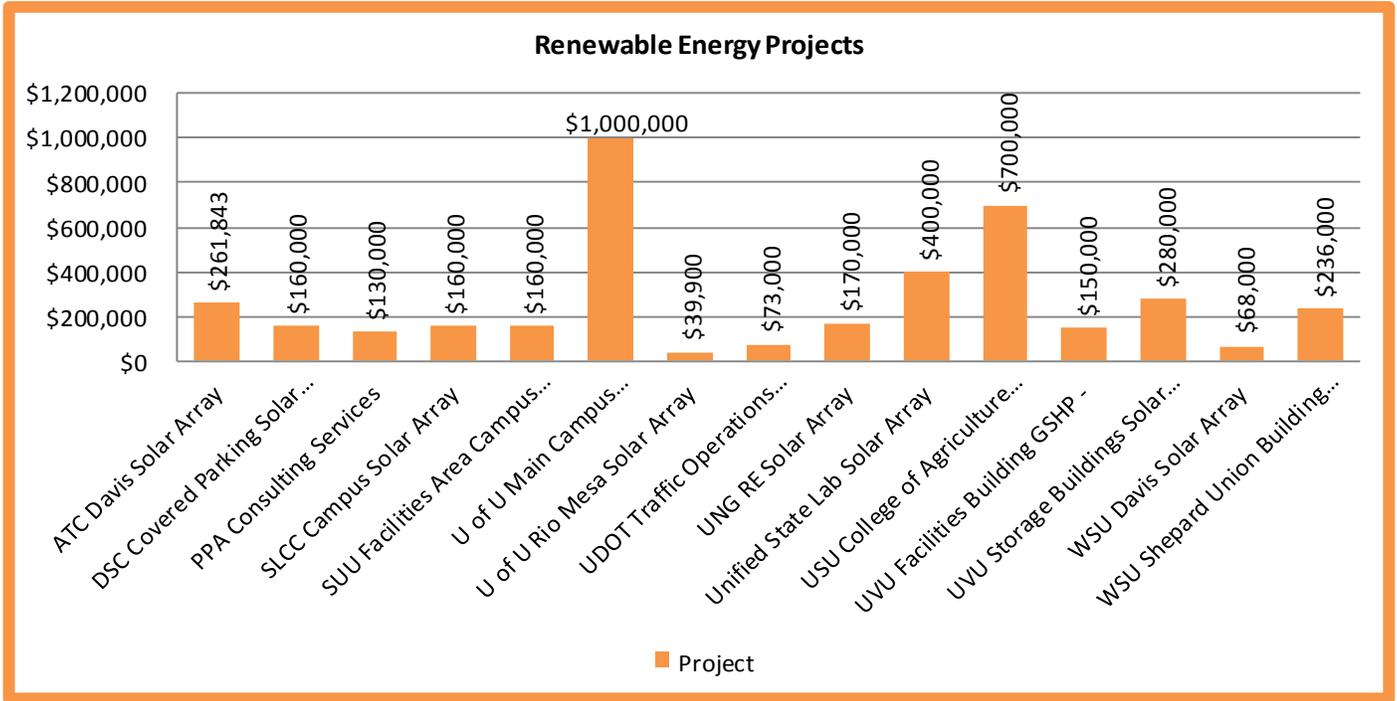
TABLE 2
High Performance Building Standard
Projects
(continued from pg. II)

DFCM Projects	Total Utility Incentive	Electrical Incentive Amount	Nat. Gas Incentive Amount	Energy Savings (kWh)	Energy Savings (therms)	Annual Utility Savings	Simple Payback
USU Early Childhood Development	N/A	N/A	N/A	159,900	5,360	\$21,010	N/A
Mountain Land ATC	\$21,201	\$21,201	\$0	150,632	241,777	\$14,310	10
Unified Lab Dept. of Health	\$91,975	\$91,975	\$0	694,040	5,360	\$57,116	19
UU College of Nursing Renovation/Seismic Upgrade	\$39,669	\$39,669	\$0	276,405	5,553	\$28,799	3
Multi-Agency State Government Office Building	\$122,924	\$111,604	\$11,320	1,014,147	11,320	\$62,426	12
Northern Region State Veterans Nursing Home	\$18,127	\$18,127	\$0	130,225	41,857	\$13,450	3
USU Vernal Bingham Energy - BEERC	\$36,792	\$6,432	\$30,360	127,321	3,922	\$9,134	8
UU Neuropsychiatric Institute Expansion	\$62,912	\$44,182	\$18,730	337,352	18,730	\$23,685	TBD
Total Calculated to Date	\$1,490,697	\$1,490,697	\$1,490,697	11,596,394	506,124	\$756,318	

TABLE 3
Projects in Design Review Under the
High Performance Building Program

DFCM Projects in the early stages of design or construction (energy savings yet to be calculated)	
UU Student Life Center	Ivins Veterans Administration CLC
Ogden Juvenile Courts	Payson Veteran Administration CLC
UU Sorenson Arts and Education Complex	Camp Williams BEQ
UU Honors Housing at Legacy Bridge	WSU - Davis Classroom Building
SLCC Instructional Admin Building (IAB)	UU Ambulatory Care Center
Ogden Driver's License Division	UVU Pope Health Science Building
WSU Housing II	Ogden Weber ATC Health Technology Building Addition
DSC Gardner Student Center Addition	Snow College Library/Classroom
UU Data Center	UU Thatcher Building Addition
UVU Student Wellness Center and Parking Structure	Utah State Hospital Consolidation
Snow College Student Housing	UU S.J. Quinney College of Law - Programming
SUU Football Stadium	Camp Williams Tass Complex Phase II

TABLE 4
Renewable Projects
Funded Through ARRA



Weber State University, Davis Building Solar Array

Table 5
FY 2011 Improvement Projects in
Existing Buildings

Agency	Project	Budget	Electricity Savings (kWh)	Gas Savings (Therm)	Annual Savings
BATC	Recommisioning and Audit	\$85,000	368280	55126	\$59,722
CEU	BDAC Lighting	\$30,000	36690	n/a	\$3,148
CEU	Career Center Lighting	\$39,000	125388	n/a	\$8,545
DATC	Recommisioning and Audit	\$75,000	168000	29710	\$32,035
DHS	Millcreek Various Energy Improvements	\$9,197	41726	n/a	\$3,935
DHS	Slate Canyon Youth Center	\$60,000	18201	n/a	\$716
DHS	Weber Valley Various Energy Improvements	\$85,600	45601	n/a	\$549
DJJS	Millcreek and Ogden Lighting/HVAC	\$42,715	84269	n/a	\$6,085
DNR	Edge of Cedars Exterior Lighting	\$5,017	58023	n/a	\$4,053
DSC	AMA, Dixie EPC Phase 2, Exterior Lighting	\$470,000	129706	n/a	\$10,376
DSC	Dixie EPC, Solar Array	\$160,000	25032	n/a	\$2,003
DSC	ESCO, Loan PNC 3,863,964.00	\$3,899,687	3192178	8464	\$283,883
DTS	CH Data Ctr. Energy Retrofit, ARRA-200K, RMP-196K	\$508,024	1427430	n/a	\$30,143
OWATC	Recommisioning and Audit	\$75,000	356000	41300	\$41,255
SLCC	ARRA ESCO Phase 2 Chiller	\$250,000	115364	n/a	\$6,922
SLCC	ESCO Phase 1 & 2 Various Locations	\$3,507,303	2844543	n/a	\$458,871
Snow	Family Life Lighting	\$23,788	27907	n/a	\$1,975
Snow	Science Building Lighting	\$35,749	34782	n/a	\$2,248
Snow	Washburn Shop Lighting	\$69,060	162284	n/a	\$9,040
SUU	Chiller Replacement Bennion, ARRA - 250K	\$283,152	19039	n/a	\$35,614
SUU	ARRA Solar Array on Facilities Building	\$160,000	189154	n/a	\$11,349
UDOT	Aeronautics Lighting Retrofit	\$6,817	22523	n/a	\$1,911
UDOT	Cedar City Headquarters & Mainten. Station Lighting	\$45,000	60143	n/a	\$5,777
UDOT	Murray/Wanship Maint St Lighting	\$10,628	42855	n/a	\$2,714
UDOT	Traffic Operations Center- Solar PV System	\$73,000	17280	n/a	\$1,037
USU	Agriculture Building BIPV Installation	\$700,000	86783	n/a	\$5,207

Table continues on next page,
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Table 5
FY 2011 Improvement Projects in Existing Buildings
(continued from pg. VI)

Agency	Project	Budget	Electricity Savings (kWh)	Gas Savings (Therm)	Annual Savings
USU	HPER Halls and Classroom Lighting	\$39,322	165030	n/a	\$10,309
USU	HPER Lighting Upgrade	\$62,470	179860	n/a	\$11,056
USU	Lighting upgrades at Biotech, CPD and Biology	\$115,247	359348	n/a	\$23,028
USU	Lighting Upgrades Various Buildings	\$213,981	701124	n/a	\$41,035
USU	SER Lighting	\$71,512	104699	n/a	\$6,564
USU	Steam Jacket Insulation	\$585,000	n/a	235500	\$164,000
UTNG	ESCO Phase 1, Federal Funds	\$3,056,078	211857	35454	\$44,309
UTNG	Mechanical - Camp Williams, ARRA - 430K	\$430,000	10688	1634	\$1,418
UTNG	Solar Thermal & PV, ARRA - 170K	\$170,000	52758	690	\$2,181
UTNG	ESCO Phase 2, Federal Funds	\$2,108,804	276154	19555	\$34,525
UU	AMA, UU Building Automation Upgrade	\$1,000,000	102410	62820	\$64,608
UU	PPA on HPER and Museum	\$1,000,000	802000	n/a	\$48,120
UVU	Chiller Replacement & Misc. work, ARRA - 250K	\$316,545	54090	1426	\$4,211
UVU	ESCO, SFEFF - 250K	\$1,290,963	484283	n/a	\$104,815
UVU	Solar PV & Ground Source System, ARRA - 430K	\$430,000	47439	4256	\$6,068
WSU	Shepard Union Building-Solar PV System	\$219,865	51977	n/a	\$3,119
WSU	Solar Thermal System - Swenson (Pool)	\$230,000	n/a	3000	\$15,000
WSU	Steam Jacket Insulation	\$300,000	n/a	200000	\$116,000
Total		\$22,348,524	12,944,159	636,115	\$1,581,337

2006 to 2010	Budget	Electricity Savings (kWh)	Gas Savings (Therm)	Annual Savings
Total	\$4,455,597	24,972,352	49,650	\$1,539,558

TABLE 6
Revolving Loan
Energy Efficiency Improvement
Projects

Building Board Approved Energy Projects				
Agency	Project	Estimated Cost	Savings (\$)	Savings (kWh)
Ogden Weber ATC	Various Energy Projects	\$80,300	\$39,700	273,000
Davis ATC	Various Energy Projects	\$11,300	\$1,650	62,000
Bridgerland ATC	Various Energy Projects	\$80,100	\$16,800	161,700
Uintah Basin ATC	Various Energy Projects	\$37,800	\$7,500	77,100
UDOT Region 4	Lighting	\$87,900	\$15,400	152,000
DHS/DJJS	Various Energy Projects	\$366,800	\$51,000	613,000
Capitol Hill	Various Energy Projects	\$975,000	\$115,000	*
DHS/DJJS - Ogden O & A	Various Energy Projects	\$10,000	\$2,377	21,621
UDOT Southeast Region 4	Lighting	\$40,000	\$6,498	69,384
UDOT Aeronautics	Lighting	\$10,000	\$1,911	22,523
USU	Steam Pipe Insulation	\$585,000	\$164,000	6,901,824
UVU ESCO	Various Energy Projects	\$250,000	\$153,721	*
WSU	Steam Pipe Insulation	\$300,000	\$116,000	5,861,422

Table 7

Utility Auditing Services And Resultant Savings

Client Name	2010 UCMC	2011 UCMC	2010-2011 UCMC	Oct to Dec	Oct - Dec '09	Oct 1, '09 - Dec 29, '11 Savings	2012 Forecasted
	Refunds	Refunds	Ongoing	2009 UCMC	Savings	'11 Savings	Savings
Tooele City Corp.	0.00	0.00	1184.38	82.66	165.32	\$2,534	\$1,111
Sandy City Corp.	0.00	0.00	7283.91	0	0	\$14,568	-
Woods Cross City	0.00	0.00	1797.68	973.32	1946.64	\$5,542	-
Green River City	0.00	0.00	776.87	0	0	\$1,554	\$56
Weber State University	9829.43	0.00	78968.8	31967.33	63934.66	\$241,531	-
Tremonton City	0.00	0.00	4202.36	0	0	\$8,405	\$4,482
Summit County	0.00	0.00	4781.82	27.19	54.38	\$9,618	\$5,826
Smithfield City Corp.	0.00	0.00	1496.94	1960.07	3920.14	\$6,914	-
Hyde Park City	0.00	0.00	267.13	0	0	\$534	-
Nibley City	0.00	0.00	5038.91	2192.78	4385.56	\$14,463	-
Draper City	0.00	0.00	5219.39	4556.21	9112.42	\$19,551	-
Perry City Corp.	0.00	0.00	520.13	1379.08	2758.16	\$3,798	-
Panguitch City	0.00	0.00	4580.07	195.86	391.72	\$9,552	\$3,319
Tooele County Corp.	0.00	0.00	35396.62	8649.57	17299.14	\$88,092	\$1,600
Tooele County School District	0.00	0.00	12394.1	2721.32	5442.64	\$30,231	\$10,177
Iron County School District	231.09	0.00	4960.83	160.14	320.28	\$10,704	\$3,782
Mapleton City Corp.	0.00	0.00	4769.95	5215.61	10431.22	\$19,971	\$12,104
Centerville City	0.00	0.00	943.57	0	0	\$1,573	-
Weber County	0.00	0.00	6707.64	3473.99	6947.98	\$20,365	-
Provo City School District	0.00	0.00	2895.01	145.44	290.88	\$6,081	\$320
Washington County School District	0.00	1152.62	70958.79	20000	40000	\$184,223	\$1,741
South Weber City	0.00	0.00	12276.5	1800.49	3600.98	\$28,154	\$2,046
Holladay City	0.00	0.00	526.5	0	0	\$1,053	\$309
Herriman City	108.22	0.00	19904.48	4833.09	12082.73	\$64,549	\$26,938
Salt Lake City Corp.	0.00	0.00	6737.65	1345.03	4075.85	\$24,493	\$667
Salt Lake City Dept of Airports	0.00	0.00	15000	4007.93	12145.24	\$57,600	\$119,045
Salt Lake City Dept of Public Utilities	2078.77	0.00	5719.38	6844.59	20741.18	\$44,372	\$4,276
Pleasant Grove City	0.00	0.00	16313.66	5123.25	10246.5	\$42,874	\$436
South Salt Lake	0.00	0.00	20055.2	1926.97	3211.62	\$36,637	-

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Table 7
Utility Auditing Services And Resultant Savings
(continued from pg. IX)

Client Name	2010 UCMC	2011 UCMC	2010-2011 UCMC	Oct to Dec 2009 UCMC	Oct - Dec '09 Savings	Oct 1, '09 - Dec 29, '11 Savings	2012 Fore- casted Savings
Richfield City Corp.	982.03	0	5826.86	1620.51	3241.02	\$16,859.00	\$5,658.00
North Summit School District	0	0	110.09	106.95	213.9	\$434.00	\$220.00
So. Sanpete School District	0	4283.63	1000	2580.68	5161.36	\$15,729.00	\$2,000.00
West Valley City	0	0	3624.22	0	0	\$7,248.00	-
Hooper City	0	0	8423.02	1597.9	3195.8	\$20,042.00	\$8,321.00
North Logan City	0	0	4758.51	4478.29	8956.58	\$18,474.00	\$4,040.00
Ephraim City	595.85	0	0	0	0	\$1,490.00	-
Syracuse City	41.64	0	12312.84	0	0	\$27,454.00	\$16,548.00
Utah State Hospital	10440.2	0	24531.56	0	0	\$96,191.00	\$88,744.00
Duchesne County	488.58	0	0	0	0	\$1,221.00	-
Southern Utah University	0	0	156.66	0	0	\$448.00	\$629.00
West Jordan City	1954.16	0	8058.3	0	0	\$25,031.00	-
Orem City	8788.62	0	16481.19	5850.54	11701.08	\$62,241.00	\$16,491.00
Juab School District	30914.5	0	21620.46	0	0	\$139,059.00	\$30,000.00
Ogden City Corp.	0	0	5727.81	0	0	\$14,320.00	\$10,228.00
Emery County School District	0	0	3531.05	0	0	\$10,089.00	\$7,356.00
Alpine School District	676.65	18699.76	89668.12	6819.85	13639.7	\$318,275.00	\$97,807.00
Spanish Fork City	423.78	0	162.83	0	0	\$1,467.00	\$473.00
Kane County School District	0	0	723.57	0	0	\$2,067.00	-

Table continues on next page,
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Table 7

Utility Auditing Services And Resultant Savings

(continued from pg. X)

Client Name	2010 UCMC	2011 UCMC	2010-2011 UCMC	Oct to Dec	Oct - Dec '09	Oct 1, '09 - Dec 29, '11 Savings	2012 Fore-casted Savings
	Refunds	Refunds	Ongoing	2009 UCMC	Savings	'11 Savings	Savings
Iron County	0	0	1858.36	0	0	\$5,310.00	-
Box Elder School District	4103.24	0	372.56	0	0	\$11,323.00	\$796.00
Lindon City	708.73	0	1094.57	0	0	\$4,899.00	\$2,132.00
Garfield School District	0	0	2482.63	0	0	\$7,093.00	\$1,941.00
American Fork City	8851.44	0	26514.52	0	0	\$70,732.00	\$51,900.00
Ogden-Weber Tech College	0	0	2042.77	0	0	\$4,086.00	-
Sevier County	424.51	0	1313.5	0	0	\$4,814.00	\$2,317.00
Utah Valley University	58546.98	0	30012.8	0	0	\$232,118.00	\$49,000.00
Riverdale City	405.64	0	1013.48	0	0	\$3,910.00	\$1,753.00
Utah State Development Center	289.98	0	42376.84	0	0	\$121,802.00	\$95,196.00
Utah Department of Transportation	0	289.04	5114.91	0	0	\$15,337.00	\$25,714.00
American Leadership Academy	0	731.25	338.41	0	0	\$2,139.00	\$677.00
Davis Applied Technology College	2304	453.61	24.92	0	0	\$6,965.00	\$854.00
Carbon School District	9469.11	0	755.22	0	0	\$25,831.00	\$1,187.00
Nebo School District	0	198.56	0	0	0	\$496.00	-
Utah Division of Wildlife Resources	1352.44	0	1427.51	0	0	\$7,460.00	\$2,946.00
Snow College	0	3948.07	0	0	0	\$9,870.00	-
Canyons School District	0	7521.23	19164.65	0	0	\$73,559.00	\$140,628.00
Washington City	0	2742.15	13801.67	0	0	\$46,289.00	\$2,612.00
South Ogden City	164.47	0	256.13	0	0	\$1,143.00	\$1,342.00
Totals						\$2,432,849	\$867,746.00

APPENDIX B