

# Annual Report and Work Plan June 30, 2003

## State Buildings Energy Efficiency Program Prepared by the Utah Energy Office, Department of Natural Resources

### Executive Summary

From June 23, 1999 to June 30, 2003, the State Buildings Energy Efficiency Program produced gross energy savings of least \$8,344,511 and net savings from energy efficiency of \$1,004,970.

With state budget limitations continuing into FY04, the FY04 SBEEP Work Plan relies on energy savings generated from performance contracting to meet the program goal of \$20 million in savings by 2010. Using this approach, cost savings from energy units conserved in FY04 should exceed the FY03 savings of \$5,605,398, and total savings to date will exceed fifty percent of the Governor's goal of \$20 million in savings by 2010.

### Background

This report of the State Building Energy Efficiency Program is prepared pursuant to 63-9-67 (2) of the Utah State Code as enacted in H.B. 119, Quality Growth Act of 1999 and pursuant to the Executive Order entitled "Establishing A State Building Energy Efficiency Program" as released by Governor Michael Leavitt dated June 23, 1999, paragraph 3d. For FY03 the Utah Energy Office, Department of Natural Resources in conjunction with the Division of Facilities Construction and Management, administered the State Buildings Energy Efficiency Program (SBEEP). The focus for the program is Governor Michael Leavitt's SBEEP goals as established by Executive Order and authorized under 63-9-67 (1) (f). Under the Governor's

Executive Order titled of June 23, 1999, the SBEEP program is directed to:

1. Achieve significant energy savings through the implementation of a comprehensive and coordinated energy efficiency plan, the goal of which is to reduce energy costs by a cumulative total of \$20,000,000 by 2010;
2. Provide, through these savings, a source of funding for the LeRay McAllister Critical Land Conservation Fund;
3. Provide energy management services, technical energy assistance, and financial coordination necessary to obtain energy cost reductions and increased efficiency in state facilities.

Since the Executive Order's effective date, there have been organizational changes, renewed interagency cooperation, and assignment of new staff to help achieve the Governor's purposes for the SBEEP. Currently, one program manager and two engineers are assigned full-time to the program.

### Progress to Date: SBEEP Savings Achieved to June 30, 2003

Table 1 includes a conservative base of savings attributable to SBEEP from June 23, 1999 through June 30, 2003. The total gross energy cost savings equals \$8,344,511 and represents the value of kilowatts, kilowatt hours, and therms

conserved. Gross savings does not factor out the cost for the energy conservation measures. Also shown in Table I is net energy cost savings totaling \$1,004,970. The net savings represents the value of energy units conserved less the actual cost of energy conservation measures. For accounting purposes under the Quality Growth Act, it is important to note that corresponding reductions to an agency's utility budget may not occur during the fiscal year if that agency experiences cost per unit increases for gas and electricity used.

Due to the extreme scarcity of state funding for retrofit projects beginning in FY02 and continuing into FY03 and FY04, SBEEP and DFCM have focused efforts on the use of performance contracts with energy service companies (ESCOs) who will help fund and guarantee energy project savings for state buildings (see section below entitled, "Private Sector Financing"). To date, a total of \$7,339,541 in gross energy savings has been achieved by SBEEP's use of performance contracting. This represents 88 percent of total gross savings achieved.

Three ESCO-based projects are currently in final contract negotiation for a minimum of \$409,832 in additional annual gross energy savings. Because ESCO-based projects have a 6-10 month delay between project initiation and accrual of energy savings, any savings from these new projects will not appear until FY04.

**Table I - SBEEP Energy Cost Savings<sup>1</sup>**

	<b>Total projects completed through FY02</b>	<b>FY03 Results</b>	<b>Totals from June 23, 1999 through FY03</b>
<b>Number of State Buildings</b>	98	35 (with another 140 buildings currently in-progress to be completed in FY04)	133
<b>Gross Energy Efficiency Measure Savings</b>	\$2,739,113	5,605,398	\$8,344,511
<b>Estimated Net Energy Efficiency Measure Cost Savings</b>	\$81,431	\$923,539	\$1,004,970

Design Program, incentive payouts are made to the architectural and engineering design teams that exceed ASHRAE 90.1 (1989) by 25%. Projects include: State Library, WSU Browning Hall, Wasatch State Park Clubhouse, UDOT Traffic Control Center, and Davis County Court Addition. Energy efficient new buildings require fewer long term O&M appropriations compared to inefficient counterpart buildings. Data for total SBEEP savings through June 30, 2002 (the corrected FY02 reported savings) include: New Building Design Program (5 buildings at \$71,073), University of Utah (88 buildings at \$2,657,682), and the DNR complex (5 buildings at \$10,358). For FY03, savings are derived from: the new Soldier Hollow Clubhouse (\$7,599), Matheson Courthouse retrocommissioning (\$75,000), Salt Lake Community College S. City Campus retrocommissioning (\$38,600), DFCM energy retrofits completed in FY03 (33 projects with \$498,961) in savings funded in FY02, New Building Low Energy Design Program (7 buildings at \$282,093 in continuing savings), DNR Buildings (5 buildings at \$5,245), Utah National Guard Camp Williams wind unit (\$16,041 total to 12/31/02), and University of Utah (\$4,681,859). Total building projects begun in FY03 but not to be completed until FY04 include the Ogden Regional Center (1 bldgs.), UVSC (12 bldgs.), the Utah State Prison (112 bldgs.), and DFCM funded projects in FY03 (14 buildings). The savings for the University of Utah provides a cumulative total project savings through April 30, 2003, of \$7,339,541 using non-weather adjusted data and current utility rates. The entire UPL rate refund for 2000 (\$311,760) was deposited to the LeRay McAllister Fund in FY00 as required by the Quality Growth Act. (63-38-18), but is not "net savings" as defined by the Act. 63-9-67(1)(d). The Quality Growth Act requires that 50% of net savings be reported to the legislature per 63-9-67(2)(b)(i) and deposited to the LeRay Fund, subject to legislative appropriation. [63-9-67(2)(c)].

<sup>1</sup> For building retrofit projects funded from the DNR Public Building Loan Program loans or lease purchases with energy service companies, net savings only occur after the term of the loan or lease is fulfilled. Due to budget constraints, no additional loans have been tendered from the DNR Public Building Loan Program. For the New Building Low Energy

**Outlook to the Future: Program Work Plan for FY04**

With due consideration to SBEEP's overall purpose as outlined in the Executive Order, the FY03 SBEEP Work Plan has been updated for FY04 including appropriate performance goals, milestones, and delineation of responsibilities for SBEEP staff (see Attachment 1). The following describes major SBEEP accomplishments for fiscal year ending June 30, 2003.

Needs Assessment Surveys The FY03 SBEEP Work Plan included the development of an energy needs assessment survey to be completed by each state agency including higher education. The purpose of the assessment survey is to identify those agencies most needing assistance from SBEEP and those agencies with the greatest potential for leveraged energy saving. The needs assessment survey was distributed to all state agencies on May 14, 2002.

Because of limited funding and staffing, SBEEP concentrated field assessments on a limited subset of all state buildings, completing 26 site assessments for FY03. SBEEP will complete additional on-site needs assessments beginning in FY04 in order to identify and prioritize best candidates for performance contracting.

Internally Funded Building Retrofit Projects

Limited capital improvement funding for energy saving retrofit projects is derived from State General Funds appropriated to DFCM. The list of funding for energy efficiency measures includes \$1,809,328 for FY02, \$1,324,900 for FY03, and

\$484,200 for FY04 (See attachments 2a through 2d).

Generally, projects are selected for funding based upon several factors including energy cost saving potential. However, projects are also selected for funding based upon the need to replace aging and failed equipment, life and safety or air quality issues. With a lag time of up to twelve months between the availability of legislatively appropriated funds, design, procurement and bidding, equipment installation, closeout, and accrual of the first month's energy cost savings; the only internally funded projects with reportable savings for this report come from the FY02 funded projects. For FY02 funded projects completed by June 30, 2002, the calculated net value of energy units saved is \$498,961.

Private Sector Financing Between \$85 million and \$ 90 million is needed to upgrade the energy efficiency of remaining state buildings. Bonding is one option to meet this capital need. But on a more immediate basis and with the current state budget situation, the SBEEP has developed a strategy for procuring the technical services and financial resources of private sector energy service companies (ESCOs) using performance contracts.

Structured similar to an equipment or capital lease, the private sector ESCOs complete retrofit work, arrange financing with a third-party partner, and provide an annual savings guarantee. The financing is structured to allow a cash flow of annual energy savings sufficient to pay off the project costs over the life or term of the financing agreement. The ESCO approach allows

projects to proceed with very limited capital outlays from the state while avoiding the construction delays and lost opportunity costs of a design/bid/build approach. Depending on project size, funding using an ESCO averages 0.2 percent over the financing available through the traditional bond sources.<sup>2</sup> As found in Utah Code 63-9-67 (1) (d), paybacks on energy projects funded through a performance contract with an ESCO can range up to 25 years depending upon the energy economics of a particular upgrade. Typically, a performance contract-based state building project does not accrue net savings until after the performance contract term has ended and the financing fully retired.

In a model project completed in 2001 at the University of Utah, the private sector financing approach generated \$44 million in energy efficiency improvements for 81 campus buildings with no upfront capital expense to the University or State of Utah. The ESCO approach allowed the University of Utah to upgrade campus-wide energy efficiency while resolving issues with deferred maintenance issues and occupant comfort. It should be noted that net savings will not be realized until the term of the University of Utah's performance contract has expired in FY23.

Experience gained from the University of Utah project has allowed SBEEP to streamline standard procurement documents and procedures, accelerating procurement and construction for three

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<sup>2</sup> Per an unpublished study by Julio Rovi P.E., with the Cadmus Group, Inc., Arlington, Virginia, lost opportunity costs when using the more time-consuming bonding approach for financing state building retrofits exceed the increase in cost of money for ESCO-based financing.

new projects. In FY03, a procurement resulted in three ESCO selections that total 112 buildings for the Department of Corrections Utah State Prison at Bluffdale (1.13 million square feet), the Odgen Regional Center (108,702 square feet), and 12 buildings for Utah Valley State College (1.18 million square feet). Engineering and construction for these projects is currently underway with completion in FY04.



**Energy Upgrades for 112 Buildings at the Utah State Prison**

The State of Utah's use of performance contracting for the University of Utah and the Utah State Prison have both received national recognition from the U.S. Department of Energy's Rebuild America Program.<sup>3</sup>

#### Energy Efficient New Design

In 2001 the Utah Energy Office, the DFCM, and the State Building Board developed and adopted a cost-effective new standard of energy performance for new state buildings. Under this standard, an integrated design team of architects and engineers is expected to design new state buildings that perform 25 percent more efficiently than the new commercial energy code adopted in January 2001. This performance level significantly lowers life cycle costs for

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<sup>3</sup> "University Saves Millions with Massive Performance Contract", Rebuild America Partner Update, U.S. Department of Energy, Washington D.C., May-June 2003 issue, pp. 1 & 8. Rebuild America and its strategic partners serve as valuable technical resources to SBEEP.

new buildings with little or no increases in project budgets. For FY04, the SBEEP energy engineer from the Utah Energy Office will work with DFCM reviewers to complete plan reviews, evaluate energy performance building models, complete value engineering, participate in commissioning, and assist with final inspections. The SBEEP engineer will train architects and engineers in meeting the new performance standard. The exact number of new buildings to be built is dependent on the availability of state revenue or bonding with 2-3 buildings scheduled for design in FY04.

In February 2003, the Utah State University Utah House in Kaysville was dedicated. The building, which serves as the main office and visitor's center for the new USU Botanical Center of the Davis County Extension, received direct technical and financial assistance through the Utah Energy Office SBEEP and State Energy Program (SEP). As an Energy Star Building, the Utah House demonstrates the latest design and construction features for energy savings and sustainability including a ground source geo-coupled heating and cooling system, highly insulated walls, photovoltaic panels to convert sunlight to electricity, water conserving appliances and landscaping, daylighting from light tubes and clearstory windows, state-of-the-art temperature and lighting controls, and recycled materials. The building is exemplary with features replicable for other state buildings. The USU Utah House will use approximately 70% less energy than typically constructed buildings.



**USU Utah House – received SBEEP design assistance and funding (dedicated February 2003)**

Another energy efficient new design project completed in FY03 is the Soldier Hollow Clubhouse. An energy analysis by SBEEP engineers suggests a saving of 33.9% compared to similarly-sized buildings constructed only to the current commercial energy code. The Soldier Hollow Clubhouse's total FY03 savings is calculated at \$7,599 for gas and electric.

#### Retrocommissioning Projects

Retrocommissioning optimizes the performance of a building's heating, ventilation and air conditioning systems. Cost studies prepared by SBEEP engineers indicate the best return for energy savings in state buildings can be achieved through retro-commissioning.<sup>4</sup>

The retrocommissioning process involves the analysis of an existing building's energy using systems and the follow-on improvement measures to reduce energy consumption while maintaining or restoring the building environment to meet the occupants' needs. The process assures that existing building controls, heating and ventilation equipment, chillers, boilers, and pumps operate at peak levels of energy efficiency. Retrocommissioning agents evaluate and revise settings and

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<sup>4</sup> For reference, see analysis prepared by James Hood P.E., Utah Department of Natural Resources dated April 12, 2002.

schedules while revisiting the general condition and maintenance of energy using equipment.

For FY03, the State Building Energy Efficiency Program completed retrocommissioning on the 420,000 square foot Matheson Courthouse and began the process for the 350,000 square foot South City Campus of the Salt Lake Community College. In April 2003, the state's Division of Facilities Construction and Management and the Utah Energy Office announced a savings of \$75,000 in the Matheson Courthouse's annual utilities costs. The annual utility savings for the Matheson Courthouse represents an 18% reduction in the \$400,000 annual utilities costs. Since this first year savings was achieved during the same period that other energy efficiency measures were implemented, savings for subsequent years is forecast to be greater.



**The Matheson Courthouse saves \$75,000 through retrocommissioning.**

Although the South City Campus retrocommissioning is not fully complete, the portion of work completed during FY03 has already saved \$38,600.

Because of funding limitations, SBEEP will include retrocommissioning as a central component within the scope of work for each future performance contract with ESCOs.

### Energy Procurement

SBEEP worked with the Division of State Purchasing in FY03 to promote Energy Star products as the products of choice when agencies purchase under state contracts (such as computers, lighting products, and refrigerators). The Division of State Purchasing is developing specifications that require Energy Star products to be more easily identifiable at vendor product websites and in state contracts. The new state contract for copiers is the first specification to specifically identify units that are Energy Star. A matrix of various energy saving products was also developed and distributed to purchasing agents across the state. Purchasing agents are authorized to make selections from this matrix using a life cycle cost approach to optimize the energy savings over the long-term. During FY03, the Division of State Purchasing conducted a products show for over 200 purchasing officials held at the University of Utah with a focus on Energy Star lighting products.



**Energy Star Compact Fluorescent Bulbs Under State Contract**

For bulk purchases such as natural gas, the Division of State Purchasing has endeavored to "lock" up gas prices through long-term contracts and hedging. For the first nine months of FY03, Duke Energy served as the State of Utah's natural gas supplier under state

contract, resulting in \$1,514,208 in savings compared the standard Questar I2 rates (see Table II). Although the margin available under the new FY04 state contract with Wasatch Energy is more favorable to the State of Utah, the volatile nature of national and regional natural gas markets may result in natural gas cost increases for state facilities.

**Table II – Natural Gas Commodity Saving<sup>5</sup>s**

Fiscal Year	Annual Cost Savings
FY02	\$794,804
FY03	\$1,514,208

Renewable Energy Projects for State Facilities

For FY03, SBEEP worked with the Utah National Guard in acquiring a second wind unit for Camp Williams at Point of the Mountain, Utah. This second unit with a capacity approaching 1 MW will supplement the 225 KW unit installed at Camp Williams in May 2000. Funded with almost \$800,000 from the National Guard Bureau in Washington D.C. and \$50,000 from the Utah Energy Office, this second wind unit will be operational by fall 2003.

Camp Williams’ highly visible 225 KW wind unit, produced 224,312 KWH or 4% of the camp’s electrical needs during the past year. This KWH production equates to a cost savings of \$6,213 in 2002 and a total cost savings of \$16,041 since the wind unit was commissioned on May 20, 2000.



**225 KW Camp Williams Wind Unit - \$16,041 in Electrical Production to Date**

A wind site northeast of Camp Williams is also being tested for installation of additional wind units to be owned by the Department of Corrections, Utah State Prison. In FY03, the Utah Energy Office helped procure a 50 meter wind anemometer to collect twelve months of wind data near the Fred House Academy in Draper. If this resource proves tenable, wind units will be installed at the Prison site in FY05.

Geothermal water nearing 185 degrees Fahrenheit lies under the Utah State Prison at Bluffdale. SBEEP is working with DFCM and an energy service company, Johnson Controls, to tap the resource. Phase I construction of the geothermal heating system begins in July 2003 and will utilize the geothermal resource to heat Prison Oquirrh Units 1-4. Funding is arranged by the ESCO for a guaranteed annual energy saving of \$67,875.

Energy Information Management System Improvements

In order to assess SBEEP’s effectiveness in meeting the goal of \$20 million in energy savings by 2010, the Utah Energy Office in conjunction with DFCM is implementing a web-based utility information management

<sup>5</sup> The savings for FY03 does not include savings or losses for natural gas purchases made during June 03 – that information was not available as this report was compiled.

program. As a web-based program, facility managers from across the state can monitor facility energy use over time, identify utility-related problems, and verify energy efficiency improvements. Utility data is automatically downloaded each month from Utah Power and Questar. For Phase I a total of 75 state buildings were included in the database. Phase II was completed as part of SBEEP's FY03 Work Plan bringing the total number of participating buildings to 1100.

Recognition of exemplary performance by facility managers is an important aspect of SBEEP. The database helps SBEEP to recognize the best-performing state buildings including those that qualify for EPA/DOE Energy Star recognition. On May 21, 2003, SBEEP engineers qualified the Matheson Courthouse as the third state building to meet EPA Energy Star Building criteria, entitling the building to special national recognition and a plaque. This building joins the two Energy Star buildings qualified in FY02, Department of Environmental Quality Building and the Utah Tax Commission Building.

Education and Information Campaign for FY03

SBEEP released three energy awareness news briefs to state higher education facility managers suitable for internal routing and printing in campus newspapers. In conjunction with the Governor's Power Forward initiative, two energy alerts were issued to state employees to encourage energy conservation during the 2002 summer months. For the Department of Natural Resources Complex alone, the savings from August 2001 to May 31, 2003 totals \$25,081.

During FY03, SBEEP also cosponsored four seminars and workshops targeted for state facility managers and DFCM staff as well as the independent architects and consulting engineers who work on state buildings (see Table III).

**Table III – SBEEP Cosponsored Seminars and Workshops in FY03**

Seminar & workshop topics	Cosponsors
Nov. 14, 2002 - Geoexchange Technology	Engineering Experiment Station Sound Geothermal
March 7, 2003 – Designing High Performance Buildings	ASHRAE
May 9, 2003 - Energy Codes for Buildings	ASHRAE
June 20, 2003 - Boiler Operation & Maintenance Workshop	Engineering Experiment Station Labor Commission Safety Division Energy Services Coalition Assoc. Professional Energy Mngrs.

Although the actual metered savings attributable to an education and information campaigns is difficult to quantify, the U.S. Department of Energy reports that each dollar invested in activities such as energy education, information dissemination, energy seminars, and workshops generate up to \$7 in energy savings.<sup>6</sup>

**FY04 Issues and Opportunities**

The following issues and opportunities have arisen since the Executive Order was issued. All of these affect the success of SBEEP:

1. LeRay McCallister Fund - State agencies continue to express concern over the energy provisions of the Quality Growth Act. Because state agencies have traditionally used any excess energy savings to fund

<sup>6</sup> Schweitzer, Martin, Donald W. Jones, Linda G. Berry, and Bruce E. Tonn, "Estimating Energy Cost Savings and Emissions Reductions for the State Energy Program Based on Enumeration Indicators Data", Oak Ridge National Laboratory, January 2003, page 18.

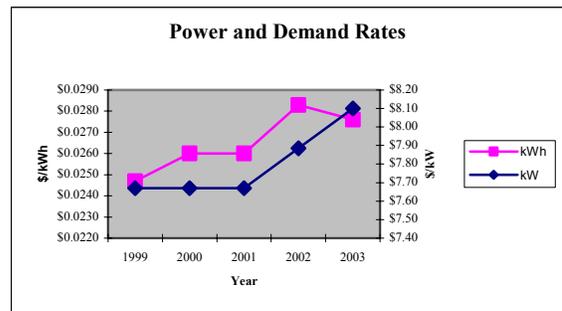
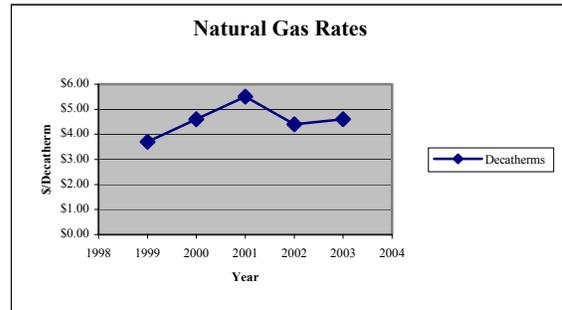
deferred maintenance of state facilities and to fund additional energy saving equipment upgrades, there is concern about losing half of any net savings to the LeRay McCallister Fund. For them, the LeRay McCallister Fund provision becomes a disincentive to pursuing or identifying energy projects. On April 21, 2003 at the request of the Critical Lands Subcommittee of the Quality Growth Commission, the SBEEP manager briefed members of the subcommittee on this issue.

Responsibility to acquire any portion of net savings under the Quality Growth Act resides with state budget offices including the Governor's Office of Planning and Budget and the Legislative Fiscal Analyst's Office.

2. Energy Price Uncertainties – Following the energy market uncertainties and crisis of 1999, the average utility rates for state buildings rose a total of 11.7 percent per kilowatt hour, 5.6 percent per kilowatt of electricity, and 24.3 percent per decatherm of natural gas (see Tables IV and V). Although some agencies may receive supplemental appropriations from time to time, the net effect is increased energy cost per square foot as compared with the pre-increase baseline. This makes the calculation of actual energy savings more difficult for SBEEP and creates an impression that energy use is rising rather than declining. Moreover, total energy use is actually declining on a square

foot basis even though total utility costs per square foot may be rising. As an opportunity arising from the energy crisis, state agencies are now more concerned with long-term rate stability and reliability of utility services, raising inherent interest in SBEEP.

Tables IV and V – Utility Rate Increases



Changes in Natural Gas and Electric Prices for State Buildings 1998-2003

3. SBEEP Staffing Issues and Coordination with DFCM – Due to attrition and in-house reorganization at both DNR and DFCM, there has been a complete turnover of SBEEP support staff since the June 23, 1999, issuance of the Governor's Executive Order. Some program momentum was lost in the transition to new staff as well as in coordination between DNR and DFCM.

The Department of Natural Resources and the Department of Administrative Services have

discussed moving staff and responsibility for the State Buildings Energy Efficiency Program from the Utah Energy Office to the Division of Facilities Construction and Management (DFCM). With the degree of coordination necessary between UEO and DFCM to effectively achieve program goals, such a move makes sense. The two agencies have agreed to revisit this issue in FY04.

It should also be noted that although the current staff commitment can meet the Governor's minimum \$20 million goal for energy savings, an in-house pro-forma completed in FY03 indicates that a full contingent of 10-12 in-house professional staff would be needed to carry out an aggressive state-wide program. With only a combined FTE count of 3.0 currently available, staff will continue to focus on the most cost effective SBEEP program elements including the outsourcing of retrofit and retrocommissioning projects via performance contracts with private-sector energy service company partners and energy efficiency in new building design.

4. Water Savings – During FY03, SBEEP has explored other utility cost saving opportunities for state buildings including retrofits to lower waste removal and water costs. If the definition of savings under Section 63-9-67 of the Utah State Code can be interpreted and broadened to include energy along with water and waste savings, performance contracts can be developed that capture the additional savings for the State of Utah. For

the Utah State Prison alone, water-conserving retrofits can save the Department of Corrections and State of Utah an estimated \$156,026 per year, and waste management measures can save an additional \$19,189.

5. Air Quality Connection – State, regional, and national consideration is being given to the environmental benefits from energy efficiency. These benefits include: improved visibility, air quality improvements through reductions in pollutants, and secondary economic benefits such as reduced health care costs, trading of pollution credits, etc. The Division of Air Quality and the Utah Energy Office are promulgating policies and procedures to better identify and quantify the air quality benefits arising from energy efficiency. With the Governor's aggressive goal for upgrading the energy efficiency of state buildings, the contribution to regional and state air quality provides an added perception of value for SBEEP. Moreover, the attached SBEEP Action Plan for FY04 is consistent with the goals and objectives of the Western Regional Air Partnership.
6. Utility-based Incentives – Under tariffs 115, 116, and 125, Utah Power offers rebates for qualified energy conservation projects with electrical savings. For the Department of Corrections' ESCO-based project, the FY04 rebate will total over \$120,000. State facilities are eligible to receive a rebate only if they prefile a letter of intent with Utah Power. SBEEP forwarded copies of the Utah Power Letter of

Intent and instructions to all state agencies including higher education in June 2003. This alerts state agencies about the rebate opportunity and encourages their participation.

7. Calculation of Actual Energy Cost Savings - The quantification of gross and net cost savings is difficult when miscellaneous variables impact the calculations. In a typical year, weather is not consistent, utility costs can change up and down, building occupant schedules are revised, utility billing errors occur, and there is more energy consuming equipment added building loads (such as more computers). In order to best quantify savings for a particular project and adequately account for significant variables, SBEEP has adopted the approach of the International Performance Measurement and Verification Protocol (IPMVP) in FY03. In the case of performance contracts with ESCOs, the IPMVP is stipulated for energy cost savings calculations.

**SBEEP Contact Information:**

Michael Glenn (UEO) – 538-5436  
James Hood, P.E. (UEO) – 538-5251  
Matt Bruce (UEO) – 538-5419  
Kent Beers (DFCM) – 538-3418  
Reed Taylor (Purchasing) – 538-3709

**ATTACHMENT 1**  
**Draft FY04 Work Plan**  
**State Building Energy Efficiency Program (SBEEP)**  
(Action Items, Milestones, and Responsibilities)

The purpose of the State Building Energy Efficiency Program is to:

- Exemplify state buildings as models for energy efficiency,
- Reduce the energy cost of government operations to meet the Governor’s goal of \$20 million in energy saving for state buildings by 2010,
- Contribute to better air quality through energy savings in state buildings with wise use of Utah’s energy resources.

<b>SBEEP FY04 Goals, Action Items, and Milestones</b>	<b>DNR - Mike Glenn (team leader) – related responsibilities</b>	<b>DNR - Jim Hood (PE) – related responsibilities</b>	<b>DNR - VACANT (EIT) – related responsibilities</b>	<b>DFCM – related responsibilities</b>
<b>Goal #1 - Exemplify state buildings as models for energy efficiency.</b>				
1. Develop at least 2-3 public news releases per year highlighting energy projects for state government buildings (by June 30, 2004).	Work with DNR and Adm. Services Public Affairs to draft and release news releases	Provide information for releases	Provide information for releases Provide	Provide information for releases and review drafts
2. Compile the energy savings achieved for state buildings from July 1, 1999 to June 30, 2004 and prepare an annual SBEEP report to the Governor and GOPB (by June 30, 2004).	Prepare report to the Governor.	Provide necessary information and data.	Provide necessary information and data.	Provide necessary information and data - review the report draft before finalization.
3. Identify and qualify 2-3 state government buildings as Energy Star Buildings for special recognition (by June 30, 2004).	Oversight	Provide technical assistance	Gather the relevant information and process the candidate buildings to EPA	NA
4. Organize an annual recognition event for state facility managers including Energy Star recognition (by May 31, 2004).	Work with DNR and Admin. Services and Public Affairs and DFCM management to organize and hold event.	Provide nominees for recognition	Provide nominees for recognition	Provide nominees for recognition

<b>SBEEP FY04 Goals, Action Items, and Milestones</b>	<b>DNR - Mike Glenn (team leader) – related responsibilities</b>	<b>DNR - Jim Hood (PE) – related responsibilities</b>	<b>DNR - VACANT (EIT) – related responsibilities</b>	<b>DFCM – related responsibilities</b>
<b>Goal #2 - Reduce the energy cost of government operations to meet the Governor’s goal of \$20 million in energy saving for state buildings by 2010 – energy information component.</b>				
1. Maintain/update the database of state facility energy contacts for distribution of energy information and workshop schedules (ongoing to June 30,2004).	Oversight – work with data specialists to maintain and update database.	NA	Provide technical assistance as necessary	NA
2. In conjunction with Power Forward, issue at least 2-3 energy conservation alerts to general state employees that encourage energy conservation (by March 31, 2004)	Prime responsibility for drafting and issuing the alerts using the database	NA	NA	Provide review and comments as necessary
3. For the SBEEP web page, complete a general review and update of all pages and the bulletin board(complete by December 31, 2004)	Oversight – review relevant pages and submit updates to webmaster	Review relevant pages and submit updates to webmaster	Review relevant pages and submit updates to webmaster	Provide review and comments to SBEEP
4. To raise the energy expertise of state facility managers, provide 3 workshops or seminars for state facility managers (by June 30, 2004)	Oversight – develop topics, issues notices, and contact the SEP Program Manager for funding.	Work with ASHRAE to provide support for one workshop or seminar.	Work with APEM to provide support for one workshop or seminar.	Provide input and comments to SBEEP
5. To disseminate SBEEP successes and information to facility managers, participate in regular meetings of UAPPA (attend quarterly UAPPA meetings)	Attend 3-4 UAPPA meetings as scheduled for FY04	Attend 3-4 UAPPA meetings as scheduled for FY04	Attend 3-4 UAPPA meetings as scheduled for FY04	(already participating in UAPPA)
<b>Goal #3 - Reduce the energy cost of government operations to meet the Governor’s goal of \$20 million in energy saving for state buildings by 2010 – existing buildings component.</b>				
1. Redistribute the needs assessment tool to state facility managers and utilize the results to prioritize candidates for ESCO and DFCM funding(by November 1, 2004 and March 1, 2004).	Insure that SBEEP team utilizes the SBEEP tool for on-site visits with 1-2 scheduled per month	Conduct assessments as scheduled	Conduct assessments as scheduled	Help SBEEP evaluate and rank assessments

<b>SBEEP FY04 Goals, Action Items, and Milestones</b>	<b>DNR - Mike Glenn (team leader) – related responsibilities</b>	<b>DNR - Jim Hood (PE) – related responsibilities</b>	<b>DNR - VACANT (EIT) – related responsibilities</b>	<b>DFCM – related responsibilities</b>
2. Clear release of a subsequent RFP (for completing additional ESCO-based projects) with the State Building Board, DFCM (by Nov. 1, 2004).	Submit nominations to DFCM for subsequent projects	NA	NA	Clear projects with Building Board
3. For long term tracking of energy usage and savings, maintain a web-based database with direct data transfer capabilities from Utah utilities. Provide on-line access to participating facility managers by October 1, 2003.	Provide support as necessary	NA	Oversight responsibility in conjunction with IT staff – train local facility managers to assess database	Provide support as necessary
4. Participate in weekly project meetings for the ESCO-based projects at the Utah State Prison, UVSC, and the Ogden Regional Center and any other projects begun in FY04. – provide leadership and technical assistance to the projects (ongoing through June 30, 2004).	Participate weekly	Participate weekly	Participate weekly	Participate weekly as necessary.
5. Issue a new cycle (Cycle II) of the RFPs to ESCOs serving Utah (by March 1, 2004).	Prime responsibility for drafting RFP	Assist in RFP review as necessary	Assist in RFP review as necessary	Complete final review and submittal of RFP to Building Board for approval & release of RFPs
6. For Cycle II procurement, participate in selection meetings with DFCM and participating facilities, review proposals, and select top qualifying ESCOs for oral interviews. (by June 30, 2004).	Attend all selection meetings	Attend selection meetings as necessary	Attend selection meetings as necessary	Attend selection meetings unless otherwise delegated
7. Review Cycle I technical energy audits completed by ESCOs and establish scope of work for each facility by September 30, 2003.	Review TA's and compile comments by deadlines	Review TA's and compile comments by deadlines	Review TA's and compile comments by deadlines	Receive and review comments
8. Develop and finalize Cycle I contracts with ESCOs including finalizing financing portion of contracts by September 30, 2003.	Draft contracts for DFCM	Participate in contract negotiations as necessary	Participate in contract negotiations as necessary	Prepare final contracts for ESCO work

<b>SBEEP FY04 Goals, Action Items, and Milestones</b>	<b>DNR - Mike Glenn (team leader) – related responsibilities</b>	<b>DNR - Jim Hood (PE) – related responsibilities</b>	<b>DNR - VACANT (EIT) – related responsibilities</b>	<b>DFCM – related responsibilities</b>
9. Help secure Utah Power rebates for ESCO and DFCM funded projects by releasing information to state facility managers and ESCOs (initial release by July 15, 2003 & ongoing thereafter).	Oversight	Provide information and support as necessary	Prime responsibility	Provide information and support as necessary
10. Inspect ESCO work as work proceeds and follow-up on problems (ongoing throughout FY04).	Oversight	Complete inspections as requested and as new buildings work allows	Complete inspections as requested	Participate to supervise SBEEP involvement.
11. Complete final inspection of ESCO-funded retrofits and issue letters of acceptance for 3 model projects.	Insure that inspections are completed by SBEEP engineers	Complete inspections as requested and as new buildings work allows	Complete inspections as requested	Accept SBEEP recommendations for “punch lists” and closeout – issue letters of acceptance
12. Collect savings reports from ESCO-based model projects (Cycle I) and include in FY04 SBEEP annual report.	Oversight and reporting per SBEEP annual report	Review/check data	Review/check data	Receive and review results
13. Monitor retrocommissioning savings for the Matheson Courthouse and SLCC South Campus and submit results for the FY04 annual SBEEP report.	Oversight	Prime responsibility for monitoring energy savings	NA	NA
<b>Goal #4 - Reduce the energy cost of government operations to meet the Governor’s goal of \$20 million in energy saving for state buildings by 2010 – new buildings component.</b>				
1. Identify new buildings for SBEEP engineer participation in design development, design review, value engineering, energy model review, and code review (ongoing to June 30, 2004).	Oversight	Complete all tasks as requested by DFCM on-time	Assist the lead SBEEP engineer as requested	Facilitate the involvement of SBEEP for new buildings
2. Insure that contractors adequately commission new state buildings by reviewing the commissioning plan new buildings, participate in commissioning, and develop commissioning recommendations for each project (ongoing through June 30, 2004).	Oversight	Complete all tasks as requested on-time and complete quality control review of contractor-based commissioning	Assist the lead SBEEP engineer as requested	Facilitate the involvement of SBEEP for new buildings

<b>SBEEP FY04 Goals, Action Items, and Milestones</b>	<b>DNR - Mike Glenn (team leader) – related responsibilities</b>	<b>DNR - Jim Hood (PE) – related responsibilities</b>	<b>DNR - VACANT (EIT) – related responsibilities</b>	<b>DFCM – related responsibilities</b>
3. Provide reports to DFCM and AE firms following design reviews (ongoing action item through FY04)	Oversight	Prime responsibility for reviews and reports (2-3 buildings for FY04)	NA	Receive SBEEP reports.
4. Apply of a SEP special project grant to fund SBEEP activities for new buildings by April 30, 2004.	Prime responsibility for preparing/writing grant for submittal through the DOE SEP Program	Assist as necessary	Assist as necessary	Review grant proposal for consistency with DFCM initiatives
5. Complete and closeout the two SEP Special Projects grants for 1.) New Building Low Energy Design Program, 2.) SBEEP Program Development, and 3.) Codes Training by the DOE due dates.	Oversight	Prime responsibility for completing and submitting the programmatic and financial final reports	Provide necessary information	NA
<b>Goal #5 – Communicate the contributions of SBEEP energy efficiency projects to better air quality</b>				
1. Distribute a copy of the annual SBEEP Report and savings to GOPB, DNR Admin., members of the Governor’s State Office of Energy Advisory Council, DEQ, etc. by July 15, 2003.	Prime responsibility to insure distribution of the SBEEP Annual Report	NA	NA	NA
2. (see goal above for Energy Star ratings of state buildings)				
<b>Goal #6 - Provide for general administration of SBEEP</b>				
1. Develop a schedule and management fee structure to provide SBEEP with ongoing revenue by March 15, 2004.	Prime responsibility for developing fee structure	Provide input to proposed fee structure	Provide input to proposed fee structure	Provide input to proposed fee structure - direct SBEEP’s implementation.
2. Hire 1-2 additional staff as allowed by funding with approval of DNR and UEO management to expedite strategic energy saving goals.	Upon approval, work with the personnel office to undertake the hiring process	NA	NA	NA

<b>SBEEP FY04 Goals, Action Items, and Milestones</b>	<b>DNR - Mike Glenn (team leader) – related responsibilities</b>	<b>DNR - Jim Hood (PE) – related responsibilities</b>	<b>DNR - VACANT (EIT) – related responsibilities</b>	<b>DFCM – related responsibilities</b>
3. Hold biweekly SBEEP team coordinating meetings	Schedule and conduct team meetings	Attend and participate	Attend and participate	Participate as necessary
4. As requested, prepare and make a presentation to the Quality Growth Commission regarding the Quality Growth Act's energy component (complete as requested by the QGC in FY04).	Prepare and make presentation to the QGC as requested	Provide necessary data	Provide necessary data	NA

## ATTACHMENT 2a

FY 2002 Energy Projects

July 11, 2001

Facility Name	System	Estimated		
		Estimated Cost	Annual Savings	Est. Payback
DFCM Managed Buildings	Install Occ.Sensors w/Switchpacks in 400 Conference/Restrooms	\$ 82,400	\$ 42,000	2
<b>Courts</b>				
700 West Juvenile Courts	Control System Replacement	\$ 26,166	\$ 3,621	7.2
Sandy Courts Bldg.	Mechanical Controls Replacement	\$ 62,000	\$ 7,800	8
<b>Health</b>				
Cannon Health	Exit Signs Std.	\$ 2,803	\$ 649	4.3
Fraiser Lab	Lighting Std. 2-3-4-L Wraps, Exit Signs, Variable Frequency Drives	\$ 132,289	\$ 18,090	7.3
<b>Police Academy</b>				
	Exit Signs	\$ 2,063	\$ 427	4.8
<b>Tax Commission</b>				
	Parking Lot Std. 1000 MY	\$ 5,180	\$ 2,889	1.8
<b>UDOT</b>				
Admin Bldg. (Rampton)	Exit Signs	\$ 5,900	\$ 1,365	4.3
UDOT Maint./Testing Facility	2 Tube, 3 Tube, 4 Tube and 8 Foot Fixtures; Exit Signs	\$ 77,900	\$ 16,981	4.6
<b>Drivers License (W. Valley)</b>				
	General Lighting Std. 4-L T-12, Exit Signs	\$ 5,532	\$ 1,446	3.8
<b>Workforce Services</b>				
Administration North Bldg.	VAV Controls	\$ 100,000	\$ 17,500	5.7
Administration Bldg.	General Lighting Std. 4-L T-12; Exit Signs Std.	\$ 102,194	\$ 26,739	3.8

South Valley Office	Replace Lighting and Add Switches & Relays	\$ 48,500	\$ 4,900	9.9
Provo Office	General Lighting Std. 4-L T-12, Exit Signs	\$ 16,892	\$ 4,426	3.8
<b>ABC</b>				
Provo and Price Stores	Lighting Upgrades	\$ 5,800	\$ 1,750	3.3
<b>Utah State University</b>				
Classrooms and Offices	Install Sensor Equipment in Classrooms/Offices Various Bldgs.	\$ 100,000	\$ 51,750	1.9
Utah Water Research Lab	Convert T-as Tubes to T-8; Install Occupancy Controls	\$ 112,000	\$ 40,000	2.8
<b>Total</b>		<b>\$ 887,619</b>		

**ATTACHMENT 2b**  
**FY 2002 Energy Projects – Continued**  
**September 13, 2001**

<b>Facility Name</b>	<b>Project</b>	<b>Estimated Cost</b>	<b>Estimated Annual Savings</b>	<b>Est. Payback</b>
DFCM	Energy Data Base Management System	\$ 30,000	\$ -	-
DHS	Install Occ. Sensors w/Switchpacks in 245 Conference/Restrooms	\$ 49,000	\$ 25,790	1.9
Public Safety	Design for Capital Imp.- Energy space planning/code issues 3rd Floor	\$ 40,000	\$ -	-
Bridgerland ATC	Lighting Retrofit	\$ 155,000	\$ 35,000	4.4
Dixie College	Boiler Replacement---North Instructional Bldg.	\$ 19,000	\$ 3,266	5.8
Dixie College	System Retrofit to Heat the Fitness Center Swimming Pool	\$ 18,500	\$ 5,500	3.4
Ogden/Weber ATC	Install Controls & Flow Sensors to Pressurized Irrigation System	\$ 8,000	\$ 2,169	3.7
SLCC	Thermal Blankets for Pool and Diving Well	\$ 5,107	\$ 8,353	0.61
Snow College	Lighting Fixture Conversion and Occupancy Sensors---9 Buildings	\$ 89,602	\$ 39,237	2.3
SUU	Lighting Replacement	\$ 40,000	\$ 10,000	4.0
U of U	Install Flow Limiters on Water Cooled Lasers	\$ 67,500	\$ 28,583	2.4
USU	Chiller Replacement---Veterinary Diagnostics Bldg.	\$ 100,000	\$ 22,500	4.4
UVSC	Install Occupancy Sensors 124 Classrooms	\$ 105,000	\$ 22,335	4.7
WSU	Install T-8 Lighting---Building #3	\$ 35,000	\$ 10,606	3.3
WSU	Install T-8 Lighting---E.O. Wattis Business Bldg.	\$ 79,000	\$ 20,789	3.8
WSU	Install T-8 Lighting---Allied Health Bldg. Phase I	\$ 81,000	\$ 22,500	3.6
<b>Total</b>		<b>\$ 921,709</b>		

**ATTACHMENT 2c**  
**FY 2003 Energy & Water Conservation Projects**

Salt Lake Community College	Energy & Water Conservation: Secondary Irrigation Connection	\$ 108,000
Salt Lake Community College	Energy & Water Conservation: VFD's Jordan Cooling Tower Pumps	\$ 26,900
Snow College	Energy & Water Conservation: Library Bldg Chiller Replacement	\$ 225,000
Southern Utah University	Energy & Water Conservation: Irrigation Water Cost Reduction	\$ 200,000
Utah State University	Energy & Water Conservation: NFS Chiller Replacement	\$ 300,000
Utah State University	Energy & Water Conservation: Insulate Condensate Lines	\$ 200,000
Utah Valley State College	Energy & Water Conservation: Sprinkler Clock/Irrigation Valve	\$ 125,000
Weber State University	Energy & Water Conservation: Bldg #2- Lighting Upgrade	\$ 42,000
Alcoholic Beverage Control	Energy & Water Conservation #18 - Upgrade Interior Lighting	\$ 7,300
Alcoholic Beverage Control	Energy & Water Conservation: #6- Emer. Egress Lighting/Exit Signs	\$ 6,000
Alcoholic Beverage Control	Energy & Water Conservation #21- Lighting Fixture Upgrade	\$ 8,900
DFCM	Energy & Water Conservation: Consultant for Water Standards	\$ 25,000
Human Services	Energy & Water Conservation: USH Rampton Bldg. Chiller Staging	\$ 25,800
Human Services	Energy & Water Conservation: Developmental Ctr Sprinkler Automation	\$ 25,000

**\$ 1,324,900**

## ATTACHMENT 2d

### FY 2004 Capital Improvement Energy Projects

Agency/Institution	Project description	Capital Improvement Funding
Utah Valley Community College	Improvements identified by ESCO	242,700
Corrections	ESCO-based energy improvements	200,000
DFCM	Lighting Upgrade - Cedar Youth Corrections	35,000
Workforce Services	Upgrade Exterior Lighting – Vernal Employment Center	6,500
		484,200