



LEGISLATIVE TASK FORCE ON SUSTAINABLE

BUILDING DESIGN AND PRACTICES

2008 REPORT

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LEGISLATIVE TASK FORCE ON SUSTAINABLE BUILDING DESIGN AND PRACTICES 2008 REPORT

Task Force Creation and Background

The Legislative Task Force on Sustainable Building Design and Practices was initially created by Act 1770 of 2005 [ACA 22-3-1806] and continued by Act 1034 of 2007 [ACA 22-3-1806 (e)]. The Task Force can have a maximum membership of 20 persons consisting of legislators and members of the public. The Senate and House Public Health Committee Chairmen decide appointments, and a senator and representative are to serve as the co-chairs.

The legislative members are: Senators Shane Broadway, Co-chair, and Jack Critcher; Representatives Kathy Webb, Co-chair, and Eddie Cooper. Non-legislative members are: Chris Benson, Bill Corley, Richard Davies, Charlie Foster, Alan Hope, Steve Hudson, Art Kinnaman, Anne Laidlaw, Cindy Milazzo, Zack Mobley, Martha Jane Murray, Mary Jo Ring, Mark Robertson, and Randy Thurman.

The Task Force held meetings on: February 11, 2008, March 17, April 14, May 20, June 16, July 28, September 10, October 13, and November 24. All minutes and files are maintained with the Bureau of Legislative Research. The information is available on the General Assembly's website, www.arkleg.state.ar.us within the "Research Publications" link. [Appendix A--minutes]

Recommendations

- 1) Continue Task Force for two more years.
- 2) Create revolving fund and energy manager position (pending results of review/approval of possible administering agency).
- 3) Implementation of revolving fund (pending results of review/approval of possible administering agency).
- 4) Adopt Leadership in Energy and Environmental Design (LEED) silver level with 30% above the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) standards on the energy side with the minimum water standards (20%) set out in North Carolina's Utility Savings Initiative for state facilities; and use the current version of LEED, or the equivalent, with the minimum building size of 5,000 square feet for new construction and major renovation.
- 5) By rules, regulations, or law, recommend the Commission for Arkansas Public School Academic Facilities and Transportation revise school standards to require a district to do a study on LEED existing building certification audit prior to renovation and apply same rigorous assessment on existing state-owned or state-funded buildings.
- 6) Pursue activities detailed in Energy Office's EPA grant request: measure energy consumption; establish data collection methods and protocol; establish carbon footprint for state government buildings. [Appendix B]

This report highlights information presented to the Task Force during its year of meetings. Conclusions and implementation will rest with the Eighty-seventh General Assembly and the executive branch of Arkansas state government.

2008 Meeting Presentation Highlights

University of Arkansas for Medical Science's (UAMS) West Central Energy Plant

This project started with a clear goal. UAMS made its requirements for sustainable design and energy conservation very clear (up front) to the design team, and there was no room for compromise.

- The three state agencies involved in this project are: UAMS, Arkansas Department of Health (ADH), and the Arkansas State Hospital (ASH).
- The 2030 Challenge recognizes buildings exceed all other sectors for carbon emissions. The 2030 Challenge says these emissions will be reduced by 50% less than the energy code goals by 2010, and by 2030 buildings will be constructed which are carbon neutral. To be carbon neutral, the building will have to generate more energy than it consumes.
- The UAMS Chancellor wanted to comply with the 2030 Challenge. UAMS not only met the 2010 goal but also met the 2030 goal.
- The new UAMS campus buildings comprise over 1 million square feet of new floor space, providing the design team the ability to design a very efficient energy system. They achieved a carbon neutral project by saving more energy in the existing buildings than the new buildings were consuming.
- All buildings on the west side of the UAMS campus and all ASH buildings are connected to the WCEP. The Health Department, including its new public health laboratory, also gets its electricity from the WCEP.
- The significant component is the heat pump chiller which produces heating and cooling at a fraction of the cost of independently generating those utilities. The design is unique, because it is a variable primary chill water system which is more energy efficient, and it is the first of its kind in the United States. It can produce 1,000 tons of cooling and 450 horse powered heating simultaneously producing 30° chilled water and 150° heated water. This system can produce heat for \$2.59 per 1 million BTUs. If a gas boiler were used, the cost is \$10.63, and if an electric boiler were used, the cost is \$12.31. The heat pump chiller cost \$600,000 and it paid back in less than 1 year.
- The plant has four 2,500 ton cooling towers for its variable volume tower water system. The heating water system is also unique in that it has both electric and gas boilers.
- 100% of the power requirement of this facility can be met with on-site generation. All the power needed can be generated in a distributed generation system.
- Users of electricity and natural gas in state-owned buildings are not accountable for its cost. This is a barrier to energy conservation. A solution to this is to decentralize the utility cost allocation, or the responsibility for utility cost, using a program called automated metering cost allocation. The energy management system takes data from meters and those costs are allocated on a per building basis to all buildings on that campus.
- The ideal solution is to have all buildings designed by the entire group of stake holders and design professionals in an integrated design where architects, engineers, owner, etc. all work

together to decide what is best for the life-cycle of that building. Integrated design is what sustainable design is about.

- The total cost for the UAMS WCEP project was \$31.5 million, and the incremental cost was approximately \$9 million. The Health Department and ASH contributions were financed by UAMS adding over 1 million square feet in additional floor space and lowering overall campus energy costs. The annual savings is approximately \$3.5 million/year with a 3-year payback. Typical payback time is 6 to 7 years. Most of the savings comes from the optional interruptible electricity rate, hybrid boiler arrangement, and the heat pump chiller. Staffing was also consolidated, because the way this plant is designed to operate, it can be done without anyone in the plant.
- The \$3.5 million savings break-out is: heat pump chiller approximately \$800,000; consolidated staffing approximately \$300,000; hybrid boiler arrangement less than \$300,000; and the rest is the optional interruptible service tariff.
- Continuous monitoring and verification is absolutely essential to effective energy management.

Sustainable Arkansas 2008 Green Building Conference Presentation on Ohio School Facilities

Mr. Franklin Brown, Project Administrator for Ohio School Facilities Commission (OSFC), presented information on the Ohio school facilities, noting:

- Ohio was the first school facilities case decided by the courts in the United States.
- Ohio has 612 school districts with 1,820,000 students.
- In 1990 an assessment of the 3,600 school buildings resulted in an approximate cost of \$10.3 billion to upgrade or build new facilities.
- In 1994 the federal government did an analysis of the country's schools, and the results showed Ohio as 47th in terms of how bad its schools were.
- Since 1997, Ohio has renovated or rebuilt 465 of its 3,600 schools. They started from the poorest districts in the state and are working toward the more wealthy districts. OSFC is working on district #365 of the 612 school districts. Two factors which made this possible are the national focus on environmental issues and a funding stream resulting from a tobacco settlement that Ohio won with major tobacco companies.
- Ohio's Governor sold the right to the tobacco settlement money to bond holders for approximately \$5 billion with \$4.1 billion set aside for Ohio's schools. The state is in the process of spending the \$4.1 billion on 250 schools with 60% being new buildings and 40% being renovated.
- The current state mandate passed by Ohio School Facilities Commission on September 27, 2007, provides that all future school buildings are being targeted for Leadership in Energy and Environmental Design (LEED) gold certification.
- Feeling that certification was critical, the state agreed to underwrite the cost of registration and certification for these buildings.
- There was an increase of 3% in the projects' costs to "go green".
- Three separate studies by Davis Langdon, Katz, and McGraw Hill have well conceived business language of why "going green" makes sense from a financial perspective.
- An important strategy for the design team to consider was "daylighting" (taking advantage of natural light) for all space in the building.
- Reducing "plug loads" (the "bring in" things which are plugged in such as computers, vending

machines, etc.) is an easy place to get some significant savings.

- Other strategies to consider are additional insulation in walls and ceilings, lighting (1.0 watts/square foot versus 1.2 watts/square foot), improved heating and cooling, geothermal and solar water heating.
- "Plug load" reduction pays off in 1 year; lighting changes pay off in 2 years; daylighting pays off in 4 years; efficient heating, ventilation and air conditioning systems (HVAC) pay off in 8 years; and geothermal pays off in 9 years. In terms of energy consumption, implementing these strategies will save a building \$6 million. Extending the \$6 million out to the end of the building program, Ohio will save \$1.4 billion.

Mr. Brown also presented information on the OSFC's Green School Initiative, noting:

- Going "green" improves student health and performance, generates energy efficiencies, and benefits the state and its communities.
- At the present time, Ohio has 36 LEED registered buildings either in design or under construction; 2 of these are completed.
- Computerized maintenance programs are not a requirement for the school districts, but a number have elected to use them.
- Water is energy. If a water-shedding roof is placed on a building and gutters are installed, half of the rain water harvesting system is already in place. The water can be captured and filtered to be used for flushing the toilets during the school year and irrigating the athletic fields in the summer.
- Recently Ohio received a \$150,000 grant from the Department of Development to do alternative energy. OSFC is now beginning to approve third party financing. This allows the school to contract with a company to put an array on the roof and make an arrangement for the school to provide the electricity to the company. An agreement can be made where the cost of the electricity will not go up regardless of the grid-based utility cost. Ohio has never had this capability before. However, because of third party financing, California is supposed to be off the electricity grid for its schools within the next two years.
- The only requirement of OSFC is that the state funds be invested only in strategies where points are achieved in the energy category.
- Over a dozen OSFC projects are currently incorporating LEED criteria in design.
- Sustainable design strategies may cost more initially, but save money over time.
- The return on the initial investment will last decades.

North Carolina Utility Savings Initiative--a program for energy efficiency in public buildings

Mr. Len Hoey, Director, Utility Savings Institute, North Carolina Energy Office, presented information on the state's energy efficiency program. [Appendix C]

- Governor Michael F. Easley created the Commission to Promote Government Efficiency and Savings on State Spending in 2002, and it discovered that energy is a manageable cost, and the state needed to do more to manage these costs.
- North Carolina's Energy Office guides the state agencies and administers the program.
- Initially, and for 4 years, the program involved only the University of North Carolina System institutions and state agencies.
- The 2007 legislature passed Session Law 2007-546 which is effective October 1, 2008. The law made new construction applicable to state agencies, universities, and community colleges. The

existing building component applies only to state agencies and universities.

- In 2007, the Energy Savings Initiative was funded through general revenue.
- North Carolina's energy trend shows an 11% increase in electrical cost since 2002. It is projected there will be a 20% increase in electrical cost nationwide for the coming year.
- North Carolina's energy budget is approximately \$300 million/year. With a 20% increase in energy costs, it is looking at a \$60 million increase in its energy budget.
- North Carolina does "performance contracting" with a 20-year payback; Florida also allows performance contracting on new construction.
- Performance contracting is for large capital projects and it frees up repair and renovation monies for other projects not having potential for payback.
- Since the start of the program, approximately 30% of the state's gross square feet has been audited.
- North Carolina has a HVAC tune-up program where the state agency and the Energy Office each pay \$1,000 to have a control vendor do a tune-up.
- The State Energy Office pre-qualifies all Energy Service Companies (ESCO) which are allowed to participate in the program.
- North Carolina's Local Government Commission (LGC) handles community colleges, k-12 schools, and local governments since they do not fall under the state. LGC is looking to the State Energy Office to provide technical assistance to these groups.
- Success of the program is due to "hands on" work with state agencies. The State Energy Office goes out and works with these agencies 2-3 times/year. Mr. Hoey recommends any agency participating in such a program appoint a liaison (preferably an energy manager) to work with the agency that will oversee the program.
- In 2007, the legislature gave the State Energy Office a \$5 million efficiency reserve fund. This is non-recurring money and the agencies do not have to repay this money.
- The Utility Savings Initiative is going "green". The Division of Air Quality created a Climate Action Plan Advisory Group (CAPAG).
- A definite correlation exists between energy reduction and green house gas (GHG) reduction.
- After a 5-year study, the Division of Air Quality determined the only way to reduce CO₂ was not to burn the fuel in the first place.
- Dollars spent and avoided costs are based on BTUs/gross square feet/year.
- Historic buildings are exempt from this program's requirements. Modern technology can be used to save energy in historic building renovation.
- The commissioning cost is said to pay back in 1 year.
- The Energy Office employs 8 individuals to administer this program. \$700,000 was budgeted and an additional \$600,000 in recurring funds was authorized to administer this program.
- The law requires that for new construction, training be provided for chief financial officers, operations and maintenance personnel, capital project coordinators, architects, and mechanical engineers. These individuals are given very prescriptive methods to achieve the 30% energy savings. On existing buildings, there are "conservation action teams".
- Commissioning costs between 1/2 to 3% depending on the building type.
- Performance contracting is used in existing buildings, because it's good to have a baseline to compare previous utility costs.

**MINUTES
LEGISLATIVE TASK FORCE
ON
SUSTAINABLE BUILDING DESIGN AND PRACTICES**

Monday, February 11, 2008

2:00 P.M.

**Room 171, State Capitol
Little Rock, Arkansas**

The Legislative Task Force on Sustainable Building Design and Practices met at 2:00 p.m., Monday, February 11, 2008, in Room 171 at the State Capitol, Little Rock, Arkansas. The following members attended:

Legislative Members: Senators Shane Broadway and Jack Critcher, and Representative Kathy Webb

Non-Legislative Members: Chris Benson, Bill Corley, Richard Davies, Charlie Foster, Alan Hope, Steve Hudson, Anne Laidlaw, Cindy Milazzo, Zack Mobley, Martha Jane Murray, and Mary Jo Ring

Also attending: Senator Bill Pritchard, Representatives David Dunn, Curren Everett, Billy Gaskill, Clark Hall, Ray Kidd, Bryan King, Buddy Lovell, Mark Martin, Allen Maxwell, and David Wyatt

Senator Critcher called the meeting to order and explained the Task Force members were appointed by the Chairs of the House and Senate Public Health, Welfare and Labor Committees, he and Representative Eddie Cooper.

Senator Critcher made the motion that Senator Broadway be elected Senate Chairman and Representative Webb be elected House Chairman of the Task Force. Without objection, the motion carried.

Representative Webb, Co-Chairman, welcomed the Task Force members and asked that they introduce themselves.

Senator Broadway noted Bryant has the first two Leadership In Energy And Environmental Design (LEED) certified schools in the state.

Representative Webb noted the Task Force meeting material will be online with supporting documentation, i.e. agendas, minutes, handouts, etc.

Senator Broadway explained a number of good recommendations came from the previous Task Force, but as in a number of cases, it comes down to money in terms of creating an Energy Manager position and staff. Some of the issues are being worked on in relation to schools. Conversations are on-going concerning the state facilities program in which the state currently invests. Schools have been encouraged to employ energy saving measures for sometime.

Ms. Milazzo explained there was groundbreaking on the expansion of the University of Arkansas at Little Rock's (UALR) College of Engineering and Information Technology and anticipation to have it open for classes in the spring of 2010. The new building will have components for LEED Certification which follows UALR's Strategic Plan for sustainability in design.

Senator Broadway noted Matt Kissler, who is in charge of Wal-Mart's sustainability efforts, will make a presentation to the Task Force.

Mr. Davies noted there is a massive education issue. State people who are constructing buildings need to be educated on the economic savings. Mr. Davies thinks one of the best things the Task Force can do is to come up with some practical standards. He noted of Parks and Tourism's 900 buildings, 143 of these are historic buildings. He said there are energy saving plans which can be implemented in modern buildings but cannot be implemented in historic buildings. Anything the Task Force can do to make state buildings more efficient is going to save maintenance and operation (M&O) dollars in the long run.

Mr. Benson noted in 2005, energy for state buildings, with the exception of school buildings, cost approximately \$70 million and is growing rapidly.

Ms. Murray commented 50% of greenhouse gases which contribute to global warming are from buildings. She thinks it is important to move forward quickly with some specific legislative actions rather than spending more time on research.

Representative Webb noted there is a lot of synergy between the Global Warming Commission (GWC) and the Task Force. The GWC will be looking at approximately 350 to 450 policy options. A number of those concern energy efficiency in residential, commercial and industrial development. She recommended the Task Force review the catalog of policy options on the GWC's website, arclimatechange.us.

Ms. Murray explained that public schools in Ohio are going green. Approximately \$5 billion in construction is committed to LEED schools. Ohio is using performance contracting to help in this effort. Franklin Brown, who is heading the effort and works for the Ohio Education Department, will be one of the keynote speakers at the United States Green Building Council (USGBC) Sustainable Arkansas Conference.

Ms. Ring suggested the Task Force not limit its focus to state buildings, because if these initiatives become more commonplace and commercial buildings begin initiating energy saving features, it will become easier for state buildings to follow the trend. It will create a market and expectation. Ms. Ring offered a presentation on the University of Arkansas for Medical Sciences' (UAMS) new energy plant. She explained UAMS recently opened a central energy plant for the west side of the campus which will support the new building's 1.5 million square feet. This plant is unique to the United States and serves one-half of the UAMS campus. Projected savings are approximately \$3.5 million/year in utility costs.

Representative Martin suggested the Task Force look at the use of indigenous materials inside of buildings which can result in lower energy cost. It could also have a positive economic impact for Arkansas. He suggested indoor air quality be discussed, focusing on measures to insure they be implemented and maintained.

Mr. Foster noted this Task Force has a great opportunity to develop a model for buildings at the city level as well as the state level. North Little Rock is looking at legislation for public-funded city buildings.

Mr. Hope noted there are six major categories of LEED and volunteered to provide a synopsis to staff for the next meeting. He also suggested the Task Force look at retrofitting existing buildings as it will have more impact on energy costs as opposed to new construction.

Senator Broadway noted 60% of the world's energy use, on a daily basis, is used for heating and air conditioning.

Mr. Benson explained the 2005 Energy Act is lacking a number of incentives contained in the previous act, however those tax incentives may be picked up in legislation being currently considered. This will be helpful, assuming some of these tax incentives are extended. Most of the incentives will probably be for the private sector, i.e. residential, commercial types of incentives.

Ms. Murray discussed Louisiana's Executive Order regarding "greening" of their state facilities (Handout #1). Louisiana also passed a residential tax credit last year which would give a 50% tax rebate up to \$25,000 on renewable energy applied to homes. Ms. Murray further noted Berkley, California recently passed an ordinance for residential customers where, by using property taxes over a 20-year period, the city will create bonds to fund renewable energy additions to homes.

Mr. Benson suggested the Task Force look at the North Carolina Energy Savings Initiative. He will provide copies of the initiative to Task Force members and invite his North Carolina counterpart to come and make a presentation. He noted the North Carolina Initiative had a basis in legislation and really got "kicked into gear" from an Executive Order.

Senator Broadway noted the budget cycle begins soon, and most state agencies are already working on budgets.

Senator Broadway suggested that the Task Force goal be to have recommendations ready by September 1, 2008. He suggested that members familiarize themselves with the recommendations made by the previous Task Force.

Ms. Murray would like to have someone from a state that has an Energy Manager and revolving energy fund come and explain how it works. She will look for someone who would be willing to do this.

Possible agenda items for future meetings:

March 17, 2008	1:30 p.m.	Wal-Mart
April 14, 2008	1:30 p.m.	UAMS/Individual from North Carolina
May 20, 2008		Hot Springs

There being no further business, the meeting adjourned at 3:12 p. m.

**MINUTES
LEGISLATIVE TASK FORCE ON
SUSTAINABLE BUILDING DESIGN AND PRACTICES**

**Monday, March 17, 2008
1:30 P.M.
Room 171, State Capitol
Little Rock, Arkansas**

The Legislative Task Force on Sustainable Building Design and Practices met at 1:30 p.m., Monday, March 17, 2008, in Room 171 of the State Capitol, Little Rock, Arkansas. The following members attended:

Legislative Members: Sen. Broadway, Co-Chairman, Rep. Webb, Co-Chairman

Non-Legislative Members: Chris Benson, Bill Corley, Richard Davies, Charlie Foster, Alan Hope, Art Kinnaman, Anne Laidlaw, Cindy Milazzo, Martha Jane Murray, Mary Jo Ring, and Mark Robertson

Also attending: Rep. Mark Martin

Senator Broadway, Co-chairman, presiding. He noted the Wal-Mart Energy/Sustainability presentation will be an event scheduled later in the fall. The Bethel Middle School has received the Leadership in Energy and Environmental Design (LEED) Silver Certification. There will be an April celebration.

Bill Corley made a motion to adopt the February 11, 2008, minutes, and with a second by Charlie Foster, the motion carried. (Exhibit D)

Rep. Webb, also co-chairman of the Governor's Commission on Global Warming, explained the working process of the commission's five technical working groups (TWGs). She serves on the Residential, Commercial, and Industrial (RCI) TWG. She noted the TWGs are presented with numerous various policy options and then those specific to Arkansas are also added. The options are then prioritized to present the top 10 to the full commission. She presented the current RCI group's 10 priorities to the task force with their corresponding ranking, and said she welcomes and encourages the members' input. Noting that this is an on-going work in progress, she asked the task force members to email her any suggestions with comments and reasons as soon as possible so she can offer them for discussion to the TWG. The Commission's final meeting is scheduled September 25.

The RCI TWG's top 10 priority items, as of March 7 are as follows:

#1--Catalog Description (Exhibit E-2) Item **2.1, Improved Building Codes for Energy Efficiency**; noted also included, or linked with this item, are:

- 2.3 Improved Design and Construction, "Government Lead-by-example"
- 2.6 Promotion and Incentives for Improved Design and Construction (e.g. LEED, green buildings)in the Private Sector
- 1.10 Reduce energy use by 10% in state owned buildings
- 2.2 Training of building code and other officials in energy code enforcement

#2--Item **1.1, Utility Demand-Side Management (DSM) Programs for Electricity**

#3--Item **1.10, Reduce energy use by 10% in state owned buildings.** The task force would like to see a "bar set higher than 10%."

#4--Item **2.6 (2.61 & 2.62) Promotion and Incentives for Improved Design and Construction (e.g. LEED, green buildings) in the Private Sector**

2.61 Emphasis on new buildings

2.62 Emphasis on existing buildings

#5--Item **4.1, Consumer Education Programs**

#6--Item **6.1, Incentives to Promote Implementation of Renewable Energy Systems**

#7--Item **2.3, Improved Design and construction, "Government Lead-by-example."**

#8--Item **2.7, Feebate program to encourage energy efficiency in building design**

Ms. Laidlaw said that statewide, the state leases more buildings than it owns.

Rep. Webb noted that after the policy issues are prioritized, they will then look at costs.

#9--Item **2.9, Training and education for builders and contractors (e.g., HVAC, sizing, duct sealing)**

#10--Item **5.1, Green Power Purchasing for Consumers**

There are some home weatherization pilot programs in the state. There are only 2 certified energy auditors in Arkansas.

Mr. Robertson noted emphasis should be placed on the economic aspect, specifically job creation by the need for "green collar" jobs.

There being no further business, the meeting adjourned at 3:00 p.m.

**MINUTES
LEGISLATIVE TASK FORCE
ON
SUSTAINABLE BUILDING DESIGN AND PRACTICES**

Monday, April 14, 2008

1:30 P.M.

**Room 171, State Capitol
Little Rock, Arkansas**

The Legislative Task Force on Sustainable Building Design and Practices met at 1:30 p.m., Monday, April 14, 2008, in Room 171 at the State Capitol, Little Rock, Arkansas. The following members attended:

Legislative Members: Senator Shane Broadway, Co-Chairman and Representative Kathy Webb, Co-Chairman

Non-Legislative Members: Chris Benson, Bill Corley, Richard Davies, Charlie Foster, Steve Hudson, Art Kinnaman, Anne Laidlaw, Zack Mobley, Martha Jane Murray, Mary Jo Ring, Kelly Robbins, and Mark Robertson

Also attending: Representatives Stan Berry, Curren Everett, Billy Gaskill, Nathan George, Ray Kidd, Mark Martin, George Overbey, and David Wyatt

Senator Broadway called the meeting to order. He reminded the Task Force members that the next meeting will be May 20th at the Convention Center in Hot Springs and advised if members attend only the morning session [of Sustainable Arkansas 2008, Arkansas' 6th Annual Green Building Conference], there is no registration fee. He also issued an invitation to the Bethel Middle School Leadership In Energy And Environmental Design (LEED) Silver Certification award ceremony at 1:00 p.m. on April 21, 2008.

Consideration to approve March 17, 2008, minutes (Exhibit D)

Mr. Robertson made the motion to adopt the March 17, 2008, minutes, and without objection the motion carried.

Presentation of University of Arkansas for Medical Sciences (UAMS) West Central Energy Plant (WCEP)

Ms. Mary Jo Ring, Director, UAMS Physical Plant, introduced Mr. Ed Tinsley, PE, CEM, CEO, TME, Inc.

Mr. Tinsley was recognized and gave a power point presentation [Handout #1] on the WCEP, noting:

- Approximately 500 engineers, facility managers, and physical plant directors from Arkansas and other states have toured the WCEP.
- One thing which made this project different was it started with a clear goal. UAMS made its requirements for sustainable design and energy conservation very clear (up front) to the design team, and there was no room for compromise.
- The three state agencies involved in this project are: UAMS, Arkansas Department of Health (ADH), and the Arkansas State Hospital (ASH).
- The 2030 Challenge recognizes buildings exceed all other sectors for carbon emissions. The 2030 Challenge says these emissions will be reduced by 50% less than the energy code goals by 2010, and by 2030 buildings will be constructed which are carbon neutral. To be carbon neutral, the building will have to generate more energy than it consumes.
- The UAMS Chancellor wanted to comply with the 2030 Challenge. UAMS not only met the 2010 goal but also met the 2030 goal.
- The new UAMS campus buildings comprise over 1 million square feet of new floor space, providing the design team the ability to design a very efficient energy system. They achieved a carbon neutral project by saving more energy in the existing buildings than the new buildings were consuming.

- All buildings on the west side of the UAMS campus and all ASH buildings are connected to the WCEP. The Health Department, including its new public health laboratory, also gets its electricity from the WCEP.
- The significant component is the heat pump chiller which produces heating and cooling at a fraction of the cost of independently generating those utilities. The design is unique, because it is a variable primary chill water system which is more energy efficient, and it is the first of its kind in the United States. It can produce 1,000 tons of cooling and 450 horse powered heating simultaneously producing 30° chilled water and 150° heated water. This system can produce heat for \$2.59 per 1 million BTUs. If a gas boiler were used, the cost is \$10.63, and if an electric boiler were used, the cost is \$12.31. The heat pump chiller cost \$600,000 and it paid back in less than 1 year.
- The plant has four 2,500 ton cooling towers for its variable volume tower water system. The heating water system is also unique in that it has both electric and gas boilers.
- 100% of the power requirement of this facility can be met with on-site generation. All the power needed can be generated in a distributed generation system.
- Users of electricity and natural gas in state-owned buildings are not accountable for its cost. This is a barrier to energy conservation. A solution to this is to decentralize the utility cost allocation, or the responsibility for utility cost, using a program called automated metering cost allocation. The energy management system takes data from meters and those costs are allocated on a per building basis to all buildings on that campus.
- The ideal solution is to have all buildings designed by the entire group of stake holders and design professionals in an integrated design where architects, engineers, owner, etc. all work together to decide what is best for the life-cycle of that building. Integrated design is what sustainable design is about.
- The total cost for the UAMS WCEP project was \$31.5 million, and the incremental cost was approximately \$9 million. The Health Department and ASH contributions were financed by UAMS adding over 1 million square feet in additional floor space and lowering overall campus energy costs. The annual savings is approximately \$3.5 million/year with a 3-year payback. Typical payback time is 6 to 7 years. Most of the savings comes from the optional interruptible electricity rate, hybrid boiler arrangement, and the heat pump chiller. Staffing was also consolidated, because the way this plant is designed to operate, it can be done without anyone in the plant.
- The \$3.5 million savings break-out is: heat pump chiller approximately \$800,000; consolidated staffing approximately \$300,000; hybrid boiler arrangement less than \$300,000; and the rest is the optional interruptible service tariff.
- Continuous monitoring and verification is absolutely essential to effective energy management.

Mr. Davies noted that standards should be set for all state buildings to meet in addition to offering incentives for agencies to meet these standards.

Mr. Benson suggested Mike Storms attend the June meeting, because he has experience with life-cycle costing and procurement. He also noted North Carolina has a fully functioning program dealing with a utility savings initiative for existing state buildings. He will arrange for someone from North Carolina to attend the June meeting.

Senator Broadway suggested John Bethel, Director, Public Service Commission, also attend the June meeting.

Without further business, the meeting adjourned at 2:55 p.m.

**MINUTES
LEGISLATIVE TASK FORCE
ON
SUSTAINABLE BUILDING DESIGN AND PRACTICES**

**Tuesday, May 20, 2008
8:00 A.M.
134 Convention Blvd.
Hot Springs Convention Center
Hot Springs, Arkansas**

The Legislative Task Force on Sustainable Building Design and Practices met at 8:00 a.m., Tuesday, May 20, 2008, at the Hot Springs Convention Center, 134 Convention Blvd., Hot Springs, Arkansas. The following members attended:

Legislative Members: Senator Shane Broadway, Co-Chairman

Non-Legislative Members: Alan Hope, Steve Hudson, Art Kinnaman, Anne Laidlaw, Cindy Milazzo, Martha Jane Murray, Mary Jo Ring, and Mark Robertson

Also attending: Representatives Bill Abernathy and Daryl Pace

Senator Broadway called the meeting to order.

Consideration to approve April 14, 2008, minutes (Exhibit D)

Mr. Robertson made the motion to adopt the April 14, 2008, minutes, and with a second by Mr. Hudson, and without objection, the motion carried.

Sustainable Arkansas 2008 Green Building Conference Presentation (Attachment #1 – Evaluation of Ohio Schools Design Manual Standards in Relationship to LEED)

Mr. Franklin Brown, Project Administrator for Ohio School Facilities Commission (OSFC), provided a power point presentation on the Ohio school facilities, noting:

- Ohio was the first school facilities case decided by the courts in the United States.
- Ohio has 612 school districts with 1,820,000 students.
- In 1990 an assessment of the 3,600 school buildings resulted in an approximate cost of \$10.3 billion to upgrade or build new facilities.
- In 1994 the federal government did an analysis of the country's schools, and the results showed Ohio as 47th in terms of how bad its schools were.
- Since 1997, Ohio has renovated or rebuilt 465 of its 3,600 schools. They started from the poorest districts in the state and are working toward the more wealthy districts. OSFC is working on district #365 of the 612 school districts. Two factors which made this possible are the national focus on environmental issues and a funding stream resulting from a tobacco settlement that Ohio won with major tobacco companies.
- Ohio's Governor sold the right to the tobacco settlement money to bond holders for approximately \$5 billion with \$4.1 billion set aside for Ohio's schools. The state is in the process of spending the \$4.1 billion on 250 schools with 60% being new buildings and 40% being renovated.
- The current state mandate passed by Ohio School Facilities Commission on September 27, 2007, provides that all future school buildings are being targeted for Leadership in Energy and Environmental Design (LEED) gold certification.
- Feeling that certification was critical, the state agreed to underwrite the cost of registration and certification for these buildings.
- There was an increase of 3% in the projects' costs to "go green".
- Three separate studies by Davis Langdon, Katz, and McGraw Hill have well conceived business language of why

"going green" makes sense from a financial perspective.

- An important strategy for the design team to consider was "daylighting" (taking advantage of natural light) for all space in the building.
- Reducing "plug loads" (the "bring in" things which are plugged in such as computers, vending machines, etc.) is an easy place to get some significant savings.
- Other strategies to consider are additional insulation in walls and ceilings, lighting (1.0 watts/square foot versus 1.2 watts/square foot), improved heating and cooling, geothermal and solar water heating.
- "Plug load" reduction pays off in 1 year; lighting changes pay off in 2 years; daylighting pays off in 4 years; efficient heating, ventilation and air conditioning systems (HVAC) pay off in 8 years; and geothermal pays off in 9 years. In terms of energy consumption, implementing these strategies will save a building \$6 million. Extending the \$6 million out to the end of the building program, Ohio will save \$1.4 billion.

Mr. Brown and task force members' discussion

Mr. Brown explained the OSFC has guidelines on whether to renovate or build new. If the cost of renovating a building exceeds two-thirds the cost of building new, then the district is encouraged to consider taking the building out of service unless the building has some kind of historical significance. He further explained the OSFC requires buildings to be renovated to LEED silver certification but targeted to LEED gold.

In response to questioning, Mr. Brown explained Ohio has a building which has 87 cents/sq. ft. total energy cost. It is a geo-thermal building. He explained the Portfolio Manager Program requires input in KBTUs rather than dollars to track energy consumption. He said the program, Portfolio Manager, is free online.

The cost of renovating a school will usually be more than building new. They calculate the budget for a new school and increase that amount by 3% for renovation. There is state and local sharing of costs for every project.

In speaking how the building can be a teaching tool, Mr. Brown said the Twenhofel Middle School in Independence, Kentucky has three wings, one for each grade. A monthly pizza party is awarded to the wing which consumes the least electricity that month. This is one way of getting the students involved in conserving energy. This school has a plasma screen in the lobby showing its real-time energy performance.

Mr. Chris Ladner, Global Warming Commissioner, told the members the Residential, Commercial, and Industrial Technical Work Group recommendations and ideas can be found online at arclimatechange.us. He asked them to study the recommendations and respond.

Green Schools Initiative – Ohio School Facilities Commission (Attachment #2)

Mr. Brown continued with a second power point presentation on OSFC's Green Schools Initiative, noting:

- Going "green" improves student health and performance, generates energy efficiencies, and benefits the state and its communities.
- At the present time, Ohio has 36 LEED registered buildings either in design or under construction; 2 of these are completed.
- Computerized maintenance programs are not a requirement for the school districts, but a number have elected to use them.
- Water is energy. If a water-shedding roof is placed on a building and gutters are installed, half of the rain water harvesting system is already in place. The water can be captured and filtered to be used for flushing the toilets during the school year and irrigating the athletic fields in the summer.
- Recently Ohio received a \$150,000 grant from the Department of Development to do alternative energy. OSFC is now beginning to approve third party financing. This allows the school to contract with a company to put an array on the roof and make an arrangement for the school to provide the electricity to the company. An agreement can be made where the cost of the electricity will not go up regardless of the grid-based utility cost. Ohio has never had this capability before. However, because of third party financing, California is supposed to be off the

electricity grid for its schools within the next two years.

- Benefits of LEED for schools certification are: [See p. 5 attachment #2]
- The only requirement of OSFC is that the state funds be invested only in strategies where points are achieved in the energy category.
- Over a dozen OSFC projects are currently incorporating LEED criteria in design.
- OSFC policy recommendations are: [See p. 14-16 attachment #2]
- Sustainable design strategies may cost more initially, but save money over time.
- The return on the initial investment will last decades.

Without further business, the meeting adjourned at 11:00 a.m.

**MINUTES
LEGISLATIVE TASK FORCE
ON
SUSTAINABLE BUILDING DESIGN AND PRACTICES**

Monday, June 16, 2008

2:00 P.M.

**Room 171, State Capitol
Little Rock, Arkansas**

The Legislative Task Force on Sustainable Building Design and Practices met at 2:00 p.m., Monday, June 16, 2008, in Room 171, State Capitol Little Rock, Arkansas. The following members attended:

Legislative Members: Senator Shane Broadway, Co-Chairman; Representatives Kathy Webb, Co-Chairman; and Eddie Cooper

Non-Legislative Members: Chris Benson, Bill Corley, Richard Davies, Steve Hudson, Zack Mobley, Martha Jane Murray, Mary Jo Ring, and Mark Robertson

Also attending: Senators Steve Bryles, Randy Laverty, Jim Luker; Representatives Curren Everett and Billy Gaskill

Senator Broadway called the meeting to order.

Consideration to approve May 20, 2008, minutes (Exhibit D)

Mr. Robertson made the motion to adopt the May 20, 2008, minutes, and with a second by Ms. Murray, and without objection, the motion carried.

North Carolina Utility Savings Initiative (Exhibits E & E-1)

Mr. Len Hoey, Director, Utility Savings Institute, North Carolina Energy Office, was recognized and gave a power-point presentation, noting:

- The Utility Savings Initiative is North Carolina's program for energy efficiency in public buildings.
- Governor Michael F. Easley created the Commission to Promote Government Efficiency and Savings on State Spending in 2002, and it discovered that energy is a manageable cost, and the state needed to do more to manage these costs.
- North Carolina's Energy Office guides the state agencies and administers the program.
- Initially, and for 4 years, the program involved only the University of North Carolina System institutions and state agencies.
- The 2007 legislature passed Session Law 2007-546 which is effective October 1, 2008. The law made new construction applicable to state agencies, universities, and community colleges. The existing building component applies only to state agencies and universities.
- In 2007, the Energy Savings Initiative was funded through general revenue.
- North Carolina's energy trend shows an 11% increase in electrical cost since 2002. It is projected there will be a 20% increase in electrical cost nationwide for the coming year.
- North Carolina's energy budget is approximately \$300 million/year. With a 20% increase in energy costs, it is looking at a \$60 million increase in its energy budget.
- North Carolina does "performance contracting" with a 20-year payback; Florida also allows performance contracting on new construction.
- Performance contracting is for large capital projects and it frees up repair and renovation monies for other projects not having potential for payback.
- Since the start of the program, approximately 30% of the state's gross square feet has been audited.
- North Carolina has a HVAC tune-up program where the state agency and the Energy Office each pay \$1,000 to have a control vendor do a tune-up.

- The State Energy Office pre-qualifies all Energy Service Companies (ESCO) which are allowed to participate in the program.
- North Carolina's Local Government Commission (LGC) handles community colleges, k-12 schools, and local governments since they do not fall under the state. LGC is looking to the State Energy Office to provide technical assistance to these groups.
- Success of the program is due to "hands on" work with state agencies. The State Energy Office goes out and works with these agencies 2-3 times/year. Mr. Hoey recommends any agency participating in such a program appoint a liaison (preferably an energy manager) to work with the agency that will oversee the program.
- In 2007, the legislature gave the State Energy Office a \$5 million efficiency reserve fund. This is non-recurring money and the agencies do not have to repay this money.
- The Utility Savings Initiative is going "green". The Division of Air Quality created a Climate Action Plan Advisory Group (CAPAG).
- A definite correlation exists between energy reduction and green house gas (GHG) reduction.
- After a 5-year study, the Division of Air Quality determined the only way to reduce CO₂ was not to burn the fuel in the first place.
- Dollars spent and avoided costs are based on BTUs/gross square feet/year.
- Historic buildings are exempt from this program's requirements. Modern technology can be used to save energy in historic building renovation.
- The commissioning cost is said to pay back in 1 year.
- The Energy Office employs 8 individuals to administer this program. \$700,000 was budgeted and an additional \$600,000 in recurring funds was authorized to administer this program.
- The law requires that for new construction, training be provided for chief financial officers, operations and maintenance personnel, capital project coordinators, architects, and mechanical engineers. These individuals are given very prescriptive methods to achieve the 30% energy savings. On existing buildings, there are "conservation action teams".
- Commissioning costs between 1/2 to 3% depending on the building type.
- Performance contracting is used in existing buildings, because it's good to have a baseline to compare previous utility costs.

Arkansas utility savings (Exhibit F)

Mr. John Bethel, Executive Director, Public Service Commission (PSC) was recognized and gave a power point presentation, noting:

- The PSC developed some quick start programs in 2007, which had been used elsewhere and were believed to have a high probability of being successful in Arkansas.
- In the spring of 2009, the utilities are supposed to introduce a more comprehensive list of programs to expand the energy efficiency and conservation endeavor.
- One component of the energy efficiency and conservation endeavor is statewide education; Energy Efficiency Arkansas is administered by the Arkansas Energy Office. The gas and electric utilities participate, advising customers of ways they can take steps to save money, reduce energy costs, and use energy more efficiently.
- A program also conducts HVACR training and certification.
- Also included is the Arkansas Weatherization Program which is similar to the low-income weatherization program administered by the United States Department of Energy.
- The Arkansas Weatherization Program targets energy inefficient homes built prior to 1990 . The program will pay 50% of the renovation cost up to a maximum of \$1,500. Customers can contact their local utilities to determine if they are eligible and what amount of funding may be available.
- The natural gas utilities provide an energy audit for industrial and commercial customers.

Arkansas procurement procedures and life-cycle costing (Handout #1)

Ms. Jane Benton, Administrator of State Procurement, Department of Finance and Administration (DFA), addressed the committee, noting:

- In the last two years, procurement professionals nationwide are becoming very interested in green purchases and energy efficiency.
- The procurement profession at the state level can have much input and effect with state agencies, counties and cities because they do use the cooperative purchasing agreement.
- Commodity purchases are things agencies order to do their business.
- State Procurement does recommend the agencies look at competitive pricing, but it is not required for purchases under \$5,000 for all agencies, including higher education.
- From \$5,000 to \$25,000 three competitive quotations are required. This category does not require public notification and is not a sealed bid.
- Orders over \$25,000 are required to be bid at the State Procurement Office. The exception would be if there is an agency purchasing official. Public notice is also required.
- Some state agencies do have an agency purchasing official by statute. Like State Procurement, these purchasing officials can solicit all levels of procurement.
- All institutions of higher education, including the two-year colleges and technical institutions, and the Arkansas Department of Highway and Transportation have purchasing officials.
- State Procurement does solicit either a formal Request for Proposal (RFP), Invitation for Bid (IFB), or qualifications from the vendors.
- Invitation for Bids look at costing and cost drives the primary award on this bid type. An announcement is placed on State Procurement's website with the description of what is being bid, in addition to all applicable contractual terms and conditions. Public bid opening is held at a pre-destined time and place. The bid is awarded to the lowest responsive and responsible bidder.
- A RFP is different because factors besides price are considered.
- All agencies have the authority to process up to \$25,000 in contractual services by issuing a purchase order. Contracts between \$5,000 and \$25,000 are reported monthly to the Office of State Procurement (OSP).
- Life-Cycle Costing looks at the life of a purchase. This is seen more in very technical pieces of equipment but can be used for any type of purchase.
- The total cost of the ownership of the purchase is determined from "cradle to grave". Not only the acquisition cost, but the operating cost and disposal cost are looked at for a particular item. This will be seen more as "green" purchases are made. Life-cycle costing does require a higher level of comparative analysis.
- Life-Cycle costing is not required in Arkansas for state purchases. However, state agencies can ask for life-cycle costing.

Task Force members think DFA should promote life-cycle costing as an option. Ms. Benton stated the OSP staff is being educated on sustainability, and "green" energy savings. States are becoming more aware of the need for energy conservation.

Mr. Benson suggested the OSP, Energy Office, and U.S. Green Building Council work together to conduct a life-cycle costing workshop. He will follow up on this.

Senator Broadway suggested the next meeting be a discussion about possible recommendations and draft legislation for the 2009 session.

Without further business, the meeting adjourned at 4:10 p.m.

**MINUTES
LEGISLATIVE TASK FORCE
ON
SUSTAINABLE BUILDING DESIGN AND PRACTICES**

Monday, July 28, 2008

2:00 P.M.

**Room 171, State Capitol
Little Rock, Arkansas**

The Legislative Task Force on Sustainable Building Design and Practices met at 2:00 p.m., Monday, July 28, 2008, in Room 171, State Capitol Little Rock, Arkansas. The following members attended:

Legislative Members: Senator Shane Broadway, Co-Chairman; Representatives Kathy Webb, Co-Chairman; and Eddie Cooper

Non-Legislative Members: Bill Corley, Richard Davies, Charlie Foster, Alan Hope, Steve Hudson, Anne Laidlaw, Cindy Milazzo, James Scroggins [for Mary Jo Ring], and Mark Robertson

Also attending: Senators Steve Bryles and Randy Laverty; Representatives David Cook and Mark Martin

Senator Broadway called the meeting to order.

Consideration to approve June 16, 2008, minutes (Exhibit D)

Mr. Corley made the motion to adopt the June 16, 2008, minutes, and with a second by Mr. Foster, the motion carried without objection.

Discussion and developing recommendations (Handout #1)

Representative Webb gave an update on the Global Warming Commission, noting:

- After the July 31 meeting, 2 meetings remain.
- They are working on quantifying each policy initiative to see how many tons of greenhouse gas each policy initiative would reduce.
- They are working on incorporating parts of the North Carolina Energy Savings Initiative into the Residential, Industrial and Commercial Technical Workgroup.
- She asked that suggestions from the task force members be submitted to her as soon as possible.

Mr. Robertson was recognized and gave an explanation of the Green Collar Initiative, noting:

- U.S. Green Building Council-AR (USGBC) is hosting a 3-day event with focus on questions and positions related to sustainability, lower economic and cultural diversity sustainability, and green collar jobs within the green building agenda.
- Six events are planned during the 3-day conference scheduled for October 27, 28, and 29.
- A public meeting will be held at Central High School on Monday night, October 27 from 5 to 8 p.m.
- A meeting will also be held with the Governor's Office and members of the legislature October 28 from 3-5 p.m. Plans are for this meeting to be held at the Capitol so legislators will be able to attend after budget hearings. He stated USGBC-AR would like to have other state agencies at this meeting, especially the Arkansas Department of Economic Development, because there will be a focus on green collar jobs, green economy and what it could mean to Arkansas.
- A dinner will be held at the Clinton Library Tuesday night, October 28 for the purpose of raising funds to create a pilot program with a USGBC program manager to provide oversight and creation of a green collar stimulus program to benefit low income homeowners by implementing Energy Efficient Measures (EEM) that reduce energy use and cost. This program would run for *1 year*.

- USGBC-AR hopes to set this pilot program up as an organization, and after *1 year*, the state would take it over.
- If this program is implemented, it could have a multi-million dollar affect across the state.
- A meeting is also being arranged with Central Arkansas community leaders, Chamber of Commerce, etc.

Mr. Robertson further explained the Green Collar Initiative noting: (Handout #1)

- Arkansas' population is 2.5 million, and 20% (or 500,000) make below \$30,000/year. The average household has 4 people which equates to 125,000 households.
- With 10% of these households being targeted as part of this pilot program, the typical utility bill is \$250/month or approximately \$3,000/year. The reduction goal is 20-50% --from \$3,000 down to \$600-\$1,500/year. In one to five years, a homeowner's disposable income would be \$200. From 6 years on, a household would receive an additional \$900/year in disposable income from these energy savings.
- This initiative would also create green collar jobs, i.e. energy raters and "green" sub-contractors.

Recommendations and suggestions

- Funding an energy manager to begin in 2011 after the end of the pilot program.
- Some type of weatherization program for state employees.
- Minimum energy standards for state buildings well above existing code as it stands now. It was suggested to look at Architecture 2030 standards as a starting point. It was suggested there should be exceptions for buildings with unique characteristics, special use buildings, or historic buildings.
- Emphasize training for green collar jobs and "green" economy.
- Employ a team of individuals to visit state buildings around the state and train maintenance people on energy conservation measures. By doing this, North Carolina had a 20% to 30% energy savings.
- Develop a monitoring tool for tracking energy usage in state buildings.
- Funding for all state buildings including higher education and public schools.
- Training the Trainer program where two or three individuals from each state building would come together for training and take the information back and train other individuals.
- Maintenance people in specialized areas be cross-trained to become energy auditors. It was also suggested to take advantage of the vocational technical schools.
- Third year electrical engineering students could be put on as extra help and intern in places such as the Energy Office every summer. These individuals could go to various state agencies and train maintenance people on energy conservation measures.
- Implement enforceable minimum standards for green building initiatives such as Leadership in Energy and Environmental Design (LEED) or other equivalents at the state level.
- As an incentive, set up a fund where state agencies meeting certain energy standards could have energy saving features or devices paid for out of this fund and they would then be allowed to keep their energy savings. It was suggested the Energy Office administer this "super fund".
- Formalize a process where debt service for energy saving capital improvements would allow transfer of a certain amount of operation and maintenance (O&M) funds into capital improvements.
- Standardize materials used in construction of new state buildings based on performance as determined by the design professionals.
- Continue the task force for 2 more years or make it a permanent task force.

Additional comments

Ms. Milazzo expressed concern about low income families who do not own their homes. She questioned if it was feasible to do a low-interest loan to the landlord.

Representative Webb noted Kansas and Chicago are working on the issue of low income families who do not own their own homes, and it was discussed by the Global Warming Commission. Weatherization kits are being put

together for low income families. Individuals who go to a county agency for services can pick up one of these kits. The Chicago kits have caulk, plastic sheeting, duct tape, etc. When used appropriately, these kits will make a difference in energy cost. A booklet is included to explain how to use these kits.

Mr. Hudson asked if anything was being done to quantify where buildings are in terms of performance levels? Ms. Laidlaw responded the Energy Office is collecting this data and the Arkansas Building Authority (ABA) is providing data for this report. She further explained ABA is participating with Mark Harris, Governor's Office, on a separate audit of the Capitol and Big Mac Building. She does not currently know how the final report will be assimilated or distributed. This report specifically addresses consumption in state buildings.

Mr. Robertson noted when Act 1770 was passed, there was discussion about review of state agencies with a recommendation they follow the green building approach. It would be interesting to get a report from state agencies who have built new buildings to see if the green building strategy recommendation was followed. Ms. Laidlaw responded her office can generate a report on construction of state buildings since the 2005 legislation. The report will exclude all schools and higher ed.

Senator Broadway questioned why the state could not issue revenue bonds tied to energy saving improvements to every state building and pay them back with the energy savings. He asked Ms. Laidlaw if one of ABA's attorneys could find this answer.

Mr. Corley asked if there is a process in place for someone to do an energy analysis on construction before building begins? Representative Martin responded most school buildings have to meet the standards of the Department of Energy 2 (DOE 2). Part of the Facilities Design Manual states those energy efficiency calculations have to be done before construction begins.

Senator Broadway asked for expert help with putting together some type of incentive package; suggested individuals: Mac Dodson, Director, Arkansas Development Finance Authority (ADFA); Shep Russell, Attorney with Friday, Eldridge, and Clark Law Firm; Bureau of Legislative Research Fiscal Services (possibly Kevin Anderson); and Jane Benton, Administrator of State Procurement, Department of Finance and Administration. Mr. Davies suggested either Ms. Laidlaw or himself also be involved in this process to give a full perspective of all that goes into new construction or rehabing an existing building.

Issues and agenda items for the next meeting will include:

- How to structure appropriations into state law to allow for performance contracting and to allow for bonding if the agency knows it will save energy
- Incentives
- Best value evaluations

Suggested presenters for the next meeting are:

- Mac Dodson, Director, ADFA
- Shep Russell, Attorney, Friday, Eldridge, and Clark Law Firm
- BLR Fiscal Services (possibly Kevin Anderson)
- Jane Benton, Director, State Procurement, DF&A

Mr. Hope will obtain the names of bond lawyers or individuals who do financing to speak on performance contracting.

The next meeting will be September 10, 1:00 to 3:00 p.m. in Room 171.

Senator Broadway asked that an e-mail be sent to members listing the recommendations suggested at this meeting. He would also like for an e-mail to be sent to the possible presenters.

Without further business, the meeting adjourned at 3:39 p.m.

**MINUTES
LEGISLATIVE TASK FORCE
ON
SUSTAINABLE BUILDING DESIGN AND PRACTICES**

Wednesday, September 10, 2008

1:00 P.M.

**Room 171, State Capitol
Little Rock, Arkansas**

The Legislative Task Force on Sustainable Building Design and Practices met at 1:00 p.m., Wednesday, September 10, 2008, in Room 171, State Capitol, Little Rock, Arkansas. The following members attended:

Legislative Members: Senator Shane Broadway, Co-Chairman

Non-Legislative Members: Richard Davies, Charlie Foster, Alan Hope, Anne Laidlaw, Cindy Milazzo, Zack Mobley, Martha Jane Murray, Mary Jo Ring, Mark Robertson, and Randy Thurman

Senator Broadway called the meeting to order, and welcomed new member, Randy Thurman.

Consideration to approve July 28, 2008, minutes (Exhibit D)

Mr. Robertson noted 2 changes to the July 28, 2008, minutes, both regarding the U.S. Green Building Council's (AR) proposed pilot program only being for 1 year instead of 2 years.

Mr. Robertson advised task force members the U. S. Green Building Council's 3-day event has been changed from October 27, 28, 29 to February 9, 10, 11.

Discussion and developing recommendations: How to structure appropriations into state law to allow for performance contracting, life-cycle costing, etc.; allow for bonding, if agency knows it will save energy; incentives; best value evaluation (Exhibit E)

Ms. Robin Rogers, Deputy, Office of State Procurement (OSP), Department of Finance and Administration (DFA), Mr. Mac Dodson, President, Arkansas Development Finance Authority (ADFA), and Mr. Shepherd Russell, Attorney, Friday, Eldridge, Clark, were recognized.

Mr. Davies explained there are questions where legislative appropriations for building and appropriations for paying the light bill come from 2 different "piles of money", and somehow in government they never seem to mesh. You usually get punished for spending money on the front end to save money on the other end. Another issue is performance contracting and how that may affect bonding.

Senator Broadway noted school districts can do performance contracting. The question is, can state agencies do this? He used as an example, if it was decided to retrofit every building in the Capitol Complex, could revenue bonds or some type of bonds be issued based on projected energy savings as a way to pay off these bonds?

Mr. Russell noted for the state to do any type of bonds, the state has to have constitutional authority. The state can do revenue bonds with legislative approval, and revenue bonds are paid from any source other than taxes. The legislature has the authority to approve fees or other type of revenues that can be used to pay debt. He further explained that without legislation, there must be a public vote. With a public vote, the state's full faith in credit is behind the bonds. Therefore, the state can use whatever source it wants to pay for the bonds. He also noted the Attorney General stated energy savings is not considered a revenue source, because the money will be taken from the general fund and used to pay for the bonds. If you plan to go this route, it would be more along the line of coming up with a fee or a revenue source and with authorization for ADFA to issue bonds backed by that revenue source to refurbish the state buildings

for energy saving purposes. Bonds could be issued to refurbish these buildings with a state-wide election and tax revenue could be used for this purpose. In order to do this, it would require a legislative act authorizing the bond issue and referring it to a vote. The Governor can call a special election. If a special election is not called, it will be placed on the general election ballot.

Mr. Davies asked how this would be presented to the voters? Mr. Russell stated the wording on the ballot would be "voting on a legislative act" and the title of the act would be "authorized bonds up to a certain amount for the purpose of doing "x" energy saving projects for state buildings to be paid from the full faith and credit". If the bond issue passes, it will then be up to the legislature to appropriate the money annually from whatever source to pay that debt -- if and when it is issued. There could be some conditions in the legislative act which would put certain requirements on the bonds to be issued, i.e. projects would have to meet a certain level of energy savings.

Ms. Milazzo stated higher education should also be included in the legislation.

Mr. Dodson noted approximately 3 years ago, the College Savings Bond Act was passed and bonds were issued for \$90 million for higher education. If you don't do this by election and try to identify special revenue for all the different agencies, it would be difficult to do any kind of broad reaching project, because the revenue from each agency is different. This would need to be looked at on a case-by-case basis for every bond issue. It would be difficult to have some general broad-reaching project without an election.

Mr. Davies explained you have to pledge all specific fees for the bond which ties up those monies. Case in point was the Mt. Magazine project where Department of Parks and Tourism had to pledge fees from the whole park system to pay off the bonds.

In response to a question from Ms. Murray, Mr. Dodson explained this is a constitutional issue, and tax money cannot be used for bonding without an election.

Mr. Dodson explained when a state agency approaches ADFA wanting to issue bonds, the agency would tell ADFA how much money it needs. The first thing ADFA does is hire an attorney with expertise in this area. The attorney would meet with the agency director and determine if the agency had special revenue. An analysis would then be done on how much special revenue was received annually; how steady this income was; and the future projections. Based on this information, ADFA would then determine the amount of the bond issue. No election is required for this type of bond issue, but typically legislation is enacted. ADFA's board votes on the request, hires a professional bond underwriting company, and then issues the bonds. ADFA handles all the work for the various state agencies and makes sure the bonds are issued properly. ADFA handles the payment to the bond holders over the life of the bonds.

Ms. Murray asked the timeframe from passing a legislative act authorizing the Governor to call a special election. Mr. Russell noted it's usually 90 days, but the legislation would stipulate how much time had to elapse before the special election could be held.

Mr. Dodson explained once all laws are in place, ADFA can issue the bonds within 90 to 120 days.

Ms. Milazzo explained all colleges and universities do a facilities audit each biennium which is submitted to the Department of Higher Education. It contains information such as the age of buildings, roofs, HVAC systems, etc. She thinks someone could use this type of audit for other state buildings and using this information, could then make assumptions about what kind of savings could be realized.

Senator Broadway suggested checking with Mr. Benson to see if the Energy Office would have the ability to contract with someone to do the assessment of the data or information. Ms. Laidlaw noted the Energy Office has started collecting this data. Senator Broadway noted there should be someone to coordinate looking at all the state agencies

and higher education entities to figure out what a plan would look like, how many buildings are being discussed, and if it is over a 10-year period, for how long would the bonds be issued.

Mr. Davies asked if Bureau of Legislative Research staff could research what other states are doing regarding methods to move between capital budgets and operating budgets on specific data.

Ms. Milazzo suggested setting up a revolving fund and have the Energy Office manage this fund.

Ms. Murray made a motion that a short-term 30 day subcommittee be formed to research UALR data as a test to see if the data is sufficient in regards to the discussion about energy savings contracts, and report that information to the task force by the next meeting. With a second by Mr. Robertson, and without objection, the motion carried.

Subcommittee members are Cindy Milazzo, Mary Jo Ring, Alan Hope, and Chris Benson.

Ms. Rogers, (Exhibit E), was recognized and noted OSP does use life-cycle costing on air conditioners, etc.

Mr. Floyd Farmer, State Engineer, Arkansas Building Authority (ABA), explained when an agency decides to do a capital improvement project, as opposed to a commodity purchase, and is subject to ABA's oversight, if the value of that project is more than \$20,000, the agency is required to put out formal bids. Policies in ABA's minimum standards and criteria have been in place for approximately 10 years and encourage state agencies to use life-cycle cost analysis as a way to select materials and equipment which are put into a bid project. If the agency can do a valid life-cycle cost analysis and document this showing ABA it is the best value, ABA will allow the agency to include this item as a sole-source specification, allowing the agency to get particular material or equipment into the bid project. He further explained that the problem now is the "lag time" is so great between doing the life-cycle cost analysis and putting the construction project out for bid that vendors are reluctant to guarantee those prices beyond a short period of time because of material and equipment cost escalations. He also noted agencies already have the authority to buy equipment directly through OSP and furnish that to the contractor.

Mr. Davies asked in an appropriation how an agency can identify higher front end capital investment with later on savings in the operating budget?

Mr. Kevin Anderson, Administrator, Fiscal Division, Bureau of Legislative Research, was recognized and noted the funding source is the first obstacle, and appropriating money every 2 years is another obstacle. As far as moving the money around in capital outlay, you can look at a revolving fund, something similar to pay-plan holding. Legislation will be required to make this work.

Senator Broadway asked Mr. Anderson to check with the National Conference of State Legislatures (NCSL) to see if other states are doing revolving funds. This information will be needed within 30 days.

North Carolina Utility Savings Initiative Law (Exhibit F)

Senator Broadway deferred this to the October 13, 2008, meeting.

Mr. Davies stated he sent this initiative to his construction people and they sent comments back to Mr. Benson. He reiterated that people will need to use common sense when dealing with odd buildings such as the med center, historical buildings, or buildings full of computers.

Mr. Robertson thinks this initiative is a minimum and a good base from which to start.

Mr. Robertson stated he would send the "Architecture 2030" information to staff for distribution to task force members.

Mr. Gil Glover, Attorney, Bureau of Legislative Research, was recognized and made brief comments on the Public Service Commission's (PSC) System's Benefit Fund. He explained the System's Benefit Fund is a way some projects for residential and commercial buildings may be funded.

The next meeting is scheduled for Monday, October 13, 2008, at 2:00 p.m.

Ms. Murray commented Arkansas has 400,000 households that could qualify for federal assistance. However the current weatherization program addresses 1,500 households/year.

The recommendations to be considered and discussed at the next meeting are: minimum standards, revolving account, creating an energy manager position, and a mechanism for a bond issue to fund the projects.

Ms. Laidlaw will report at the next meeting on how successful the state has been with Act 1770 in terms of encouraging "green buildings"; what has been done since 2007; and where the state is currently on this.

Ms. Murray requested information on the number of state employees and their median income. Mr. Anderson will provide this information.

Senator Broadway asked members to let staff know if they wanted an item or recommendation placed on the next agenda.

Without further business, the meeting adjourned at 2:30 p.m.

**MINUTES
LEGISLATIVE TASK FORCE
ON
SUSTAINABLE BUILDING DESIGN AND PRACTICES**

Monday, October 13, 2008

2:00 P.M.

**Room 171, State Capitol
Little Rock, Arkansas**

The Legislative Task Force on Sustainable Building Design and Practices met at 2:00 p.m., Monday, October 13, 2008, in Room 171, State Capitol, Little Rock, Arkansas. The following members attended:

Legislative Members: Senator Shane Broadway and Representative Kathy Webb, Co-Chairs

Non-Legislative Members: Chris Benson, Bill Corley, Charlie Foster, Steve Hudson, Anne Laidlaw, Zack Mobley, Martha Jane Murray, Mary Jo Ring, Mark Robertson, and Randy Thurman

Also Attending: Senator Steve Bryles, Representatives David Cook, Curren Everett, Billy Gaskill, Clark Hall, Allen Maxwell, Robert Moore, and George Overbey

Senator Broadway called the meeting to order.

Consideration to approve July 28, 2008, and September 10, 2008, minutes (Exhibits D-1 & D-2)

Mr. Robertson made the motion to adopt the July 28 and September 10, 2008, minutes and, without objection, the motion carried.

Report on Act 1770 of 2005 relating to progress on encouraging green state buildings, etc. (Exhibit E)

Ms. Laidlaw was recognized and presented the report of Arkansas Building Authority (ABA) projects exceeding \$1 million. The two projects with Leadership in Energy and Environmental Design (LEED) or Green Globe certification are Arkansas Department of Environmental Quality's (ADEQ) office, storage, and lab facility and Arkansas Department of Parks and Tourism's visitor center, conservation area, Hobbs State Park. Ms. Laidlaw noted higher education and public school building projects do not go through ABA and, therefore, are not included in this report.

Mr. Robertson questioned why green initiatives were not considered for the other six projects. Mr. Foster discussed the Pulaski Vocational College Transportation Technology Center (160,000 square feet) at the old Expo Center. He stated that, working within the allocated budget, the design team was only able to enhance the envelope and convince the client not to use roof-top units. They did use strategies of green concepts and have some green pieces in the facility. Mr. Robertson noted it is evident that encouraging clients to consider green building initiatives is not working. He pointed out that minimum mandates were not included in the original legislation.

Ms. Ring noted the University of Arkansas for Medical Science (UAMS) looked at the LEED criteria for the last five years and has one building that has been certified. The standard design of the most recent project was changed to have efficient "building envelopes", electrical, and mechanical systems. UAMS was moving toward certification when they ran into a problem with the final construction estimates. The cost of managing the waste on the project was between \$300,000 and \$500,000; additional cost is difficult to justify when there is no direct payback.

Senator Broadway asked for ideas on wording for legislation that is not burdensome but forcibly encourages or requires state agencies to use a certain process. Mr. Robertson suggested giving agencies tools on the front-end and a clear message of the minimal goal level for energy, water, waste, air quality, etc., while making the case for certification as the expectation for taxpayer dollars.

Mr. Benson noted the Energy Office paid for the verification on the ADEQ building and the TME firm did the contract. In the process of securing the contract, only one or two firms were eligible to do the certification; there is a problem getting in-state firms with certification experience. A decision needs to be made on whether to commit to the non cost-effective components of a state building for reasons other than costs. For example, a 30% performance increase on a building means it would be cost effective and, therefore, qualify for an "energy star" certification. Mr. Benson added that legislation in some states does not specify LEED but rather the goal that buildings perform 30% above the standard. Arkansas's language could be qualified even further to steer agencies to LEED or Green Globe certification. Ms. Murray suggested adding a requirement of at least minimum standards and commissioning for all projects.

Mr. Robertson agreed with minimum standards on energy, water and commission and noted LEED looks at several different components, i.e., energy, water, materials, indoor air quality and landscaping, insuring a holistic approach to the building. Representative Webb noted the Global Warming Commission is proposing many of North Carolina's plans. The Commission is recommending a 20% reduction in energy and also addresses water, indoor air quality, and landscaping.

Senator Broadway expressed his opinion that new legislation should surpass current legislation in terms of moving to the next step. Mr. Robertson proposed looking at a LEED silver minimum rating or the equivalent of other standards on all state buildings and public school buildings built with state funds. Ms. Murray suggested adding the equivalent would be inclusive of third party commissioning and a 30% minimum energy standard for new construction and major renovation. Mr. Benson suggested a fall-back plan of requiring a minimum standard of 30% above the current American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standard with a minimum amount of square feet in order for this standard to apply (i.e., all buildings over 5,000 or 10,000 sq. ft.). This would exclude small state park buildings and historical buildings.

Ms. Ring noted LEED silver is not only energy but also innovative things that are difficult for administrators to buy into. Mr. Robertson stated LEED silver is not unachievable; innovative methods can be used to obtain the LEED silver objective. Mr. Foster noted silver certification is the cause of many headaches as it is very difficult to achieve. For example, the Department of Veterans Affairs (DVA) would be required by 2009 to have LEED silver certification for all new construction. DVA is now rethinking this as it is difficult to meet all the criteria, especially in a medical environment.

Ms. Laidlaw stated her agency has talked about developing rules and regulations setting up the authority, and would include the minimum standards. She further noted that ideally, a partnership would need to be established between the Energy Office and ABA.

Mr. Robertson made a motion to adopt LEED silver with 30% above ASHRAE standards on the energy side with the minimum water standards (20 %) set out in the North Carolina legislation and use the current version of LEED, or the equivalent, with the minimum building size of 5,000 sq. ft. for new construction and major renovation. Without objection, the motion carried.

Mr. Mobley stated legislators will need more information in order to make an informed decision on the proposed legislation. He suggested a "white paper" giving more information on the purpose of the legislation. Senator Broadway noted that an impact statement from Department of Finance and Administration (DF&A) would be required. Ms. Murray suggested that a mandated integrated design should also be required for every project.

Senator Broadway made a motion the task force work with Representative Webb in contacting the Center for Climate Strategies (CCS) to do a fiscal impact statement for said recommended policy. Without objection, the motion carried.

Mr. John Bethel, Executive Director, Public Service Commission (PSC), was recognized and noted last week PSC initiated new procedures to look at furthering energy efficiency in electric generation technologies. This is an extension of PSC's previous efforts on energy efficiency and conservation programs. PSC continues to identify opportunities for utilities to generate electricity and provide natural gas in a more efficient manner and also identify programs to help end-use customers use energy more efficiently. In April, the utilities will file reports showing the results of their energy conservation activities to date and begin to introduce long-term programs that will start next spring.

Subcommittee findings on facilities audit information

Ms. Ring noted she, Cindy Milazzo, and Alan Hope have been unable to meet due to scheduling conflicts but they have recruited Ed Tinsley to the subcommittee. They should have a report for the next meeting. Senator Broadway instructed that the subcommittee findings be added to the agenda for the November meeting.

Discussion and developing recommendations: minimum standards; revolving account, energy manager, position; mechanism for bond issues to fund projects (Exhibits G-1 & G-2)

Mr. Kevin Anderson, Administrator, Fiscal Division, Bureau of Legislative Research, was recognized and explained the proposed legislation creates a revolving loan fund whereby agencies or institutions could get appropriation or funding outside the normal process for capital improvement. The basic concept is to add a position (an administrator) for the Sustainable Building Design Program. A revolving loan fund would be created to allow agencies and institutions to borrow money or appropriation during the interim for energy conservation projects as identified by rules and regulations. The rules and regulations to be developed are outlined in Exhibit G2. Monies to fund the position(s) will come from an origination fee charged against the loans. The proposed legislation sets forth the mechanism for transferring these funds from the general revenue allotment reserve fund to the revolving loan fund, following approval by the Economic Development Commission and the Chief Fiscal Officer, and review by the Legislative Council.

Mr. Anderson was requested to change the reference to the "State Energy Plan" to the "Arkansas Energy Office". Mr. Robertson noted he would feel more comfortable if the funds in the revolving loan fund were more defined as to how the monies would be used. Ms. Ring suggested that Mr. Robertson's recommendation be tied to his previous motion. Ms. Ring also suggested tying the limit of the loan to the construction rather than a dollar amount.

She also suggested adding higher education and other agencies to the proposed legislation. Senator Broadway suggested that public school facilities also be included.

Senator Broadway asked that members review the draft legislation (Exhibits G-1 and G-2) and provide recommendations for any additional language and/or changes at the next meeting. He stressed the language should clarify how the fund will be used.

North Carolina Savings Initiative (Exhibit H)

Mr. Robertson stated he feels the goal of this initiative has been accomplished by having minimum standards in the legislation.

Mr. Robertson made a motion to continue the Task Force for two more years. Without objection, the motion carried.

The next meeting will be held Monday, November 24, 2008, at 2:00 p.m., in Room 171.

Without further business, the meeting adjourned at 4:10 p.m.

**MINUTES
LEGISLATIVE TASK FORCE
ON
SUSTAINABLE BUILDING DESIGN AND PRACTICES**

Monday, November 24, 2008

2:00 P.M.

**Room 171, State Capitol
Little Rock, Arkansas**

The Legislative Task Force on Sustainable Building Design and Practices met at 2:00 p.m., Monday, November 24, 2008, in Room 171, State Capitol, Little Rock, Arkansas. The following members attended:

Legislative Members: Senator Shane Broadway and Representative Kathy Webb, Co-Chairs

Non-Legislative Members: Chris Benson, Charlie Foster, Steve Hudson, Anne Laidlaw, Zack Mobley, Martha Jane Murray, Mary Jo Ring, Mark Robertson, and Randy Thurman

Also Attending: Representative Bryan King

Representative Webb called the meeting to order.

Consideration to approve October 13, 2008, minutes (Exhibit D)

Mr. Robertson made the motion to adopt the October 13, 2008, minutes. Ms. Ring seconded the motion, and without objection, the motion carried.

Subcommittee findings on facilities audit information

Ms. Ring reported the subcommittee will meet next week.

Further discussion and developing recommendations: revolving account; energy manager position; mechanism for bond issue to fund projects

Mr. Kevin Anderson, Administrator, Fiscal Division, Bureau of Legislative Research, was recognized and explained the way the substantive legislation was set, the origination fee would fund an energy manager position. The proposed legislation would set the parameters and would require rules and regulations be established. The Arkansas Economic Development Commission (AEDC) or another designated state agency would be responsible for writing the rules and regulations and implementing the program. He explained the members could either choose to endorse the 2 pieces of proposed legislation, or think on it and see if the AEDC wants this to be part of their proposed legislative package.

Mr. Benson stated he would need to check with Maria Haley, Executive Director, Economic Development Commission, for her input.

Mr. Anderson explained for the revolving fund to work, the main factor would be for it to receive monies from the Distribution Act and the general improvement fund.

Ms. Murray made the motion to adopt the revisions and the recommendations to move forward on the proposed legislation to set up a revolving loan fund, and that it would include a provision for administration via an energy manager, and to have sustained funding levels, and also contingent upon discussion with (AEDC) and/or other state agencies who would be willing to oversee the program. Mr. Robertson seconded the motion, and without objection, the motion carried.

Ms. Murray asked if the bond issue to fund projects was a separate piece of legislation? Senator Broadway explained the bond issue legislation is separate from the proposed legislation just approved. He noted there were a number of legal issues being worked through.

Senator Broadway recommended an assessment be done on all state buildings. Ms. Murray responded step 1 is to evaluate to see what needs exist in state buildings.

Ms. Laidlaw responded Arkansas Building Authority (ABA) maintains an assessment of its facilities and the critical maintenance needs they have. ABA is not involved with all state-owned facilities, so it would be the responsibility of state owners to make a report on the condition of those facilities. She noted, to her knowledge, there is not a mechanism in place to gather this information.

Ms. Murray stated it would be a targeted energy audit for state buildings rather than an assessment. A Request for Quotation (RFQ) for energy service providers would probably be done and go forward from there.

Ms. Ring noted Energy Star has a ranking system where building owners could input the data and get an assessment about where the building is in comparison to other buildings.

Mr. Benson noted the Environmental Protection Agency (EPA) turned down the Energy Office's \$300,000 grant request to do an energy assessment of state buildings. The 3 major components of this proposal were:

- Measure energy consumption.
- Establish a data collection mechanism and protocol.
- Establish a carbon footprint for state government buildings.

They've asked the EPA the reasons for denying the request. The need still exists to do this type of audit, but the funds are lacking. It's important to move as quickly as possible, because if the state lacks the capacity and perceived capability to do these energy-related programs, it will miss out on substantial funding (billions of dollars nationally) coming down the "pike". This does not include climate-related dollars. The urgency is there and hopefully this task force can help express that.

Ms. Murray suggested legislation that would require assessment of all state buildings.

Ms. Laidlaw commented it seems that the first step is to develop the mechanism or a reporting format on how building owners will report this information. Is this going to require substantial dollars on the part of the individual property owners? Mr. Benson responded the Energy Office is not currently gathering energy consumption data. The only energy data known at the present time is the energy costs for the state buildings. There needs to be a mechanism in place for building owners to be able to do the assessment on their own facilities.

Ms. Ring asked if it would be possible to use a targeted dollar amount for state building audits as a demonstration with a funding mechanism that could be increased in the following years.

Mr. Benson responded his office was focusing on obtaining information on the baseline conditions of state buildings. If needs could also be determined at the same time, that would be "gravy".

Representative Webb commented it seems the state needs to do that study before it's in a position to apply for these federal funds. She thinks the task force should recommend the state do the study even if funds are not available.

Senator Broadway asked if this study would be a one-time study? Mr. Benson responded yes.

Mr. Robertson made a motion that the task force recommend pursuing the 3 components included in the EPA grant (measure the energy consumption, establish a data collection mechanism and protocol, and establish a carbon footprint for state government buildings) and get baseline information which will allow us to move forward. Once we have assessments and understanding of where we stand at this point in time, we can then determine the money needed to help solve the problem. Without objection, the motion carried.

Ms. Murray suggested Leadership in Energy and Environmental Design (LEED) for existing buildings as a way to have an assessment of "green" indoor air quality and energy use of all public schools that receive state funds. She explained this would present a snapshot of how the state schools are performing and the next step would be to envision a process to fund energy improvements in existing schools especially with regard to indoor air quality.

Senator Broadway stated this could be done by rule or standards.

Mr. Robertson made a motion to adopt Handout #1 restating the motion of October 13, 2008 and take out K-12 structures until approval is received from Office of Attorney General. Ms. Ring seconded the motion, and without objection, the motion carried.

Senator Broadway suggested a recommendation be made to the Commission for Arkansas Public School Academic Facilities and Transportation that they look at revising the school facility standards that would at least require districts on new and existing buildings to go through the steps of determining if LEED certification is best for their project. The way the standard is now written, there is no requirement for this to be done. This could be done through rule and regulation.

Mr. Robertson suggested the recommendation not be limited to K-12, but look at the state as a whole. The potential for the greatest impact is within the state's existing building infrastructure.

Senator Broadway responded that anything other than schools would require a statute.

Mr. Robertson made a motion to require, either by rule or through legislation, state-financed facilities, go through the LEED for Existing Buildings (LEED EB) protocols. Without objection, the motion carried.

Mr. Benson will forward information regarding possible grants to task force members.

Center for Climate Strategies (CCS) fiscal impact on previously adopted recommended standards

Representative Webb stated the fiscal impact was not yet available, and she will look for other sources for this fiscal impact statement on Handout #1.

Senator Broadway noted a fiscal impact would probably be necessary on both of Mr. Robertson's motions (the original motion from October 13, 2008 and Handout #1).

North Carolina Utility Savings Initiative Law (Exhibit H)

Senator Broadway noted some of the task force recommendations include elements of the North Carolina Utility Savings Initiative Law.

Mr. Robertson stated his 2 motions for legislation covers new and existing buildings as set forth in the North Carolina Initiative.

Senator Broadway stated when ready, the draft legislation will be e-mailed to task force members for their review. At that time, a decision will be made if the task force needs to meet again.

Representative Webb stated she will pre-file a bill for the task force's continuation.

Ms. Murray showed a movie on a pilot program which has been implemented at her family-owned shoe factory in Wynne, Arkansas. She explained an energy audit was conducted on their factory, and an energy savings of approximately \$40,000 was realized by doing lighting retrofits. She took these savings to the local Chamber of Commerce and stated she wanted to turn these savings into a revolving-energy fund for their employees. This would allow their employees to borrow from this fund to help them achieve energy savings in their homes. This program is:

- Economic development at the local level;
- Jobs creation;
- Social equity, by helping lower income families;
- Opportunity to reduce greenhouse gas emissions.

Ms. Murray will provide a link for this movie's access.

Senator Broadway said the task force will meet if needed.

Without further business, the meeting adjourned at 3:30 p.m.

D
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T

1. Summary Page

Project Title: Arkansas State Buildings Energy Initiative
Applicant Name: Arkansas Energy Office
Address: One Capitol Mall, Little Rock, AR 72201
Telephone: 1.501.682.8065 or 1.800.558.2633
Contact: Chris Benson, Director- Arkansas Energy Office
Website: www.aedc.state.ar.us/Energy

Amount of Grant Request: \$289,512
Total Project Cost: \$289,512
Project Period: Start Date: March 1, 2009
End Date: February 29, 2012

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Attachments

1. **Resumes**
 2. **Support Letters**
-

2. Narrative Work Plan

a. Project Summary/Approach

Arkansas is known as “The Natural State,” and we are proud of our history of protecting and responsibly managing the natural resources on which much of our economy and culture depend. With the signing of Act 696 of the Arkansas 86th General Assembly in March 2007, Arkansas Governor Mike Beebe took a strong leadership position in efforts to responsibly manage the state’s greenhouse gas emissions by establishing the Governor’s Commission on Global Warming. “Global warming is a growing concern that requires study and action on both state and federal levels,” said Governor Mike Beebe upon appointing members to the Governor’s Commission on Global Warming. “This commission will give Arkansans our own perspective on the scope and potential impact of this phenomenon and recommend the best steps to take to protect ourselves, our environment and our economy for the future.” The Commission is charged with setting a global warming pollution reduction goal for Arkansas and a comprehensive strategic plan for implementation of the global warming pollution reduction goal.

In addition to leadership from Arkansas’ state government, Arkansans enjoy the strong leadership of Wal-Mart Stores, Inc., headquartered in Bentonville, Arkansas. Wal-Mart, the largest and one of the most influential companies in the world, has embarked on an impressive effort to reduce its own greenhouse gas emissions and to influence and encourage other entities to do so as well. Our state government has recently benefited from one of their energy efficiency outreach programs. Wal-Mart is offering technical assistance to a select group of states to model what can be done across the United States with energy efficiency in state buildings by auditing 20 state capitol buildings. Arkansas has been chosen as one of the states to benefit from this program.

The Arkansas Economic Development Commission’s Energy Office (AEO) designs and manages a wide array of programs that focus on energy efficiency and renewable energy. The AEO has measured individual energy performance for specific components of state buildings, but never have they devised an integrated approach to quantifying energy use and the associated greenhouse gas emissions on a state level. Through this request for proposals, the AEO is seeking a cooperative agreement with EPA to build upon the learning gained through the Wal-Mart project in order to advance state energy efficiency throughout all state buildings. This project will enable the state government to quantify and more effectively manage greenhouse gas emissions, will enable tracking of emissions and progress toward reduction goals set by the Governor’s Commission on Global Warming and will train building managers in best management practices.

The AEO is seeking this cooperative agreement with EPA to assess the current energy usage and building management data collection methodologies across the state agencies and universities and to develop a statewide data collection protocol that will create a profile of energy consumption in state buildings and enable on-going tracking of energy usage and progress toward emissions reduction goals. Determining a baseline of energy consumption for state buildings will provide a starting point for development of policies in order to institutionalize change over time. Information outreach to building personnel will be an important component of this project. We propose educating those persons responsible for each building and empowering them to continually monitor and improve each building. We will actively promote the program to the public to demonstrate the state government’s leadership and to encourage individual citizens to invest in energy efficiency measures and products in their own homes and businesses.

Activities associated with the proposed project will be conducted in phases extending over a three year time period beginning March 1, 2009 with an anticipated closing date of February 29, 2012. Project deliverables will include a baseline profile of energy consumption in state buildings, a web-based energy management tool for on-going data collection, and a “How To” manual and trainings to help state

employees collect and submit data to the web-based tool. The Arkansas Energy Office will actively seek opportunities to share knowledge gained through the project with the public in Arkansas and nationally.

i. Detailed Project Summary

Project Goal: Create a web-based energy management tool that will provide an on-going profile of energy consumption, greenhouse gas emissions and status of best management practice implementation for Arkansas state buildings. This tool will be used to improve building efficiency, cut costs, and measure progress against state greenhouse gas emissions reduction goals.

This project proposal effectively reflects objectives stated by the Environmental Protection Agency in RFP number EPA-OAR-CPPD-08-04 by:

- improving energy performance in the residential and/or commercial/government market through increased high-efficiency products,
- delivering improved energy performance to existing commercial buildings (e.g., offices, schools, hotels, hospitals, supermarkets, datacenters, etc.) through technology or practice,
- providing information and technical support on greenhouse gas management in the public and private sectors, and
- providing information and/or technical support about policies that have been effective at the state or regional level in encouraging recognition of the full range of benefits of energy efficiency in the utility and public sectors.

Arkansas currently has no systematic way to track energy consumption in its state buildings. Without being able to quantify energy consumption for each building in a centralized manner, we are unable to establish a baseline against which to measure greenhouse gas emissions reductions. This project would allow Arkansas to develop a comprehensive energy consumption tracking system, establish baseline usage and track progress on usage and emission reductions on an on-going basis while training building managers and encouraging continual improvement in building energy efficiency.

Project Objective #1: Develop a centralized data collection methodology for state buildings

- **Task #1: Conduct an inventory of current energy usage reporting methods.**
Currently, monthly utility costs are reported to different entities across the state. Most state agencies report expenditures to the Arkansas Department of Finance & Administration (ADF&A) while others report to the Arkansas Building Authority (ABA). Each university and college reports to its individual administration. Each of these entities uses a different computer system and reporting protocol, which makes consolidation of currently available data impractical, if not impossible. Data tallied by the ADF&A includes only cost information and lacks any record of energy usage data (e.g., British Thermal Units (BTU) and/ or Kilowatt hours (kwh)). Arkansas Building Authority figures include both costs and usage figures, but the ABA tracks only twelve state buildings and the ADF&A covers buildings housing 199 state agencies.
- **Task #2: Identify building contact persons.**
Identifying a “point person” within each building will be critical to the success of this project. The point person will be helpful in collecting data and learning about methodology and will also participate in the training portion of the project to be responsible for on-going data submittal and quality assurance.
- **Task #3: Research models from other states and/or entities.**
In order to be as efficient as possible, research into potential data collection models from other states and large entities will be conducted.
- **Task #4: Design a data collection methodology for Arkansas.**
Information gained from research in tasks #1-3 will be used to develop a data collection

methodology that will work within the agencies in Arkansas. We expect this to be an iterative process developed together with the building contact persons and other parties responsible for housing energy information.

- **Task #5: Develop method and evaluation process for data collection tool.**

The findings from Task #4 will be used to develop a qualitative specification document for use by the consultant as the groundwork for their development of the method and evaluation process for data collection tool.

- **Task #6: Research best management practices in building energy efficiency and greenhouse gas emissions reductions.**

In addition to energy usage information, the data collection tool will be designed to include the ability to record progress toward attaining best management practices for each state building. This task will encompass researching available information to determine current best practices for energy efficiency in public buildings. The Arkansas Department of Environmental Quality (ADEQ) will play a key role in translating kilowatt hours compiled into air emissions.

- **Task #7: Develop survey tool to assess each building against the best management practices.**

Once best practices have been determined, a survey instrument will be drafted and will become a part of the tool. This instrument is intended to assist in developing a baseline condition for each building and a mechanism for tracking progress. For example, if it is shown that LED lighting is considered an energy efficiency best practice, the survey will include a question determining the type of lighting currently installed in a particular building. If the building currently has incandescent lighting, progress over time can be recorded when the lighting system is upgraded in the future. This will also enable searching by database field to generate, for example, a list of all the facilities that currently have incandescent lighting. This will enable analysis across the entire state building system and identification of facilities for targeted energy efficiency projects in the future.

- **Task #8: Gather utility records for baseline period from each facility for which no usage records are available.**

The training portion of this project will be designed to both train building “point persons” on using the data collection tool and to generate a baseline profile of energy consumption in state buildings. In order to conduct the training, energy consumption data must be entered into the system. For the majority of buildings where usage data is not currently collected, utility records will need to be gathered in advance to enable the trainers to educate with real facility information and to enable the building contacts to input accurate information.

Project Objective #2: Develop a data collection tool to collect and report energy consumption and building practices information

- **Task #1: Work with data collection system design contractor to finalize collection method and evaluation process.**

The tool developer will meet with the contractor responsible for data collection methodology development in order to most effectively develop the methodology and evaluation process.

- **Task #2: Develop draft data collection tool.**

With input from Arkansas Department of Environmental Quality and the Arkansas Energy Office staff, the contractor will develop a draft tool for beta testing by several selected building point persons.

- **Task #3: Refine and finalize tool.**

Modifications will be made to the data collection tool to address issues discovered in the beta testing and to insure that the reporting mechanism of the tool works for AEO staff. The final version of the data collection tool will be targeted to go live by July 1, 2010.

Project Objective #3: Train building operators on using the new data collection tool and on best management practices for achieving energy efficiency in public buildings.

- **Task #1: Develop training materials.**
Training professionals will work with the contractor to create a user-friendly manual to accompany the data collection tool. In addition the trainers will create a best management practices manual that will explain each practice and assist building operators in obtaining the information necessary to accomplish their goals of improving energy efficiency.
- **Task #2: Conduct training workshops for all building contacts.**
The training professionals will plan, schedule and conduct training sessions for all building contact persons.

Project Objective #4: Conduct public outreach efforts to publicize the project.

- **Task #1: Develop outreach materials.**
A marketing firm will be engaged to develop interesting and relevant materials about the project that will be designed to appeal to the general public and motivate them to follow the State's lead in becoming more energy efficient in their own lives and businesses. With the help of ADEQ, public educational materials illustrating the impact of emissions to air quality will be created and disseminated. An understanding of Arkansas' greenhouse gas emissions may help to showcase efforts towards reducing our environmental impact. The firm will work together with the AEO, the EPA, and ADEQ to develop an appropriate outreach plan.
- **Task #2: Disseminate information to the public.**
The outreach plan will be implemented beginning in the second quarter of 2011. In addition, Arkansas Energy Office staff will seek out opportunities to present results and key lessons learned from the project to interested groups both in Arkansas and nationally, as appropriate.

ii. Work Products to be Developed

In order to accomplish the project, the following deliverables will be provided:

- a baseline profile of energy consumption in state buildings to be used for managing data and setting performance targets,
- a standard for best practices in managing energy use in state buildings,
- a web-based energy management inventory tool,
- a "How To" manual and trainings to help state employees collect and submit data to the web-based tool,
- an annual report issued and made public by the Arkansas Energy Office, and
- educational materials illustrating the project activities and effects on air quality

This project will greatly assist the State of Arkansas in its efforts to make significant reductions in greenhouse gas emissions from state buildings. Last year alone, the electricity used in state buildings resulted in the emission of over 1 million tons of CO₂ into the atmosphere. We feel that there is significant room for energy efficiency improvements and see this project as a vital step to move the state forward in pursuit of that goal. Results of this project will be leveraged in policy decisions and in the work of the Governor's Commission on Global Warming and well as the Arkansas Legislative Sustainable Buildings Task Force. Table 1 illustrates components of the proposed project; anticipated activities to be conducted over a three year period, and the responsible organizations.

Table 1: Project Timeline and Responsibilities

Arkansas State Buildings Energy Initiative		Associated Cost	Responsible Organization	Timeline												
				Year 1 2009				Year 2 2010				Year 3 2011				
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Objective #1: Develop a centralized data collection methodology for state buildings																
Preliminary: Issue RFP and finalize contractual agreements with contractor	AEO															
Task 1: Inventory current energy usage reporting methods	Contractor w/ AEO oversight															
Task 2: Identify building contact person for each building	Contractor w/ AEO oversight															
Task 3: Research existing models	Contractor w/ AEO oversight															
Task 4: Design data collection methodology	Contractor w/ AEO oversight															
Task 5: Develop data collection methodology and evaluation process	Contractor w/ AEO oversight															
Task 6: Research BMPs & apply emissions formulas	Contractor w/ ADEQ & AEO oversight															
Task 7: Develop survey	Contractor w/ AEO oversight															
Task 8: Gather utility records where necessary	Contractor w/ AEO oversight															
Objective #2: Develop a data collection tool to collect and report energy consumption and building practices information																
Preliminary: Issue RFP and finalize contractual agreements with contractor	AEO															
Task 1: Finalize data collection methodology and evaluation process	Contractors w/ AEO oversight															
Task 2: Develop draft data collection tool	Contractor w/ AEO oversight															
Task 3: Refine and finalize tool	Contractor w/ AEO oversight															

Activity/Task	Responsible Organization	Associated Cost	Timeline																			
			Year 1 2009				Year 2 2010				Year 3 2011											
			Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4								
Objective #3: Conduct training workshops for building operators																						
Preliminary: Issue RFP and finalize contractual agreements with contractor	AEO																					
Task 1: Develop training materials	Contractors w/ AEO oversight																					
Task 2: Conduct training workshops	Contractor w/ AEO oversight																					
Objective #4: Conduct public outreach efforts to publicize the project																						
Preliminary: Issue RFP and finalize contractual agreements with contractor	AEO																					
Task 1: Develop outreach materials	Contractors w/ AEO & AEO oversight																					
Task 2: Disseminate information	Contractor w/ AEO oversight																					

iii. Project Benefits to Public

The implications of this project to the public will tap into numerous dimensions. The public taxpayers will directly benefit from the cost savings resulting from less energy usage by the one-hundred and ninety-nine state agencies, departments, and institutions of higher learning currently expended to ADF&A, and the twelve government buildings currently expended to ABA. Baselines determined will allow for energy efficient strategies to be implemented, which will directly result in lower emissions, reduced health risks, and better air quality for the entire state, not just those utilizing state building space. This project will generate an objective target from which to reduce energy costs. A surplus in capital could potentially be transferred to other programmatic activities that enhance the lives of Arkansans.

In general, the public will benefit from this baseline-determining program because it will lead to more efficient energy use and reduced health risks due to reduced emissions in the long run. More efficient energy use will allow money previously spent on the energy budget to be spent on other more worthwhile projects, thereby utilizing the taxpayers’ money more wisely. Following the government’s example, the public will learn to efficiently use energy in the home and protect the environment. In addition, a reduction in greenhouse gas emissions is widely believed to be of tremendous importance to the health of our global ecosystem.

iv. Roles of Applicant and Partners

Applicant:
Arkansas Energy Office (AEO): The project will be managed and closely overseen by the Arkansas Energy Office, particularly Chris Benson (Director), Jenny Ahlen (Renewable Energy Programs Coordinator), and Susan Recken (Energy Efficiency Programs Coordinator). AEO will track performance of the project by supervising timely data submission by pertinent state institutions. Monthly reports will be consolidated into a final annual report for the state from which policy recommendations and energy strategies will be made. In addition to administering the entire project, AEO will also supervise stakeholders in devising educational awareness campaigns.
Key Partnerships:
Governor Mike Beebe and staff
Secretary of State Charlie Daniels and staff
Arkansas Department of Environmental Quality (ADEQ): AEDQ have committed to providing services related to the translation of energy usage reductions into air emissions benefits for Arkansas state buildings. ADEQ will also assist in illustrating that impact to the public via educational materials created with oversight from AEO and the EPA Project Officer.
Contractors (TBD): Prior to initiating each Phase of the proposed project, AEO will issue a public bidding process to skilled contractors around the state. Contractors will be sought to provide technical assistance needed to integrate methodologies for tracking data, to help create a web-based energy management inventory tool, to assist in streamlining data into the system, and to instruct key stakeholders on effectively utilizing the web-based tool. Depending on individual capacities, some Contractors may be able to perform one or more of the tasks.
Environmental Protection Agency Project Officer: The Environmental Protection Agency’s Project Officer assigned to Arkansas will assist stakeholders by providing guidance and oversight intermittently throughout the duration of the project. The EPA Project Officer will also serve as a liaison between the AEO and the EPA, which will require regular correspondence and advice on how to better utilize EPA tools and networks.
Building Point Persons: “Point Persons” within each state building will be identified and trained as a property energy manager. Committed “Point Persons” will be critical to the success of this project since it will be their role to properly submit energy use data to the energy management inventory tool via their supervisory institution. Direct coordination allows for “Point Persons” to become change agents who can influence efficient energy practices among their constituency.

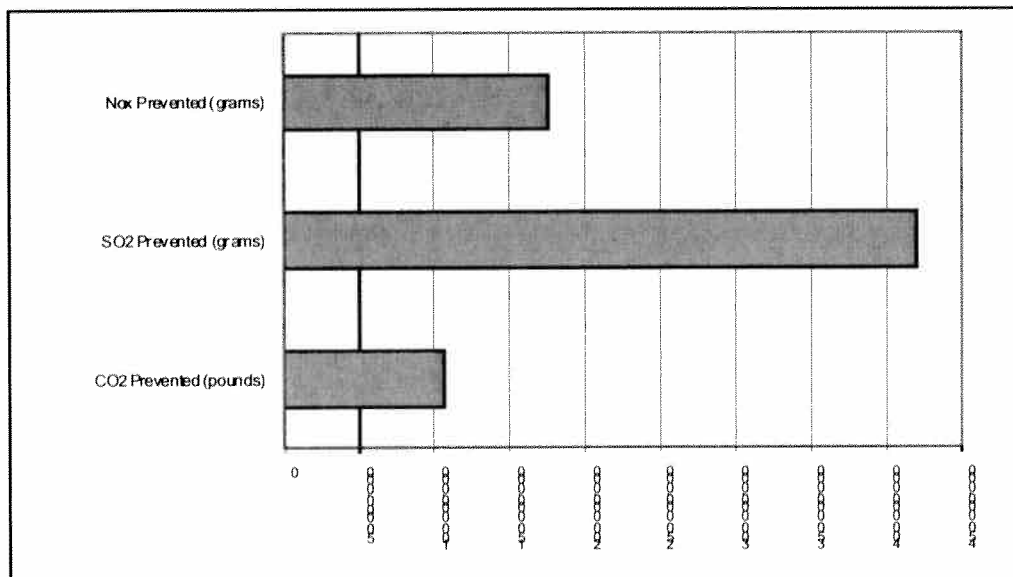
v. Description of Applicant’s Organization and Experience Related to Proposed Project

The Arkansas Economic Development Commission’s Energy Office (AEO) seeks energy solutions that improve Arkansas’ economy, environment and quality of life. AEO is a source of information for Arkansans interested in reducing the energy costs of their homes and businesses. AEO’s experienced staff caters to industry already in operation as well as those considering locating to the state by providing assistance geared towards the improvement of economic health and environmental quality. The Arkansas Energy Office manages federal energy funds, while supporting various programs and projects by supplying idea generation, technical guidance, market research and perspectives on current energy trends.

From the AEO office at One State Capitol Mall in Little Rock, the Energy Office is observant of the disadvantages of high energy consumption as seen from both a policy and economic level. AEO has championed efforts to “*light the way for state buildings*” by surveying lighting in each state agency and all major state buildings. The results of this survey revealed that a comprehensive change in lighting would save approximately five million dollars annually. Lighting changes in Arkansas state buildings will result in substantial dollar savings, quality improvements and reduced maintenance. Recommendations made suggested replacing existing T-12 lamps and ballasts with T-8 lamps and electronic ballasts resulting in an energy savings amount to 281 kilowatt hours per year (assumes 3900 annual hours of operation) with an energy and demand savings totaling \$23.33 per fixture annually. Another simple change is to replace existing exit signs with long lasting light emitting diode (LED) signs. LED exit signs typically have 25-year warranties and consume only one and one half watts compared to 20 to 50 watts for incandescent signs. The savings in maintenance, energy and dollars are evident while improving occupant safety. AEO completed a survey of all state buildings that documents virtually all lighting in state facilities and examines the cost and savings for a variety of measures including exit signs, controls and equipment changes. Although projections do not reflect economic trends, annual savings in Arkansas have been estimated at \$5,164,222 with costs estimated at \$16,787,463. This results in a very respectable simple payback of 3.3 years and an enviable 67 percent post-tax internal rate of return.

The Arkansas Energy Office took a step further by completing a lighting retrofit at their offices. A total of 417 four lamp fixtures were involved at a total cost of \$19,195 and expected savings of \$ 9,729 per year. The changes have performed exceptionally well and the lights provide a prime example of the potential and the benefits of energy efficient lighting in state buildings. There are additional benefits to lighting retrofits that translate into pollutants prevented by lighting. Table 3 shows the environmental benefits of lighting changes in state buildings.

Table 3.



The study concluded that the need for a state energy policy is evident when one considers that Arkansas state agencies, departments and institutions of higher learning expended \$40.8 million in 2002 and \$63 million for electricity in the 2007 calendar year. The lighting example represents savings of at least five million dollars annually. Based on similar projects, it is reasonable to expect that implementing other changes along with lighting can save over eight million dollars each year in state government.

Tools and methodology utilized by the “State Capitol’s Green Energy Program” may be fundamental for moving forward with the proposed objectives that build upon what is already being done regarding lighting retrofits. The Arkansas Governor’s Office was accepted to this program by Wal-Mart in cooperation with the National Governor’s Association, which they will administer in coordination with the AEO, the Arkansas Building Association, and others. Wal-Mart will conduct a two-day energy audit on the Arkansas State Capitol Building and One Capitol Mall, where AEO is housed. These two capitol buildings will be audited under this program, while energy use from the remaining state buildings will be investigated under the EPA program if awarded. In order to maintain consistency of the energy use investigations, stakeholders may decide to model the proposed energy management inventory tool to the one used by Wal-Mart.

vi. Staff Experience

Chris M. Benson	AEO Director
<p>Since 1998, Mr. Benson has been responsible for planning, administering and reporting for a \$1-2 million annual budget comprised of federal, state and private sector funds. As AEO Director, he is also charges with collaborating with AEDC business development interests in pursuit of energy and economic goals, and advocates for policies and interests through presentation, regulatory comments, legislative testimony, and media outreach. Prior to his position as Director, he served AEO in the capacity of Senior Policy Analyst since 1991, where he was coordinated energy efficiency and renewable energy programs such as Energy Star, Rebuild Arkansas, and Million Solar Roofs. Additional responsibilities included management of technology initiatives and administering Arkansas Energy Code. Prior to working with AEO, Mr. Benson served the Arkansas Public Service Commission as Electric Utility Engineer Analyst since 1986; the Arkansas Public Service Commission as Manager for the Gas, Power, and Water Section since 1984; and Mississippi County Community College as Director of Solar Power Systems since 1978</p>	
Susan Recken	AEO Energy Efficiency Programs Coordinator
<p>Since 1993, Ms. Recken has been responsible for assisting in the establishment and implementation of the state energy efficiency plan, programs, and projects; particularly those that facilitate cross agency functions/programs for energy initiatives (Arkansas Communities of Excellence). She is also responsible for the implementation of training building trades, enforcement of the state Energy Code, as well as the implementation of the Energy Efficient Mortgage Pilot Program, Codes & Standards, Rebuild Arkansas, statewide LED traffic signal upgrade, USGBE -Sustainable Arkansas. She was also responsible for the design, development, and implementation of the 1996 and 2007 Energy Efficiency Arkansas (EEA) and 1996 and 2000 Energy Code Compliance Surveys. Prior to working with the Arkansas Energy Office, Ms. Recken worked as an Energy Consultant/Contractor for HISTECON and Associates, Inc. in Little Rock, Arkansas, and from 1981-1989 for Pacific Power and Light Company in Astoria, Oregon as Project Coordinator for Energy Sales and Services where she conducted on-site energy audits, and provided recommendations for residential, commercial and small industrial sector.</p>	
Jenny Ahlen	AEO Renewable Energy Programs Manager
<p>Since 2007, Ms. Ahlen has managed bioenergy, biofuels and renewable technology programs that include the review and updating of bioenergy and renewable energy information on the Arkansas Energy Office website, working to promote and raise awareness for renewable energy initiatives, and disseminating information as needed to the public and private sectors. Ms Ahlen is also responsible for administering grants and contracts; managing clean energy projects to foster energy, economic development and</p>	

<p>environmental objectives; and assisting with developing renewable energy policies and legislation. Ms. Ahlen also staffs AEDC's director who is on the advisory body of the Governor's Commission on Global Warming. Ms. Ahlen's participation with this commission allows her to work directly with others in driving the state's global warming agenda and influencing implementation of critical objectives. Prior to coming on with the Arkansas Energy Office, Ms. Ahlen worked as an Analyst for Abt Associates, Inc. in Cambridge, Massachusetts from 2004-2007 and for Boston University in Boston, Massachusetts from 2002-2004.</p>	
Elizabeth Neubauer	ADEQ Management Project Analyst
<p>Elizabeth Neubauer has worked at the Department since 1990. Most of her time was spent in the Air Division in the Permits Branch and also in the Planning Branch. Ms. Neubauer has also assisted the Program Coordination Section Manager with the research and development of the Arkansas Clean Air Interstate Rule and Regulation, while also assisting with revisions to state air quality regulations, the she preparation of federal grants, and technical reports and literature reviews in order to stay up to date with air quality issues. She is very familiar with project development as well as meeting various deadlines. Ms. Neubauer assists with the development and tracking of State regulations as well as contributing in the development of grant plans and grant commitments. Ms. Neubauer will be assisting with this project by coordinating efforts of ADEQ with AEO and the EPA Project Officer for the activities requiring ADEQ assistance.</p>	
Elizabeth Sartain	ADEQ Program Coordination Section
<p>Ms. Sartain has seven years of environmental work experience. At ADEQ, she has worked on projects including school bus and garbage truck diesel retrofit projects, development of the Clean Air Interstate Rule for Arkansas, and implementation of stage I vapor recovery regulation. She writes grant work plans and manages grant projects. The reports for these projects include the quantification of emissions reductions. Her responsibilities also require her to develop and interpret policies which govern compliance with state and federal regulations for pollution control programs, to make revisions to existing state regulations as needed, and to review and comment on draft federal regulations. Prior to her work at ADEQ, she worked in the Environmental Health field as a Field Biologist/ Technician from 2001- 2003 in Virginia Beach, Virginia where she conducted and planned reviews to ensure compliance for new establishments, performed chemical analyses, and ensured chemical pumps and feeders were working properly. Ms. Sartain also has experience working with wetland restoration and habitat monitoring and evaluation. Ms. Sartain's management and technical experience will be valuable in illustrating negative impacts from heavy energy use on the environment.</p>	
William E. Swafford	ADEQ Planning Engineer- Air Division
<p>William (Bill) Swafford, Air Planning Engineer, has worked in all three branches, Permits, Compliance Monitoring, and Planning & Air Quality Analysis, of the ADEQ Air Division for fifteen years. In the Permits Branch he wrote or modified operating permits for various industrial facilities in Arkansas. While assigned to the Compliance Monitoring Branch he managed the Continuous Emissions Monitoring System (CEMS) program. He also designed the Semi-annual Monitoring Report form that is required by the Title V permitting program. In the Planning & Air Quality Analysis Branch he performs environmental reviews of commercial and government construction projects that are submitted to the Department for environmental assessment. His work in supplying technical assistance to the National Emissions Inventory in addition to consulting regulated facilities concerning their emissions and their emissions reduction efforts will be critical towards achieving the objectives of this proposal.</p>	

vii. Budget

A. Salaries and Fringe Benefits

Salaries are calculated for one AEO employee at 30 days per year for three years. Fringe benefits are included at 28% of salary, the usual AEO percentage for fringe benefits. Total salary and fringe benefits are \$13,440 for three years.

Total Salary and Fringe Benefits - \$40,320

B. Contractual

Contracts will be given for four consultant positions:

1. Data Analyst – 180 days at \$500 per day for one year = \$90,000
2. Monitoring and Evaluation – 30 days at \$550 per day for two years = \$33,000
3. Training – 30 days at \$400 per day for two years = \$24,000
4. Public Outreach – 60 days at \$400 per day for one year = \$24,000

Travel and per diem allowed for consultants at the same rate as the grantee, for total of \$16,000.

Total Contractual - \$187,000

C. Travel and Per Diem (grantee)

Airfare estimated at one trip per year at \$600 per trip, for a total of \$1,800.

Ground travel is reimbursed at \$0.585 per mile, and estimated at \$585 miles for year 1, and \$2,925 for years 2 and 3 = \$6,435.

Per Diem expenses (including hotel) are reimbursed at Government CONUS rates, and estimated at \$125 per day, for a total of \$625 for each year = \$1,875.

Total Travel and Per Diem (grantee) - \$10,010

D. Other Direct Costs

1. Communications – includes telephone, fax, estimated at \$250 per month for twelve months for three years = \$9,000.
2. Supplies – estimated at \$100 per month for twelve months for three years = \$3,600.
3. Publications – estimated at \$2,000 per year for three years = \$6,000.
4. Equipment – one laptop computer = \$2,500.
5. Software licenses - \$500 each x 3 for two years = \$7,500

Total Other Direct Costs = \$28,600

E. Indirect Costs

Indirect costs estimated at \$7,827 per year for a total of \$23,482.

Total Indirect Costs - \$23,482

TOTAL ESTIMATED COSTS - \$289,512

YEAR 1 - \$147,777; YEAR 2 - \$65,617; YEAR 3 - \$76,117

b. Environmental Results – Outcomes and Outputs

Primary outputs from this project will be a baseline profile of the energy consumed by state buildings, trained builder managers who will be better equipped to continually improve their buildings in the future, and a data collection system that will enable greenhouse gas management activities and evaluation of progress against reduction goals. The baseline profile will be the foundation upon which to enact energy-saving policies, become more energy-efficient, and discover potential savings. Secondary outputs include increased awareness by the public of energy-saving techniques.

Project outcomes include saving energy and using energy more efficiently, resulting in reduced emissions of greenhouse gases and other air pollutants. Fewer emissions mean reduced health risks associated with air pollution, such as asthma. Ultimately with the government leading by example, the public's household energy use will become more efficient. The public will learn by the government's example to save money and energy at home and to invest in energy efficient products. AEO wants to lay the foundation for

change by establishing the baseline from which people can initiate change. Taking these essential steps at the state level would ultimately create a model for others to follow

Performance Tracking

Contractors will be required to submit monthly summaries of activities and updates on progress to the AEO. The AEO in turn will submit quarterly reports to EPA detailing progress on activities and notable accomplishments. Once the data collection tool is in place, monthly data will be available by accessing the database or by generating reports as requested.

c. Past Performance

<p>LED Traffic Signal Lens Replacement Project</p> <p>In 2006, the Arkansas Energy Office (AEO) set aside funding to help several smaller communities install LED traffic signals. \$346,000 was granted to the Arkansas Highway and Transportation Department AHTD to replace incandescent traffic signal lights with energy efficient LED lenses. By June 2007, a total of 2,957 lenses were replaced at 98 different intersections in small communities, which resulted in energy savings of 73,526 kwh per month and a reduction of CO2 emissions of 1,137,840 pounds a month. The LED life expectancy of seven to ten years for as compared to two years for an incandescent lamp, equates to approximately 53 million kwh of energy savings in ten years with approximate cost savings of \$498,690. Quarterly reports were submitted to AEO in addition to a final report, which listed monthly energy savings as compared to initial investments.</p>
<p>SEP Program – Truck Stop Idle Reduction Project:</p> <p>Arkansas received a \$200,000 AEO grant to study the impact of truck stop electrification on energy consumption and efficiency in Arkansas from July 2000 to the end of December 2007. Reduction technology from IdleAire Technologies Corporation that allowed for heating and air conditioning without running truck engines was installed in a facility in West Memphis. Monthly reports were sent to AEO from April 2005 to February 2006 including calculations of such figures as the number of truck-hours the facility was occupied, the number of trucks per month using the facility, the fuel reduction, and the number of kilowatt-hours of electrical energy consumed. For example, it was determined that the monthly average for 2005 with 77 operating units was approximately 12,548 gallons of diesel fuel saved and thus CO2 emissions reduced by 130.46 tons.</p>
<p>GreenLights:</p> <p>A consultant was contracted in 1997 to conduct a preliminary assessment on state lighting. All state buildings (except K-12 schools including universities, colleges, constitutional offices, people who utilize state buildings) were included in the survey. Methodology was not formalized; however the study was focused on energy reductions of lighting if efficient systems were put in place. Reduction in CO2, SOx and NOx were also taken into the equation. Data was updated and expanded upon in 2007 by AEO under its “<i>light the way for state buildings</i>” project.</p>
<p>HEV Rebate Program:</p> <p>The HEV (Hybrid Electric Vehicles) Rebate Program was a direct effort from AEO to promote energy efficiency throughout state agencies. AEO administered the incentive program to state agencies to purchase new HEV’s, such as Toyota Prius, Honda Civic Hybrid and Honda Insight. The incentive covered the sales tax paid for the HEV. Rebate applications had to be submitted within six months of the delivery and registration of the vehicle. The rebate program ended in March 1, 2007.</p>

3. Detailed Budget Narrative

Arkansas Energy Office
 Name of Project: EPA Arkansas State Buildings - Energy Use Investigation

LINE ITEMS	UNIT COSTS	UNITS	Year 1	Year 2	Year 3	Match	TOTAL AMOUNT
I. SALARIES AND FRINGE BENEFITS							
A. Salaries		Days					
1. Project Coordinator	350	30	10,500	10,500	10,500		31,500
Total Salaries			10,500	10,500	10,500		31,500
B. Fringe Benefits	28.00%		2,940	2,940	2,940		8,820
TOTAL SALARIES & FRINGE BENEFITS			13,440	13,440	13,440		40,320
II. CONTRACTUAL							
Data Collection and Assessment	500	180	90,000				90,000
Monitoring and Evaluation	550	60	16,500	16,500			33,000
Training	400	30		12,000	12,000		24,000
Public Outreach	400	60		4,000	24,000		24,000
Travel/Per Diem (same rates as grantee)			8,000	4,000	4,000		16,000
TOTAL CONTRACTUAL			114,500	32,500	40,000		187,000
III. TRAVEL AND PER DIEM (grantee)							
A. Airfare	600	1	600	600	600		1,800
B. Ground Travel	\$0.5850	1,000	585	2,925	2,925		6,435
C. Hotel	125	5	625	625	625		1,875
TOTAL TRAVEL AND PER DIEM			1,810	4,150	4,150		10,110
IV. OTHER DIRECT COSTS							
A. Communications	250	12	3,000	3,000	3,000		9,000
B. Supplies	100	12	1,200	1,200	1,200		3,600
C. Publications			2,000	2,000	2,000		6,000
D. Equipment 1 lap top	2,500	1	2,500				2,500
E. Software Licenses	500	3	1,500	1,500	4,500		7,500
TOTAL OTHER DIRECT COSTS			10,200	7,700	10,700		28,600
TOTAL DIRECT COSTS			139,950	57,790	68,290		266,030
VI. INDIRECT COSTS							
	58.24%		7,827	7,827	7,827		23,482
TOTAL INDIRECT COSTS			7,827	7,827	7,827		23,482
TOTAL ESTIMATED COSTS			\$147,777	\$65,617	\$76,117		\$289,512

**GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2007**

**SESSION LAW 2007-546
SENATE BILL 668**

**AN ACT TO PROMOTE THE CONSERVATION OF ENERGY AND WATER USE
IN STATE, UNIVERSITY, AND COMMUNITY COLLEGE BUILDINGS.**

The General Assembly of North Carolina enacts:

SECTION 1.(a) Findings and Legislative Intent. – The General Assembly finds that public buildings can be built and renovated using sustainable, energy efficient methods that save money, reduce negative environmental impacts, improve employee and student performance, and make employees and students more productive. The main objectives of sustainable, energy efficient design are to avoid resource depletion of energy, water, and raw materials; prevent environmental degradation caused by facilities and infrastructure throughout their life cycle; and create buildings that are livable, comfortable, safe, and productive. It is the intent of the General Assembly that State-owned buildings, The University of North Carolina, and the North Carolina Community College System be improved by establishing specific performance criteria and goals for sustainable, energy efficient public buildings based upon recognized, consensus standards with scientifically proven basis and demonstrated performance. The General Assembly also intends that State agencies, The University of North Carolina, and the North Carolina Community College System shall perform after-construction measurement and verification of costs and savings to confirm that the performance goals of this section are met and ensure that economic and environmental goals are achieved. Also, it is the intent of the General Assembly to establish a priority to use North Carolina-based resources, building materials, products, industries, manufacturers, and businesses to provide economic development to North Carolina and to meet the objectives of this section.

SECTION 1.(b) Definitions. – As used in this section, the following definitions apply:

- (1) "ASHRAE" means the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.
- (2) "Department" means the Department of Administration.
- (3) "Institutions of higher education" means the constituent institutions of The University of North Carolina, the regional institutions as defined in G.S. 115D-2, and the community colleges as defined in G.S. 115D-2.
- (4) "Major facility" means a construction project larger than 20,000 gross square feet of occupied or conditioned space, as defined in the North Carolina State Building Code, or a building renovation project when

the cost is greater than fifty percent (50%) of the insurance value and the project is larger than 20,000 gross square feet of occupied or conditioned space, as defined in the North Carolina State Building Code, whose construction is funded in whole or in part by the State of North Carolina. "Major facility" does not include the following: transmitter buildings or pumping stations.

- (5) "Public agency" means every State office, officer, board, department, and commission and institutions of higher education.
- (6) "Sustainable, energy efficient public buildings" means public buildings that, by complying with this section, are the most economical energy and water efficiency for that building type.

SECTION 1.(c) Standard for Major Facilities; Reports by Agencies and the Department. – The Sustainable Energy Efficient Buildings Program is established in the Department. Under this program:

- (1) All major facility projects of public agencies shall be designed, constructed, and certified to at least a thirty percent (30%) greater energy efficiency than the standard under ASHRAE 90.1-2004. For major renovations a twenty percent (20%) greater energy efficiency standard than ASHRAE 90.1-2004 shall be used. In addition, for new construction, the water systems shall be designed and constructed to use a minimum of twenty percent (20%) less potable water than the indoor water use baseline calculated for the building after meeting the fixture performance requirements required by the 2006 North Carolina Plumbing Code. Outdoor potable water or harvested groundwater consumption shall be reduced by a minimum of fifty percent (50%) over that consumed by conventional means through water use efficient landscape materials and irrigation strategies, including water reuse and recycling. This section applies to major facility projects that have not entered the schematic design phase prior to the effective date of this section.
- (2) For the purposes of this section, any exceptions or special standards for specific types of buildings or building facilities found in ASHRAE 90.1-2004 are included in the ASHRAE 90.1-2004 standard under subdivision (1) of this subsection.
- (3) Commissioning for Major Facilities. – Building and/or system commissioning practices, tailored to the size and complexity of the building and its system components, shall be employed in order to verify performance of building components and systems and help ensure that design requirements are met upon completion of construction.
- (4) Measurement and Verification for Major Facilities.
 - a. Building level owner's meters for electricity, natural gas, fuel oil, and water in accordance with United States Department of Energy (DOE) guidelines issued under Section 103 of the

Energy Policy Act of 2005 shall be installed. The public agency and the designers shall compare metered data from the first 12 months of building operation with the energy design target(s) and report that performance to the State Construction Office.

- b. If the average building energy or water consumption over the one-year period following the date of beneficial occupancy is eighty-five percent (85%) or less than the performance goals established by these standards, the designer, owner agency, contractor, Contract Manager at Risk, and commissioning agent shall investigate, determine the cause of the shortfall, and recommend corrections or modifications to meet performance goals.
- (5) The Department shall consolidate the reports required in this subsection and any report from the State Building Commission under G.S. 143-135.39 into one report and report to the Chairs of the General Government Appropriations Subcommittees of both the Senate and the House of Representatives, the Environmental Review Commission, and the Joint Legislative Commission on Governmental Operations by November 1 of each year beginning in 2008. In its report, the Department shall also report on the implementation of this section including reasons why the standards required in subdivision (1) of this subsection were not used for the reason that it would not be practicable in accordance with G.S. 143-135.39. The Department shall make recommendations regarding the ongoing implementation of this section, including a discussion of incentives and disincentives related to implementing this section.

SECTION 1.(d) Guidelines for Administering the Sustainable Energy Efficient Buildings Program. –

- (1) The Department, in consultation with affected public agencies, shall develop and issue policies and technical guidelines to implement this section for public agencies. The purpose of these policies and guidelines is to define procedures and methods for complying with the criteria and performance goals for major facility projects defined by G.S. 143-135.37.
- (2) As provided in the request for proposals for construction services, the public agency may hold a preproposal conference for prospective bidders to discuss compliance with, and achievement of, standards identified in this section for prospective respondents.
- (3) The Department shall create a sustainable, energy efficient buildings advisory committee comprised of representatives from the design and construction industry involved in public works contracting, personnel from the affected public agencies responsible for overseeing public works projects, and others at the Department's discretion to provide advice on implementing this section. Among other duties, the advisory

committee shall make recommendations regarding an education and training process for stakeholders and an ongoing evaluation or feedback process to help the Department implement this section. The advisory committee may also make recommendations to the Department regarding water efficiency requirements and energy efficiency requirements.

- (4) The Department shall review the advisory committee's recommendations under subdivision (3) of this subsection regarding education and training. The Department shall develop one level of education and training requirements for the chief financial officer of each public agency that is appropriate for the chief financial officer's level of involvement in projects under this section. The Department shall develop, for each public agency that is responsible for the payment of the agency's utilities, another higher level of education and training requirements for the facility manager of the agency that is appropriate for the facility manager's level of involvement in projects under this section. This level of education and training shall also be a requirement for the capital project coordinator of an agency involved in a project under this section. The Department shall develop a highest level of education and training requirements for the architects and mechanical design engineers that are involved in the design of projects under this section that is appropriate for their level of involvement in these projects.
- (5) The Department may adopt rules to implement this section. The Department may adopt architectural or engineering standards as needed to implement this section.

SECTION 1.(e) Use of Other Standard when ASHRAE Standard Not Practicable. – When the Department, public agency, and the design team determine the ASHRAE 90.1-2004 standard to be not practicable for a major facility project, then it must be determined by the State Building Commission if the standard is not practicable for that major facility project. If the State Building Commission determines the standard is not practicable for that major facility project, the State Building Commission shall determine which standard is practicable for the design and construction for that major facility project. If the ASHRAE 90.1-2004 standard is not followed for that project, the public agency shall report this information and the reasons to the Department in its report under G.S. 143-135.37, and the State Building Commission shall report this information and the reasons to the Department.

SECTION 1.(f) Monitor Development of Construction and Energy Efficiency Standards. – The Department shall monitor the development of construction or other energy efficiency standards to determine whether there is a standard that the Department determines would better fulfill the intent of the Sustainable Energy Efficient Buildings Program to achieve energy efficiency and increased energy savings in major facility projects in buildings of the State, The University of North Carolina, and the North Carolina Community College System than the ASHRAE 90.1-2004

standard and, if so, whether this section should be amended to provide for the use of this standard rather than the ASHRAE 90.1-2004 standard. Specifically, the Department shall monitor the development of improved energy efficiency standards developed by the American Society of Heating, Refrigerating and Air-Conditioning Engineers, the ASHRAE standards, and monitor whether the State Building Code Council adopts improved ASHRAE standards or any other energy efficiency standards for inclusion in the State Building Code that result in greater energy efficiency and increased energy savings in major facility projects in State, university system, and community college buildings. No later than January 1, 2009, and again January 1, 2010, the Department shall report to the Chairs of the General Government Appropriations Subcommittees of both the Senate and the House of Representatives, the Environmental Review Commission, and the Joint Legislative Commission on Governmental Operations on the results of its monitoring under this subsection, including any recommendations for administrative or legislative proposals.

SECTION 1.(g) Performance Review. – The Department shall conduct a performance review of the Sustainable Energy Efficient Buildings Program. The performance review shall include at least all of the following:

- (1) Identification of the costs of implementing energy and water efficient building standards in the design and construction of major facility projects subject to this act.
- (2) Identification of operating savings attributable to the implementation of energy and water efficient building standards, including, but not limited to, savings in energy, water, utility, and maintenance costs.
- (3) Identification of any impacts on employee productivity from using energy and water efficient building standards.
- (4) Evaluation of the effectiveness of the energy and water efficient building standards established by this act.
- (5) Any recommendations for any changes in those standards that may be supported by the Department's findings.

SECTION 1.(h) Report on Performance Review. – No later than December 1, 2010, the Department shall make a preliminary report of its findings under its performance review under subsection (g) of this section and its recommendations and, on or before December 1, 2011, a final report to the Chairs of the General Government Appropriations Subcommittees of both the Senate and the House of Representatives, the Environmental Review Commission, and the Joint Legislative Commission on Governmental Operations.

SECTION 1.(i) Purchase of Buildings Constructed or Renovated to Certain Energy and Water Efficiency Standards. –

- (1) A State agency shall not acquire by purchase any building unless the building was designed and constructed to at least the same standard for energy and water efficiency that the design and construction of a comparable building was required to meet under applicable State law or local ordinance at the time the building under consideration for purchase was constructed.

- (2) A State agency shall not acquire by purchase any building that had a major renovation unless the renovation was performed to at least the same standard for energy and water efficiency that the design and construction of a major renovation of a comparable building was required to meet under applicable State law or local ordinance at the time the building under consideration for purchase was renovated.
- (3) This subsection does not apply to the purchase of a building having historic, architectural, or cultural significance under G.S. 143-23.1. This subsection does not apply to buildings that are acquired by devise or bequest.

SECTION 2.1.(a) The Department of Administration shall administer and oversee the implementation of a program whereby all of the following energy conservation measures, as defined in G.S. 143-64.17, shall be fully implemented no later than December 31, 2009, in each building owned by the State, The University of North Carolina, or the North Carolina Community College System:

- (1) **Lighting Systems.** – The installation of exit signs that employ light-emitting diode (LED) technology; the replacement of incandescent light bulbs with compact fluorescent light bulbs; and where appropriate, as determined by the Department of Administration, the installation of occupancy sensors or optical sensors.
- (2) **Water Systems.** – The installation of aerators in sink faucets that reduce the flow of water to a rate of no more than five-tenths gallons per minute (0.5 g.p.m.); the installation of shower heads that reduce the flow of water to a rate of no more than one and five-tenths gallons per minute (1.5 g.p.m.); where appropriate, as determined by the Department of Administration, the resetting of hot water heaters to a water temperature of 120 degrees; the training of staff to monitor the use of irrigation systems and to base the use of the system on the moisture content of the soil, and either the elimination of potable water for irrigation or the reduction of water consumption in the building by twenty percent (20%) based on water consumption for the 2002-2003 fiscal year.
- (3) **Heating, Ventilation, and Air-Conditioning (HVAC) Systems.** – For HVAC equipment that is subject to replacement, the review of the specifications for the replacement HVAC equipment to ensure that it is not oversized; and, for building automation systems that are programmable, the training to ensure that these systems are properly programmed.
- (4) **Minor Equipment.** – For minor motorized equipment that is subject to replacement, the replacement of minor equipment with equipment that has premium efficiency motors. For purposes of this subdivision, 'premium efficiency motor' means a motor that meets or exceeds a set

of minimum full-load efficiency standards developed by the National Electrical Manufacturers Association (NEMA).

- (5) Other Energy Conservation Measures. – Disconnect lamps in drink vending machines; use power save feature on computers, monitors, copiers, fax machines, and other office equipment; and when purchasing office equipment or appliances, purchase only Energy Star office equipment and appliances.

SECTION 2.1.(b) Consistent with G.S. 150B-2(8a)h., the Department of Administration shall develop or revise its architectural and engineering standards to provide assistance in determining which energy conservation measures are best suited to the unique characteristics of each building and in determining the specifications for the energy conservation measures under this section. The development or revision of the architectural and engineering standards shall be completed by February 1, 2008.

SECTION 2.1.(c) Prior to implementing this section and no later than February 1, 2008, the Department of Administration shall report to the Joint Legislative Commission on Governmental Operations and the Environmental Review Commission on its plan to implement this section.

SECTION 2.1.(d) In order to protect the integrity of historic buildings, this section does not apply to the extent it would require the implementation of measures to conserve energy, water, or other utility use that conflict with respect to any property eligible for, nominated to, or entered on the National Register of Historic Places, pursuant to the National Historic Preservation Act of 1966, P.L. 89-665; any historic building located within an historic district as provided in Chapter 160A or 153A of the General Statutes; any historic building listed, owned, or under the jurisdiction of an historic properties commission as provided in Chapter 160A or 153A; or any historic property owned by the State or assisted by the State.

SECTION 3.1.(a) G.S. 143-64.12 reads as rewritten:

"§ 143-64.12. Authority and duties of State ~~agencies, the Department, State agencies and State institutions of higher learning.~~

(a) The Department of Administration through the State Energy Office shall develop a comprehensive program to manage energy, water, and other utility use for State agencies and State institutions of higher learning and shall update this program annually. Each State agency and State institution of higher learning shall develop and implement a management plan that is consistent with the State's comprehensive program under this subsection to manage energy, water, and other utility use. The energy consumption per gross square foot for all State buildings in total shall be reduced by twenty percent (20%) by 2010 and thirty percent (30%) by 2015 based on energy consumption for the 2003-2004 fiscal year. Each State agency and State institution of higher learning shall update its management plan annually and include strategies for supporting the energy consumption reduction requirements under this subsection. Each community college shall submit to the State Energy Office an annual written report of utility consumption and costs.

(a1) ~~The General Assembly authorizes and directs that State agencies and State institutions of higher learning shall carry out the construction and renovation of State~~

~~facilities, under their jurisdiction facilities~~ in such a manner as to further the policy ~~declared herein, ensuring set forth under this section and to ensure~~ the use of life-cycle cost analyses and practices to conserve energy, water, and other utilities.

(b) The Department of Administration shall develop and implement policies, procedures, and standards to ensure that State purchasing practices improve efficiency regarding energy, water, and other utility use and take the cost of the product over the economic life of the product into consideration. The Department of Administration shall adopt and implement Building Energy Design Guidelines. These guidelines shall include energy-use goals and standards, economic assumptions for life-cycle cost analysis, and other criteria on building systems and technologies. The Department of Administration shall modify the design criteria for construction and renovation of facilities of State buildings and State institutions of higher learning buildings to require that a life-cycle cost analysis be conducted pursuant to G.S. 143-64.15.

(b1) The Department of Administration, as part of the Facilities Condition and Assessment Program, shall identify and recommend energy conservation maintenance and operating procedures that are designed to reduce energy consumption within the facility of a State agency or a State institution of higher learning and that require no significant expenditure of funds. State departments, institutions, or agencies Every State agency or State institution of higher learning shall implement these recommendations. Where energy management equipment is proposed for State facilities, any facility of a State agency or of a State institution of higher learning, the maximum interchangeability and compatibility of equipment components shall be required. As part of the Facilities Condition and Assessment Program under this section, the Department of Administration shall develop an energy audit and a procedure for conducting energy audits. Every five years the Department shall conduct an energy audit for each State agency or State institution of higher learning.

~~The Department of Administration shall develop a comprehensive program to manage energy, water, and other utility use for State government. Each State agency shall develop and implement a management plan that is consistent with the State's comprehensive program to manage energy, water, and other utility use.~~

(c) through (g) Repealed by Session Laws 1993, c. 334, s. 4.

(h) When conducting an energy audit under this section, the Department of Administration shall identify and recommend any facility of a State agency or State institution of higher learning as suitable for building commissioning to reduce energy consumption within the facility or as suitable for installing an energy savings measure pursuant to a guaranteed energy savings contract under Part 2 of this Article.

(i) Consistent with G.S. 150B-2(8a)h., the Department of Administration may adopt architectural and engineering standards to implement this section."

SECTION 3.1.(b) G.S. 143-64.10 reads as rewritten:

"§ 143-64.10. Findings; policy.

(a) The General Assembly finds all of the following:

(1) That the State shall take a leadership role in aggressively undertaking the conservation of energy, water, and other utilities in North Carolina.

- (2) That State facilities and facilities of State institutions of higher learning have a significant impact on the State's consumption of energy, water, and other utilities.
- (3) That practices to conserve energy, water, and other utilities that are adopted for the design, construction, operation, maintenance, and renovation of these facilities and for the purchase, operation, and maintenance of equipment for these facilities will have a beneficial effect on the State's overall supply of energy, water, and other utilities.
- (4) That the cost of the energy, water, and other utilities consumed by these facilities and the equipment for these facilities over the life of the facilities shall be considered, in addition to the initial cost.
- (5) That the cost of energy, water, and other utilities is significant and facility designs shall take into consideration the total life-cycle cost, including the initial construction cost, and the cost, over the economic life of the facility, of the energy, water, and other utilities consumed, and of operation and maintenance of the facility as it affects the consumption of energy, water, or other utilities.
- (6) That State government shall undertake a program to reduce the use of energy, water, and other utilities in State facilities and facilities of the State institutions of higher learning and equipment in those facilities in order to provide its citizens with an example of energy-use, water-use, and utility-use efficiency.

(b) It is the policy of the State of North Carolina to ensure that practices to conserve energy, water, and other utilities are employed in the design, construction, operation, maintenance, and renovation of State facilities and facilities of the State institutions of higher learning and in the purchase, operation, and maintenance of equipment for ~~State~~ these facilities."

SECTION 3.1.(c) G.S. 143-64.11 is amended by adding a new subdivision to read:

"(10) 'State institution of higher learning' means any constituent institution of The University of North Carolina."

SECTION 3.2. The Department of Administration shall establish and train an additional team to examine existing facilities of State agencies and State institutions of higher learning to identify and recommend energy conservation maintenance and operating procedures designed to reduce energy consumption and to conduct energy audits and identify a facility as suitable for building commissioning or for installing an energy savings measure under the Facilities Condition Assessment Program (FCAP) under G.S. 143-64.12, as amended by Section 3.1 of this act.

SECTION 4.1. G.S. 143-64.15(a) reads as rewritten:

"(a) A life-cycle cost analysis shall be commenced at the schematic design phase of the construction or renovation project, shall be updated or amended as needed at the design development phase, and shall be updated or amended again as needed at the construction document phase. A life-cycle cost analysis shall include, but not be limited to, all of the following elements:

- (1) The coordination, orientation, and positioning of the facility on its physical ~~site;~~site.
- (2) The amount and type of fenestration and the potential for daylighting employed in the ~~facility;~~facility.
- (3) Thermal characteristics of materials and the amount of insulation incorporated into the facility ~~design;~~design.
- (4) The variable occupancy and operating conditions of the facility, including illumination ~~levels;~~and levels.
- (5) Architectural features that affect the consumption of energy, water, and other utilities."

SECTION 4.2. G.S. 143-64.15A reads as rewritten:

"§ 143-64.15A. Certification of life-cycle cost analysis.

~~All State agencies under the jurisdiction of the Department of Administration~~ Each State agency and each State institution of higher learning performing a life-cycle cost analysis for the purpose of constructing or renovating any ~~State~~ facility shall, prior to selecting a design option or advertising for bids for construction, submit the life-cycle cost analysis to the Department for ~~certification~~ certification at the schematic design phase and again when it is updated or amended as needed in accordance with G.S. 143-64.15. The Department shall review the material submitted by the ~~State agency;~~ agency or State institution of higher learning, reserve the right to require ~~agencies~~ an agency or institution to complete additional analysis to comply with certification, perform any additional analysis, as necessary, to comply with G.S. 143-341(11), and require that all construction or renovation conducted by the ~~State agency or State institution of higher learning~~ comply with the certification issued by the Department."

SECTION 5. This act shall not be construed to obligate the General Assembly to appropriate funds to implement the provisions of this act. Every public agency, as defined in subsection (c) of Section 1 of this act, to which this act applies may implement the provisions of this act from funds otherwise appropriated or available to that public agency.

SECTION 6. Section 1 of this act becomes effective 1 October 2008 and expires 1 October 2010. All other sections of this act become effective when this act becomes law. Section 1 of this act applies to contracts for the design of major facility projects, as defined in subsection (c) of Section 1 of this act, that are entered into on or after 1 October 2008. Section 4.1 of this act applies to life-cycle cost analyses commenced, and to contracts entered into for life-cycle cost analyses, on or after 1 December 2007.

In the General Assembly read three times and ratified this the 2nd day of August, 2007.

s/ Marc Basnight
President Pro Tempore of the Senate

s/ Joe Hackney
Speaker of the House of Representatives

s/ Michael F. Easley
Governor

Approved 10:19 p.m. this 31st day of August, 2007

