

**State Agency Energy Conservation Plan
for the
State Preservation Board**

December 1, 2005

Executive Summary

Executive Order RP49, issued by Governor Perry on October 27, 2005, directs state agencies to conserve energy. The proclamation requires state agencies to set specific, measurable goals for reducing energy use. The proclamation allows agencies broad discretion in determining what efforts will efficiently and effectively reduce an agency's energy consumption. This report sets forth the energy conservation goals and implementation efforts for the State Preservation Board (SPB).

SPB is responsible for the operation and building management of the Capitol, Capitol Extension, Capitol Visitors Center, the Bob Bullock Texas State History Museum, and the Capitol Visitors Parking Garage. The buildings' uses range from office and meeting space, to display space for historic artifacts, visitor programs, dining facilities, retail space, auditoriums, and parking facilities. Each of these buildings provide opportunities for the agency to conserve energy. As with all state agencies in Austin, the Texas Building and Procurement Commission (TBPC) provides electrical service to SPB for all of our buildings. The agency will identify energy savings it can directly affect and will work with the TBPC and the executive and legislative agencies it serves to reduce energy consumption wherever possible.

To this end the SPB will:

- develop a plan for conserving energy and shall set a percentage goal for reducing its usage of electricity, gasoline, and natural gas.
- report back to the Office of the Governor and the Legislative Budget Board with goals achieved and ideas for additional savings on a quarterly basis.

Energy Conservation Plan Assumptions

The agency will implement specific energy conservation measures to save state resources. The development of this plan is dependent on each building's unique attributes and infrastructure (Appendix A). Below are some general guidelines outlining the steps and actions necessary to successfully implement the agency plan. It is important to note that during legislative sessions energy consumption increases due to the large increase in activity in our buildings.

1. Set specific plan objectives and goals
 - Prioritize goals as near-term, mid-term, and long-term
 - Set target for expected energy savings for specific efforts
2. Develop plan program structure
 - Determine data and analysis needs for energy savings programs
 - Determine equipment needs based on data needs
 - Identify existing infrastructure available to assist
 - Identify responsible staff
 - Identify safety parameters
3. Develop plan evaluation parameters
 - Determine relative economics of proposal
 - Establish payback/reduction metrics
4. Prioritize plan implementation
 - Base efforts on near-term, mid-term, and long-term implementation
 - Start with manageable efforts with short lead times
5. Sustain plan
 - Target ongoing use
 - Measure session versus non-session use to identify incremental use reductions
 - Updates, (re)calibration of equipment, ongoing maintenance, program innovation

Energy Conservation Efforts

The SPB receives its electrical service through the TBPC. Similarly, the chill water and steam used for heating and cooling its facilities is provided through a campus circulation system operated by the TBPC. The SPB in turn supplies its building occupants with electrical, HVAC, and other building services.

The major building systems -- the mechanical, electrical and plumbing systems -- account for the majority of energy consumption by buildings for which SPB is responsible, with electricity as the largest energy component. The SPB facilities team efficiently operates these systems using a computerized maintenance management system (CMMS) to track routine equipment maintenance, follow up on trouble reports, schedule preventive maintenance and monitor and calibrate equipment to keep it operating at optimal performance levels. The CMMS system is a key component in identifying and achieving energy conservation goals. SPB will use the CMMS system to monitor energy conservation efforts and to track both near-term, mid-term, and long-term energy conservation efforts.

Another key measurement of energy conservation efforts will be to establish baseline performance data for the targeted efforts. SPB electricians will measure and record KWH (kilowatt hours) use at each bank of main transformers to establish an initial baseline for measuring future reductions in electrical consumption. A component of this measurement will be to measure and record daily demand to determine potential reductions in the demand charge. The HVAC team will likewise establish baseline data based on histories of daily outside temperatures and relative humidity levels in order to compare these to historic data for chill water and hot water temperature and flows provided by the TBPC's campus system.

Due to a lack of archival data on energy consumption the agency is implementing baseline measures in this first reporting period. This will provide accurate energy consumption data by which to gauge the efficacy of its conservation efforts in future reporting periods. However, in this first reporting period, the agency will rely on estimated KWH savings.

Other efforts will include working with the TBPC and other service provider agencies (e.g. Texas Legislative Council and the Department of Information Resources) and our building tenants to identify and coordinate additional potential energy conservation measures. Some potential savings may be through the study of peak electrical usage to determine ways to decrease the demand charges peak use requires. Another potential area of savings would be to work with the TBPC to raise/lower the campus steam and chill water temperatures as conditions warrant.

An important consideration, inherent in the planning and execution, will be to ensure good safety practices are not compromised. Lighting conditions will not be lowered to unsafe levels. Similarly, heating and cooling initiatives will be carefully planned and monitored to ensure humidity and temperature levels do not promote mold growth.

Energy Conservation Measures

SPB has been proactive in finding ways to cut energy consumption in the past year, prior to the Governor's Executive Order. In 2004, the SPB electricians undertook a program to replace the existing lamps in over a thousand fixtures in the Capitol and Extension with lower wattage lamps. At the same time, the HVAC staff adjusted the operation of the Extension Parking Garage fans to save energy without compromising air quality at an estimated annual savings of 425,240 KWH. Both initiatives should reduce the demand cost of electricity as well. As a result over two million kilowatts of electricity were saved. (see Appendix B)

The following specific efforts have been identified as quantifiable and efficiently implemented. In its first reporting period, the SPB will focus on implementing the conservation measures enumerated below.

1. Turn off selected number of parking garage lights on the upper deck of the Visitors Parking Garage.
2. Install mechanical timers on light switches in the janitor closets in the Capitol and Capitol Extension.
3. Assess motors and control operation to see if variable speed drives would improve efficiency without adding problems to the electrical distribution system.
4. Review operation of exterior landscape lighting for potential savings without compromising safety.
5. Implement nighttime temperature setbacks for selected areas.
6. Encourage employees and building occupants to use the "hibernation" settings on their computers.

7. Reprogram the kitchen exhausts and make-up air fans to shut off at 5:00 p.m. daily and to come back on again at 6:00 a.m. All units will be off on the weekends.
8. Program domestic water heaters to a lower temperature for selected periods at night.
9. Reduce/consolidate agency vehicle use. The vehicle preventive maintenance program should insure that the fleet vehicles are maintained to achieve the proper miles per gallon ratio.

Energy Conservation Program Targets

1. Estimated 157,680 KWH annual savings by leaving selected Capitol Visitors Parking Garage lights off at night.
2. Estimated 29,784 KWH annual savings by adding timers to janitors' closets and work areas.
3. Target to be established after baseline period.
4. Target to be established after baseline period.
5. Target to be established after baseline period.
6. The agency will activate the hibernate feature on 10% of agency desk top PCs to automatically shut down the monitor after being idle for twenty minutes. Individual patterns of computer use will affect this measure.
7. Estimated 300,000 KWH annual savings by reprogramming kitchen equipment and exhaust fans. This would be an estimated 50% reduction annually.
8. Target to be established after baseline period.
9. Reduce fleet use by 10% over FY 2006.

Conclusion

The SPB anticipates it can efficiently reduce energy consumption in this biennium without affecting building or program function, employee comfort or productivity. These conservation efforts will produce demonstrable energy savings for the State. In the current biennium the SPB will continue to look for new conservation opportunities.