usage, further reducing operational impact of purchasing lamp replacement costs. If 250 fixtures were de-lamped throughout the Big Horn County, an estimated $2,000 dollars could be saved annually.

• Electrical loads for employee plug in convenience items commonly referred to as "Vampire or Phantom Loads" account for 20 to 25% of a facility's total energy use within office spaces, or valued per employee at approximately $100 dollars per employee annually. The referenced devices include cell phone chargers, VCRs, radios with LED readouts, televisions, coffee pots and microwaves with LED readouts, IPODs, room air fresheners, etc.

Reduction of Phantom Loads by 10% within Big Horn County office spaces could result in approximated savings to the Big Horn County between $1,000 - $2,000 dollars per year. This could then be multiplied by the number of larger employee based Big Horn County facilities, creating even greater savings county-wide.

• Big Horn County personal computers account for the majority of Big Horn County facilities electrical plug loads within office spaces. Approximately $200 per PC per year can be saved with computers being turned off completely, to include hours when not in use.

Implementation by turning off computers and monitors by all Big Horn County personal computer users could result in savings back to the Big Horn County of approximately $2,500 to $3,500 per year. This estimate is based on approximately 75 computers within Big Horn County multiplied by typical savings of $40 dollars per personal computer per year.

• Within Big Horn County facilities, heating and cooling represents 30% to 50% of total energy costs. All buildings, including facilities when in heating mode that utilize natural gas, propane or fuel oil, still require supplemental electricity resources. Industry recommendations through analysis indicate that raising or lowering thermostats "one degree" can result in energy savings of 6% for facilities that use electricity as the primary energy source, and up to 4% for facilities that utilize fuel or heating oil.

Estimated savings to Big Horn County could result in $5,000 to $7,500 annually, based on number of overall facilities.

• Facility refrigerated vending drink and snack machines operating annually, based on 24 hours per day, seven days a week, 365 days per year, are reported to consume approximately between 2500-4500 kilowatt hours(kwh) of energy per year. These machines additionally assist in adding supplemental heat loads to facility within the spaces they occupy. The calculated annual operating costs can range between $200 - $400 dollars annually, based on the present Big Horn County vending contract, which represents a total of 24 machines. The recommended method in achieving total energy savings relative to vending machines is to jointly work with the vendor during contract renewal to mandate installation of "Vending Misers". This method is recognized nationally by major vendors such as Pepsi and Lance vending, and would achieve energy percentage savings at 31%.

Each of these recommendations could assist in Big Horn County vending machine energy savings with net savings of the following:

Vending Misers energy percentage of savings @ 31 percent of $400.00 dollars= $124.00 x 24 machines= $2,976.00 dollars annually

• Focus and emphasis on continued reduction of energy costs. During the FY-11 budget cycle, energy conservation retrofits and measures that were implemented prior to ECP development contributed to a 20% utility reduction.
• Continued development of energy efficiency strategies to provide stewardship of each participant's facility, in promoting energy conservation and reducing utility costs.
• Ongoing education of employees about the Big Horn County ECP. Involvement of staff is essential to develop and promote energy conservation techniques for all Big Horn County facilities.
• Installation of Energy Star Products for electrical and HVAC upgrades to reduce energy consumption.
• Application for grants to support and promote energy conservation in all facilities.
• Develop full and comprehensive procedures for purchasing Energy Star rated equipment.

ECP Conservation Measures

Immediate Measures which can be implemented through consistent procedural changes and daily behavioral habit modification;

Short Term Measures which can be implemented by all Big Horn County departments to reduce or limit energy usage and plan for energy conservation without on-going approvals and within existing budget constraints; and,

Long Term Measures which will extend beyond the current year and which may require funding sources.

Immediate Conservation Measures

- *Measures that will have the greatest effect on usage in most work environments*

    - Use the automatic setting on thermostats so the fan turns on only when heating or cooling is required. On the manual setting, the fan operates continuously and can increase energy usage.
    - Set the heating controls in between 65 to 68 degrees for winter settings, with a set back at night or when unoccupied to 60 to 65 degrees.
    - Cooling controls should be set between 72-74 degrees for summer settings.
    - Consider raising cooling settings and lowering heating settings on programmable thermostats for both occupied and unoccupied hours.
    - Heating and cooling should start no sooner than ½ hour before the work day begins.
    - Heating and cooling may be set back ½ hour before the work day ends.
    - Clean or replace filters regularly. Keep outside units free from leaves or debris that may clog vent.
    - Do not use personal space heaters as they are prohibited. These heaters use an inordinate amount of energy, can be a fire hazard and also work against the pre-settings of the thermostat.
    - In the winter, close window coverings at the end of the day to cut down on heat loss. In the summer, close window coverings during the day to avoid the heat gain of direct sunlight.
    - Turn off your computer monitor when you are away from your desk for more than 15 minutes and at the end of the day. Most monitors now come with power management features that should be activated. Note that screen savers don't save energy; complex screen savers actually increase energy use.
    - Eliminate unnecessary hot plates, coffeepots and other small appliances and turn off all tools, office machines and portable appliances when not in use. Make sure last one leaving at the end of the day turns off the photocopiers and other office equipment. Instead of having many coffee pots in various cubicles, select one to cover the whole office.
    - Turn off all lights at night, including task and office lights.
    - Use natural light whenever possible. Turn off lights near windows when daylight is adequate.
    - Turn off lights when they are not in use.

- *Measures that will be effective for some work environments:*

  - Watering landscape wastes electricity along with water. Make sure local watering guidelines are followed for proper landscape care especially during periods of sustained hot and dry weather.
  - Verify that the outside air dampers are closed during unoccupied hours, including during morning warm-up periods. Fresh air is critical while the building is occupied, but heating outside air when it is not needed increases energy costs.
  - Be sure motor-operated dampers are operating properly. Less frequently used equipment with remote controls such as televisions and VCRs should be unplugged when not in use because they still use some power even when turned off. Make sure photocells (light sensors that turn on electric lights after dark) are clean.
  - If occupancy sensors are not installed in certain rooms, turn off lights in unused common areas such as copy rooms, break rooms, conference rooms and rest rooms. The effect on lamp life and energy use when turning the lamp back on is negligible.
  - Don't set a higher temperature to "warm up faster," or a lower temperature to cool quickly.
  - Check to make sure that exhaust fans operate only during occupied periods unless required to operate continuously.
  - Check that dampers on exhaust fans close when the fan is not operating. Adjust fan belt tension.
  - Inspect control schedules and zones so that you heat only the occupied sections of the building.
  - If you only have electric space heating, stagger the start times to help reduce demand, especially during peak demand times.
  - Close off unoccupied areas and shut their heat or air conditioning vents; or turn off room air conditioners.
  - Sitting close to a window during the winter can make you feel cold. Close window coverings or move further from the window.
  - Try to schedule group activities in the area with the least energy use, and schedule evening meetings in areas that can be heated and cooled individually. This may include offering a work station for staff working after hours so they do not need to heat or cool half a floor or cubicles for one person on a weekend.
  - Make sure that air vent grills are not blocked by plants, books or furnishings.
  - Keep drafts away from thermostat to prevent an inaccurate reading.
  - Dust or vacuum radiator surfaces frequently to insure a free flow of heat.
  - Dressing wisely can help you maintain natural heat. Wear closely woven fabrics. They add at least a half-degree in warmth. For women, slacks are at least a degree warmer than skirts. For men and women a light long-sleeved sweater equals 2 degrees in added warmth. A heavy long sleeved sweater adds about 4 degrees and two light weight sweaters add about 5 degrees of warmth because the air between them serves as insulation to keep in more body heat. In cold weather, dress warmly and in layers that can be adjusted

for optimal comfort. Loosen clothing and dress casually during the warmest hours.

Short-term Conservation Measures

- Have vending machine owners turn off the advertising lighting in the machine. This will conserve energy and could save between $50 and $110 per year.
- Use photocells to automatically switch lights on at night or use motion sensors to increase safety. Photocells are controls that make lights "smart". They sense whether available surrounding light is present to determine whether a light should be lit or not. The light turns on and off automatically.
- Use lower wattage bulbs in non-critical areas.
- A 50-watt reflector floodlight provides the same amount of light as a standard 100-watt bulb.
- Use one large bulb instead of several small bulbs that add up to higher wattage.
- Many areas have more lighting than is required for current tasks. Measure current lighting levels and reduce excess lighting by using power reducers, multi-level switching, or simple removal of lamps and ballasts. Note that some ballasts continue to use some energy even when lamps are not operating.
- Ask janitorial services to only light one area of the building at a time rather than having the entire building brightly lit until midnight.
- Ask janitorial services to take advantage of partial switching (such as turning on only one lamp of a three-lamp fixture that is wired to allow this) to further reduce energy use during building cleaning.
- Avoid using incandescent task light (desk lamps). Use compact fluorescent lamps to replace the incandescent lamps for task lighting.
- Stagger shifts or using flexible work schedules to empty offices during energy peaks.
- Teleconferencing, webinars and Skype can reduce energy use and save travel costs.
- Assess air drafts around electrical outlets. Inexpensive pads are available, as are plugs for unused sockets.
- Verify that the building control system is going into the night setback mode during unoccupied hours. Time clocks may require adjustments after daylight savings switchovers or after power outages. Even computer control systems may need updating after equipment modifications.
- Confirm that economizers are functioning properly to take advantage of free cooling.
- Most office buildings are in cooling mode when the outside air temperature is above 55 degrees F. The core of buildings over 20,000 square feet are almost always in cooling, even during the winter months.
- Keep systems well tuned with periodic maintenance. At least once a year, measure the carbon dioxide in your gas burner.
- Make sure simultaneous heating and cooling does not occur. Verify proper operation of valves, dampers and controls.
- For commercial and industrial applications, monitor stack temperatures on fossil fuel boilers. If the stack temperature is more than 400 degrees above the boiler room temperature, schedule the boiler for a tune-up.
- Turn off circulation pumps during unoccupied times if no freeze conditions exist.