

Conservation in the High Desert

Conservation is primarily a “state of mind”. One consciously changes behavior, then after a while those deliberate actions become habit. As a child, I was always reminded not to turn on a light (or in some cases light a candle) until needed and to turn off the light immediately after use. I now have an ingrained habit that automatically causes me to turn off lights no matter where we are.

The following are some practices that we use in our home to conserve energy. We have invested more than most in energy efficiency and renewable energy equipment. We are continually trying to improve our behavior to increase the benefits of our investments.

1. In the winter, the first thing in the morning, we open the honeycomb insulating shades on the south facing windows and open the shades on the skylights. They are closed at dusk. During the summer, only some of the shades are lowered from the top to allow some light. One can easily feel the cold (or heat) coming through the double-pane vinyl windows, when the shades are opened.
2. The dishwasher is only run with a full load. Of course, I cannot “pack” the dishwasher as well as my wife, so she reminds me to use the “light load” setting.
3. We live in Dyer, Nevada where we use well water. In our location, water is scarcer than electricity. In order to conserve both, we installed a solar water heating system with a storage tank. We use a recirculation pump with a manual switch to route the solar heated water back to the storage tank through the insulated water pipes.

Since our shower is approximately 100 feet from the solar heated water tank, we know to run the pump for a few minutes before using the shower (or the dishwasher), e.g., turn on the recirculation pump before taking one’s clothes off. The washing machine uses cold water for full loads only. Even when manually washing some dishes, the recirculation pump is turned on for a few minutes before starting to wash, to prevent the loss of water down the drain. The recirculation pump uses approximately 1 kWh, worth nearly \$0.11, for every 15 hours of operation, which is a lot less than the cost of electricity to originally pump the saved water from the well. There is also a visible alarm light to remind us to turn off the recirculation pump. Turning on the shower and getting *cold* water is adequate training to remember to turn on, but we need additional assistance to remember to turn off.

4. We have programmable room thermostats for our solar radiant floor heating system that are set for different temperatures for different rooms, e.g., the bathroom is set for a warmer temperature than the office. The geothermal heating system (in the older part of the house) is programmed for winter and summer operation, i.e., the warming temperature for the winter is set differently than the cooling temperature for the summer. Several of the ceiling fans have remotes with programmable temperature settings, e.g., when the room gets too warm the fan automatically turns on, then will turn off when cooler. The evaporative (swamp) coolers are set with programmable thermostats so during the warm months they will automatically turn on and off to maintain a relatively

stable room temperature in all areas of the house that we regularly occupy. We may over-ride the automatic programming as necessary when changing situations demand.

5. We close doors and vents in rooms that are not regularly used. For example, our utility room where the washing machine is can get quite cold during the winter, so the door is closed; however, the heating vent is open so that the water lines do not freeze.
6. All of our electronic devices, e.g., computers, TV, audio, satellite modems for TV & Internet, routers, DVR, are on either voltage regulators or voltage regulated uninterruptible power supply (UPS) units. We have frequent voltage sags (daily) and periodic outages (monthly for a few seconds), so we must protect the sensitive electronic equipment from the grid fluctuations since our electricity comes from a very old transmission line from an investor owned utility before getting to the distribution lines of our co-op. These regulators and UPS units are turned off when the equipment is not being used, e.g., when going on a shopping trip that takes a few days.
7. There are thermostatically controlled powered air vents in the attic, to remove heat during the summer. The fans are turned off in the winter, so that even if the attic gets hot enough to trip the thermostat, the fans will not come on and waste the heat (which during most of the winter is rather rare). I have a preventive maintenance (PM) schedule to remind me when to turn the switches on or off for the power to the fans.