

Power & Heat

Electric Companies

Colorado-Ute Electric Association Inc.

Moffat Fax 719 256-4003

San Luis Valley Rural Electric Cooperative

Monte Vista 719 852-3538

Call for information on areas served.

On August 10, 1937, Valley farmers and businessmen joined together to incorporate San Luis Valley Rural Electric Cooperative. SLVREC functions as a non-profit energy provider, redistributing profits or capital credits, to its members. A seven-member board of directors, elected by the membership they serve, guides the overall direction of the cooperative.

SLVREC offers a number of unique programs to Valley residents:

Youth Tour

Last year, SLVREC sent two students to Washington DC to learn about electric cooperatives, our nation's history, and our legislative system. It's part of our commitment to the youth of the Valley.

ETS Heaters

ETS heaters are free-standing units designed to provide heat 24-hours a day, while only using energy at off-peak times. Quiet and efficient ETS heaters save you money while keeping your home or business warm and comfortable.

Scholarships

Every year, SLVREC awards scholarships to Valley high school seniors. In 2001, ten scholarships will be awarded, including a four-year scholarship to Adams State College, three \$1,000 scholarships and six \$500 scholarships.

Surge Protection

SLVREC offers two levels of surge protection: whole-house surge protection and individual surge protectors. The high quality devices SLVREC sells provide superior protection against energy surges and spikes. Non-members may also buy surge protectors.

Energy Efficiency Credit Program

SLV REC's EEC program rewards members for replacing or installing energy efficient motors, ETS heaters and electric hot water heaters. Program participants receive either an energy credit or a cash rebate.

Green Power

SLVREC consumers may elect to purchase blocks of green power. Green power is produced from clean, renewable energy sources, like wind.

Operation Roundup

SLVREC consumers may choose to sign up for the Operation Roundup Program. Under this program, consumers' electric bills are rounded up with the rounded up amount going into the Operation Roundup fund. Consumers contribute an average of \$6.00 per meter per year. Individuals and groups may apply to the Operation Roundup Foundation for financial assistance or for special project funding. All projects and requests except those for political organizations or for direct payment of utility bills will be considered. Your small change can make a difference!

To learn more about any of these programs, or other programs offered by SLVREC, visit our web site at <http://www.slvrec.com>, contact us by e-mail at power@slvrec.com, or call our customer service department at 719 852-3538 or 800 332-7634.

Excel, Inc.

(previously Public Service Company of Colorado)

Ken Plewes, 719 539-5128 or

719 539-7107 for new service.

Natural Gas and Electric within Saguache city limits. Call for other areas served.

Center Municipal Utilities

Darrel Davis, Superintendent

719 754-3497

PO Box 400, Center, CO 81125

Center runs its own electricity, natural gas, water, sewer, and cable television, and can generate its own power on an emergency basis. These services are charged on one bill.

Center Municipal Utilities, Continued -

Before you dig! Call 800 922-1987
Color code for underground utilities
Electric, Red
Gas-Oil-Steam, Yellow
Communication CATV, Orange
Water, Blue
Sewer, Green
Temporary Survey, Bright Pink
Proposed Excavation, White

If you smell gas, call 719 754-2261

Emergency gas or electric outages,
call 719 754-2261

Gunnison County Electric Association

Gunnison - 970 641-3520
For Sargents area, south to just north of Dome
Lakes (on the Cotchetopa). Contact for new
service or estimates: Chico Dominguez, Engineer
Technician.

Sangre de Cristo Electric, Buena Vista

719 395-2412
Provides electric service to a small number of
homes near Poncha Pass.

Electrical Inspection

A State-appointed inspector is mandated to ensure
compliance with the state's adopted electrical
codes. All new construction utilizing electricity
must have an electrical permit and be inspected by:
State Electrical Inspector
1570 12th Road, Alamosa, CO 81101
719 589-3010

Got Solar?

(See Business Directory, Mountain Power Design.)

Here, in the Land of Cool Sunshine, we are blessed
with a free and reliable source of power - Solar!
Much of the land in the San Luis Valley is far from
the national electric grid. As a result, many people
turn to solar energy to power their homes, livestock
wells, and cabins. With over 300 sunny days a year,
and with the grid facing more and more outages
and brownouts, higher prices and lower power
quality, this is a wise and economical choice.

When considering solar (or wind) power, your most
important ally is conservation. The less power you
need to generate, the less equipment you need to
purchase. It is essential that you replace power-
hungry appliances, lights, and pumps with energy
efficient ones. A common rule of thumb is that
every dollar spent on conservation saves three
dollars in system cost. While somewhat modular, a
solar electric system has a high up-front price tag.
However, this cost is offset over the life of the solar
system by not having to pay for the grid extension,
no electric bills, safe and sustainable power, and the
knowledge that one is not contributing to the severe
environmental degradation that utilities promote.

A solar power system consists of several main
components. The photovoltaic, or PV Modules
(solar panels) actually turn the sun's radiation into
direct current (DC) electricity. You only have as
much energy as the PV array (the collection of
modules) produces, so it is crucial that the array
be properly sized and placed clear of any shadows.
From the PV array, the power travels to a battery
bank. This is where the power is stored until it is
needed. The batteries most often found in solar
electric systems are "deep cycle" meaning they can
deliver larger amounts of power for longer periods
of time than, say, one's car battery. From the
battery bank, the power can be used as-is for
DC loads, or sent through an inverter where it is
changed into the common 120 volt alternating
current (AC) that most household appliances use.
Finally, a propane or gasoline powered generator
can be used with a charger to supplement the solar
array when there isn't enough sunshine to keep the
batteries full.

Another type of solar power is solar thermal.
The sun's energy is collected in panels with
water (or antifreeze and water) passing through
them. As the water gets hot, it is pumped to a
heat exchanger, which transfers the heat to one's
domestic hot water. Solar thermal systems are
incredibly effective at providing a household's hot
water, and can be retrofit to nearly any home or hot
water heater. And they are much more affordable
than solar electric systems. Solar thermal systems
are also a good match for radiant space heating.
Abundant solar energy is one of the greatest
benefits of living in Saguache County. Whether
passive, electric or thermal, solar power can

benefit everyone by reducing utility and gas bills, increasing self-sufficiency and comfort, improving the environment, and allowing one to live off the beaten path.

Jason Jepsen, Mountain Power Design, Inc.

If you would like more information, or to determine the feasibility of a system for you, please give Jason a call at 719 588-3426.

Solar Gain, Shading, Greenhouses and Other Building Tips for Saguache Conditions

The San Luis Valley has a rugged climate. We are blessed, though, with an unusually high number of clear, sunny days, which in conjunction with other factors can help to overcome a considerable portion of winter heating bills. Here are some simple strategies for incorporating the sun's warmth into buildings in the cooler months and keeping it out in the warmer ones. Using these strategies not only increases comfort and saves money, but also ensures that less wood smoke fills the air and obscures the beautiful views.

Orientation

Orient buildings so the major activity rooms (those which receive the most use during the day) are exposed to the sun for as much of each day as possible. This usually means that the long axis of the building will run east to west.

Windows

- a) Place the most window area on the south side of buildings. Minimize windows on the north. Many of the most spectacular views are to the east and west. East windows receive gentle morning sun (which arrives later closer to the east mountains). West windows receive light until late into the day and a view of the sunset. West light is the harshest in the warm months and the most difficult to block with shading devices because of its near horizontal direction.
- b) Use double pane windows for their insulation value.
- c) Insulating shades or curtains on windows can reduce heating and cooling requirements by

allowing the retention of the sun's warmth on winter evenings and keeping it out on summer afternoons.

- d) Plan skylights carefully. Unshaded, they can be a source of uncontrolled heat gain in summer and heat loss in winter.

Overhangs

In addition to keeping the rain off walls, properly designed overhangs can provide the right amount of shading to keep the south sun out in the summer, while allowing it in during the winter. A good design angle for this locale is 30 degrees. The ideal solar size of overhangs depends on the height of windows and their solar orientation.

Greenhouses

- a) Direct solar gain through south-facing greenhouse windows is an efficient means of passive solar heating, especially when linked to some sort of storage (see below). Properly designed greenhouses create a thermal buffer from extreme heat or cold, as well as provide a year-round food supply.
- b) The greenhouse floor and the wall which separates a building from the greenhouse when made of a heavy mass material, retains heat after the sun is down (stone, adobe, concrete, water, etc.).
- c) Greenhouses in our locale do not need glazed roofs, as these can cause overheating in the summer and loss of heat on winter nights. Insulated shading is nearly essential to the thermally efficient operation of a greenhouse.
- d) Waste heat from dishwashers, refrigerators and clothes dryers can be used to keep greenhouses above freezing in the winter.

Storage

In either an active or a passive solar installation, in order to truly capitalize on the warmth of the sun it must be retained for those times when the sun is not shining. There are primarily two methods of retaining the sun's warmth. The first is adequate insulation; the second is solar storage. Most passive solar storage utilizes some form of mass material (stone, concrete, adobe, water, etc.) which slowly absorbs the sun's warmth through the day and then slowly radiates it throughout the night.

Solar Gain, Storage, Continued -

Incorporating solar mass into building design and choice of materials, maximizes solar storage. This can be further potentiated by high insulation standards. Active solar systems typically use a movable medium (water, air or electricity) to transfer solar energy from a collector to storage (mass or batteries).

Active Solar Systems

Active solar systems utilize electronics, pumps, pipes, ducts, fluids and other devices to heat (and even cool) air or water. There is a wide variety of systems, from simple and inexpensive to complex and costly. Designed and utilized properly, they can contribute to significantly lower utility bills and greater energy self reliance. (See previous article: Got Solar?)

Insulation

The word insulation is derived from the Latin word for island. The principle behind insulation is to separate (isolate) cold from hot by putting as many layers of material (and air) between them as possible. While materials which store the sun's warmth are dense and heavy, insulating materials are porous and light, with layers of trapped air performing the insulative function.

- a) Economics & Pollution - Insulation is particularly important in a severely cold climate. If a building does not retain warmth, more heat will have to be generated to keep it comfortable. In addition, if heating is done with a wood stove, far more wood will be burned and smoke produced, than would be in heating a better insulated building.
- b) Where to Insulate - All exterior building surfaces should have some form of insulation. The greatest heat loss is through the roof, but other areas are also important. Even if the floor is insulated, insulation around a crawl space may be needed to keep pipes from freezing. Perimeter insulation at the edge of the slab can keep floors warmer. Insulation in the walls between an entry foyer and a building make a double entry more thermally effective.
- c) Rooms as Buffers - Rooms can also provide a form of insulation. Thermal buffer zones can be created by placing closets, storage areas, hallways, cabinets, bookcases, etc. along the

north walls of buildings, whenever possible. Porches and entrance foyers not only create a gracious transition from outside to in, they provide storage for coats and boots, shelter entries from prevailing winds and help to minimize heat loss and gain.

- d) Water Heaters - Insulate water heaters and hot water pipes even when they pass through heated spaces. Lost heat through pipes and tanks must be made up in longer burning time and greater energy use. Consider using some form of solar preheating system for water. When shopping for solar hot water systems, consider only those which can operate in below freezing temperatures. Another type of water heating system worth considering is on-demand water heaters which save energy by heating water only as it is needed, eliminating the need for maintaining 30 to 40 gallons of water at high temperatures 24-hours a day.

Ventilation

In this climate, adequate ventilation often provides all the cooling needed. Ventilation is facilitated when air can move through a room. A single window alone will not provide much ventilation. The air must have both a way in and out. Two opposite windows or two windows across a corner from one another provide a room with fresh air and some cross ventilation.

Excerpts from Manitou Foundation - E&A Guidelines.

Propane

Jones Oil Co.

Hwy 112, Center 719 754-2221

Columbia Propane

580 Hwy 112, Center 719 754-3420

Monte Vista Coop

1901 East US Hwy 160, Monte Vista
719 852-5181

Q Foods, Saguache

Fill your tank 719 655-2885

Natural Gas

Greeley Gas Company

888 442-1313

Excel, Inc.

Supplies natural gas to the town of
Saguache 719 539-5128 or 719 539-7107

Wood Permits

Wood Permits are available through the Forest Service Office in Saguache. In most cases, the cost of one cord of wood is \$10, with a minimum of \$20. Each family is allowed 10 cords per year. Prices may vary if the wood cut is dry or green. Dry wood may be cut in any area of the National Forest Service. Green wood can only be cut in assigned areas.

At special times, usually beginning the weekend of Thanksgiving, Christmas trees may be cut with a permit. Costs vary from year to year. Three trees are allowed per family.

Regulations for cutting and removing wood are available at the U.S. Forest Service Building in Saguache.

Wood & Heating

Progress has been made in recent years in the design of efficient wood stoves and heating systems. Wood stoves have changed from simple metal boxes to sophisticated heating systems. Innovative pellet stoves and catalytic converters, along with rediscoveries, such as the Finnish stove or Kacheloffen, have also increased the range of choices for wood-fired heating systems.

Efficient Stoves

If wood is used as a primary or back-up heating fuel, choose an efficient stove. The additional cost will be more than made up in lower firewood costs, as well as the benefits of cleaner air and the preservation of the expansive views here.

Central Location

Choose a central location for wood stoves or other heating systems. This, more than any other single factor, will influence its effectiveness.

Combustion Air

Provide a source of outside combustion air to wood stoves and fireplaces. This helps ensure clean and efficient operation, without wasteful exhaust of heated air.

Fireplaces

Choose a fireplace design which retains heat and reflects it back into the room.

Vents & Ducts

A simple system of vents and/or ducts can channel heated air from the area around a wood stove to adjacent areas and increase its value and efficiency.

Adapted from Manitou Foundation E&A Guidelines.



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