BOZEMAN MT
Community Development

Solar in Bozeman

This guide provides information about harnessing the sun to power and heat your home along with City of Bozeman basic policies and guidelines.

WHY SOLAR IN BOZEMAN?

Bozeman averages 320 days a year in which the sun shines for at least part of the day, making solar power a viable method for reducing our community's dependence on non-renewable energy to heat and power our buildings.

TYPES OF SOLAR TECHNOLOGY

For those choosing to harness the sun's energy, there are two types of solar technology.

Passive solar technologies reduce the need to mechanically heat and cool a structure and can often be achieved by considering site conditions of a property during the initial or remodel design phase. For example, a home might be designed with a large bank of windows facing south and west so that the sun can heat these rooms when it is at a lower angle in the winter. The roof overhangs of this home would be designed to shade these windows when the sun is at a higher angle in the summer, preventing the windows from admitting unwanted heat.

Active solar technology uses electrical or mechanical equipment to create energy to power the building or uses the sun to heat water for use in the building. One method of active solar technology is solar thermal technology. Sunlight warms water in tubes, which can then be used for residential or commercial use in lieu of a mechanical water heater. The hot water can also be used to heat spaces through radiators or radiant floor heat.

Another method of active solar technology is **photovoltaic (PV)**. PV modules are interconnected into solar cells, which convert solar energy into direct current electricity via the photovoltaic effect. Most PV arrays use an inverter to convert the DC power produced by the modules into alternating current that can plug into the existing infrastructure to power lights, motors, and other loads. Solar arrays are typically measured by the peak electrical power they produce, in watts, kilowatts, or even megawatts.

BEST LOCATIONS FOR SOLAR EQUIPMENT

Solar technology requires direct solar access year round. When planning for solar equipment and pursuing installation, survey the sunlight your property gets on the ground as well as the roof. Assess which areas are shaded by neighboring buildings and trees or other impediments to sunlight. Consider changes in sunlight access between seasons; a tree with a heavy leaf canopy in the summer will reduce the effectiveness of a solar array that is only shaded by bare branches in the winter. Think beyond your property and visit with your neighboring property owners about future landscaping and building plans. Note that the City of Bozeman ordinances do not prevent adjacent landowners from planting trees or constructing buildings that may shade your solar energy equipment.

AESTHETICS

It is important to consider the aesthetics of a solar power system before installation. Flush mounted systems, such as PV systems, are the least aesthetically obtrusive and only sit about four inches above roofing shingles. Physically supported solar systems, such as solar thermal systems, can range in height and might negatively affect the height, mass and scale of a structure. In circumstances where systems are highly visible, explore options for screening or locations which would not diminish the performance of the system but make them less visible.

CITY REVIEW PROCESSES FOR SOLAR ENERGY EQUIPMENT

Property owners in the City of Bozeman are required to go through a review process prior to installing active solar technology equipment. The first step is to check with the City of Bozeman Department of Community Development. The main item for review will be the location of the equipment in reference to the City's right-of-way easements and front, side and rear setbacks from property lines. Generally, the equipment should not be located in a legal easement giving another person access to the property. The equipment should also be outside of the setbacks, which can vary depending on zoning designation.

If the property is located in the Entryway Corridor or in the Neighborhood Conservation Overlay District the Department of Community Development will need to review the proposed solar energy system through the Certificate of Appropriateness (COA) process. COA approval must be granted prior to Building Permit approval. Maps of these districts and COA application forms are available at the Department of Community Development.

The Department of Community Development encourages property owners in the Overlay Districts to avoid locating solar energy systems on the primary façade or facing a street.

If the property's main facade faces south, property owners are encouraged to consider pole-mounted systems in the rear or side yard as an alternative. Pole mounting also allows the equipment to track the sun, which maximizes energy production.

Once you have ensured your solar energy system meets the Department of Community Development's requirements, consult the Building Department for a required building permit to install your active solar technology systems. Photovoltaic systems will also require an electrical permit. The Building Department will review the building permit for solar thermal (hot water) systems to assess the plumbing involved, as well as ensure that the roof of the structure can offer sufficient support for the systems.

SEEK PROFESSIONAL KNOWLEDGE OF SOLAR ENERGY SYSTEM

Bozeman is home to a number of alternative energy system designers, manufacturers, and installers. If you are interested in adding a solar energy system to your property, we recommend that you contact a professional and work with them to design a solar energy system which will effectively meet your needs and the City of Bozeman's review process.

QUESTIONS? NEED MORE INFORMATION? CONTACT:

City of Bozeman Department of Community Development
20 East Olive Street - P.O. Box 1230
Bozeman, MT 59771-1230
Phone: 406-582-2260 / TDD: 406-582-2301
Fax: 406-582-2263
www.bozeman.net/planning