



The Right Tool for the Job

The Montana Resource Efficiency Program

Helping Montana Businesses and Local Governments
To Maximize Energy Efficiency



Sometimes the right tool can make all the difference in a project. MREP has developed a series of energy efficiency toolkits, available on our website, that describe energy efficiency measures in the following topics:

- Lighting
- Building Envelope
- Refrigeration
- Motors
- Heat, Ventilation, and Air Conditioning (HVAC)
- HVAC Controls

These simple energy-efficiency tools are a great starting point for conservation projects. They are available at: mtefficiency.org. If you have questions about one of the tools, you can call MREP for project advice.

Quarterly Newsletter,
February 2018



Check out the Montana businesses we're working with this quarter:

- Ace Hardware
- Enterprise Rental Cars
- Great Northern Brewing
- Bucks Baseball Field
- Unparalleled Movement
- Springwater Colony
- Livingston Schools
- Montana Precision Products
- Bullock Grocery
- Helena Housing Authority
- Wheatland Medical Center
- Orthopedic Surgical Center of Montana
- Daly Hotel
- City of Red Lodge
- MSU Northern
- George's Distributing
- Pioneer Medical Center

MREP offers a limited number of no-cost, in-depth energy audits.

We also offer efficiency recommendations, facilitate utility incentives, and assist in project management.





MREP Efficiency Tip #5 ~ Purchase High-Efficiency Motors

Pumps, motors, fans, and aerators can use a lot of electricity.

A motor nameplate, such the one shown in the photo, includes the motor horsepower (HP) efficiency at full load. The following equation will help you determine the existing energy usage of your motor, in kilowatts (kW):

$$[(\text{HP}) * (.746 \text{ kW/HP})] / (\text{Motor efficiency}) = \text{kW}$$

For the 255-HP motor in the photo, the energy usage of the motor is: $(255) * (.746) / .95 = 200.24 \text{ kW}$.



To determine the cost of the motor, multiply the energy usage of the motor by the hours of usage and then multiply this number by your energy cost per kilowatt-hour (kWh).

For example, if you operate the motor in the photo 3,000 hours in one year, it will cost: $(200.24 \text{ kW}) * (3,000 \text{ hours}) * (\$0.08/\text{kWh}) = \$48,057.60$ per year.

A motor with an efficiency of 80% would cost: $(255 \text{ HP}) * (.746 \text{ kW/HP}) / .80 = 237.79 \text{ kW}$

$$237.79 \text{ kW} * 3,000 \text{ hours} * \$0.08/\text{kWh} = \$57,069.60$$

Choosing the 95%-efficient motor over the 80%-efficient motor would reduce energy costs by \$9,012 per year.

Spread the Word!

There's a big state under the Big Sky – help us spread the word about MREP

You can visit our website at: mtefficiency.org

Connect on Facebook at: www.facebook.com/MTEfficiency

Email: mrep@ncat.org

Or call us on our toll-free hotline at: 866-723-8677

MREP is a partnership of the Montana DEQ and the National Center for Appropriate Technology (NCAT), funded by the U.S. EPA. Collaborators include the Small Business Environmental Assistance Program, Montana Pollution Prevention Program, Montana Manufacturing Extension Center, and the sustainability group Uncommon Sense.