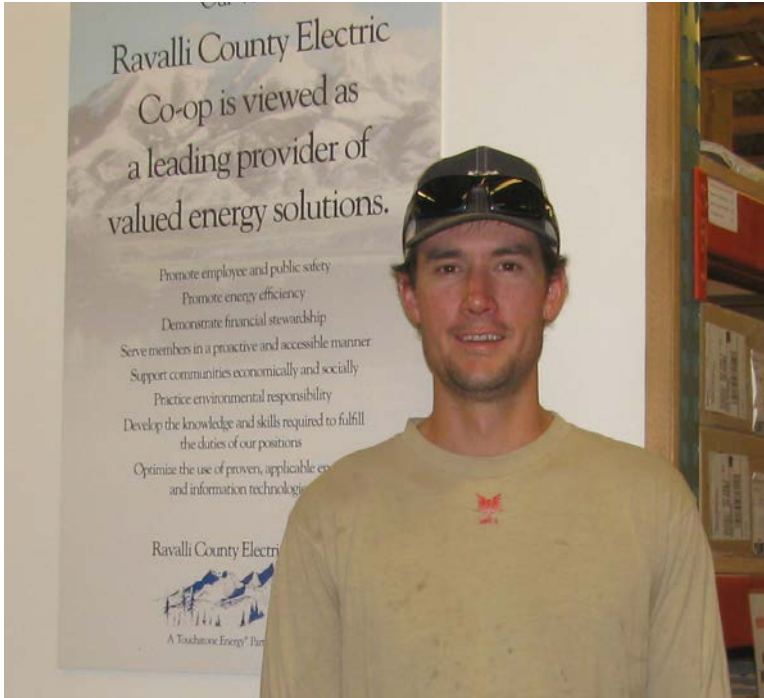




## REC Lineman Completes Apprenticeship



Electric Cooperative.

“Co-ops are a great place to work compared to a corporate setting, they really care about their members and their employees,” he said.

A few years later, a co-worker mentioned to Alex one day that there was a Lineman Apprenticeship opening at a co-op in Montana. After doing some research and visiting with his wife, he decided to apply for the apprenticeship at Ravalli Electric Co-op.

“There were about 160 people that applied for the position, so I was really happy to have been chosen,” he said. “It’s been a good move for me and I really like working with the line crew here at REC. We’re a pretty tight knit group of guys, we work hard but also have a good time with each other.”

When he’s not camping, riding his dirt bike, or spending time with his wife and two young daughters, you can find him putting in a good hard days’ work at Ravalli Electric Co-op. When asked about living the life of a lineman, Alex said it was one he truly enjoys.

“I get to go to a different place in the valley every day and be outside enjoying my surroundings instead of sitting at a desk inside an office all day. Outages are probably my favorite part of the job too—even though they can happen at any time of day or night and in any weather condition which can be tough.”

Fear doesn’t seem to be an issue for Alex when working near power lines with 7,200 volts of electricity running through them. Utility Line Workers are listed as one of the top ten most dangerous professions.

“I would say the first couple of times I went up in a bucket truck to work on the lines I was a little nervous, but you get used to it. It’s all about respect.”

Looking back over the past 7 years since Lineman College, Alex is proud of his accomplishments in his career. As far as advice to anyone thinking about becoming a lineman, Alex offers this, “Don’t be afraid to learn, there’s always something new you can be learning out there.”

It’s been a long journey for Lineman Alex Keith, but well worth the countless hours of training and book work. This past month Alex officially moved from Apprenticeship Lineman to Journeyman Lineman after completing 8,000 hours of on the job training and 4 years of book study.

“The book study was the hardest part,” stated Alex with a laugh.

A native of Dillon, MT, the thought of being a lineman never crossed his mind growing up.

“I had never even considered it before,” said Alex, “but one year I was fighting fires and a family member who was a lineman for Vigilante Electric Co-op said I should look into it. I took his advice and decided to give it a shot.”

Alex attended Northwest Lineman College in Meridian, ID for the next four months. Upon completing the program, he began work at Southeast Power Corporation in Texas where he worked as a helicopter lineman on transmission lines.

“That was pretty intense, but a very cool experience working on extremely large transmission lines.” After that Alex found his way into the cooperative world by getting a job with Pedernales

Ravalli Electric Co-op



### In This Issue:

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## Faith in the Future

As adults, we realize that the future lies in the hands of our children and grandchildren. One of our first priorities in life should be the nurturing and educating of today's youth in any way that we can. By providing opportunities to enlighten and encourage young people, we can feel rest assured the future will be in good hands.

At Ravalli Electric Co-op we believe in supporting and inspiring young minds to be successful and courageous in the world we live in today. One of our favorite programs REC supports is the National Rural Electric Cooperative Youth Tour. Every June, thousands of students from across the country travel to Washington D.C. to spend a week touring the area to learn about the importance of America's history, government, and legislative processes that keep America up and running today. Students also explore key issues regarding the electric industry, leadership programs, and the cooperative model and the impact it has on the rural communities they live in. This year's winner from Ravalli Electric Co-op was Hamilton High School student, Morgan Keller.

Keller knew she was in for an adventure having traveled to Washington, D.C. before, but this trip was even more than she expected.

"Right from the start we were on the go. From 6am to 11pm it was go, go, go," she laughed. "But it was worth it for all of the amazing things we got to see and experience while on this trip. By the end I was exhausted!"

While on tour with a record breaking 1,800 students from across the U.S., Morgan had the opportunity to visit many of the national monuments, including the World War II monument which was one of her favorites.

"We visited most of the monuments later in the evening. I remember sitting around the World War II monument as the sun was setting and just quietly listening to the water from the fountains and thinking about the history of our nation. It was so peaceful and inspiring."

National Museums were also on the list to explore.

"I really liked walking through the Newseum where they had newspapers dating back to 1776. It was neat to see newspaper stories about many of history's greatest and worst moments like the Berlin Wall coming down and the tragedy of 9/11," she said.

Another important part of the Youth Tour trip was getting to visit their state representatives at their respective offices on Capitol Hill.

"Senator Daines was very nice and pretty funny too. We got to hang out right in his office and ask him questions. We even had a little fun on social media with him," she laughed. "I have been to the Capitol before, but the tour we did this time was even better because we got to explore places that the general public doesn't get to see."

Throughout the week, the groups of students also listened to



motivational speakers and leaders in the co-op world.

"I knew a little bit about cooperatives before going on the trip, but this experience gave me more insight on how unique they are and the vital role they can play in small rural communities," she said. "All of the speakers we listened to were great and gave us good advice and things to think about as youth in today's world."

While Morgan insisted the educational opportunities and historical sites were top notch, she also enjoyed being surrounded by hundreds of other teenagers from all walks of life.

"Throughout this trip I was immersed in all sorts of new things. The places, the people, the different cultures. Meeting new people and learning about where they were from was one of the best parts of the trip," Keller stated. "At first we were all a little shy and quiet, but that quickly changed. We had a fun time hanging out together on the sunset cruise, a dance party, and one my favorites attending a Nationals baseball game!"

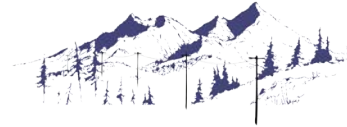
Looking back and reminiscing about the Youth Tour experience, Keller was deeply honored to have been chosen to attend this remarkable event.

Supporting today's youth in opportunities like these is something Ravalli Electric is proud of and feels has true value. Our hope is that many youth throughout the Bitterroot Valley will take advantage of this wonderful opportunity and apply for a chance to join the Youth Tour next year.

### Find the Hidden Number

We will hide three account numbers this month in our "Watts Up?" pages. If you find your account number call the office at 961-3001 by the 20th of the magazine month and you get a **\$30 credit** on your electric bill. **Good Luck!**





## Comparing the Cost of Heating Water for Residential Use

Over the last couple of weeks, I have been asked several times what the cost for heating hot water is. This is not a simple question to answer as there are several key factors and some math involved. However, if you have a leaky faucet you think may be costing you money, or you are considering switching from a fossil fuel water tank to an electric one, this information might be good to know.

If you remember my article in January about comparing each fuel by looking at their cost per million BTU (MBTU), we can do a similar comparison for heating hot water. If you currently use other forms of heat, like natural gas or propane, you can substitute your rates into the equation. You can find those rates on your monthly bill, or call your local utility.

Here is a refresher about the BTU content of natural gas, propane and electricity. A 100,000 BTUs of natural gas is a Therm. A therm of natural gas costs: \$00.701. Propane has 91,500 BTUs per gallon. The current cost of propane per gallon is: \$2.00. Electricity has 3,413 BTU in a kilo-watt (kW). Our current rate per kWh is \$0.068.

Here is the cost for each fuel source:

**Natural gas = \$0.70**  
**Propane = \$2.00**  
**Electricity = \$0.068**

If you remember your high school physics class it takes 1 BTU, to raise 1 pound of water, 1-degree Fahrenheit. We don't heat pounds of water, we heat gallons, so 1 gallon of water weighs 8.34 pounds.

Next we need to know the incoming temperature of the water we're going to heat. In western Montana, our ground water is at about 46°. We're going to heat the water to 120°, so the temperature

rise will be 74°. For this example we'll be heating 60 gallons of water. (10 gallons for each bedroom (3) & 30 for typical use = 60)

The last bit of information we'll need to calculate the cost is the Energy Factor (EF) of the water heater. For simplicity, we'll use the 2015 Federal Standard minimum EF for water heaters. The minimum EF's are:

**Natural gas = .615**  
**Propane = .615**  
**Electric = .95**

The calculation looks like this:

$$\frac{\text{Gallons/day} \times (\text{Temp out-Temp in}) \times 8.34 \times \text{Cost}}{(\text{EF} * \text{BTU per unit fuel})}$$

**Natural gas** –  $\frac{60 \times 74^\circ \times 8.34}{0.615 \times 100,000}$  x \$0.701

**Gas Cost = \$0.42/day, \$12.66/month, \$151.95/year**

**Liquid Propane** –  $\frac{60 \times 74^\circ \times 8.34}{0.615 \times 91,500}$  x \$2.00

**Propane Cost = \$1.32/day, \$39.60/month, \$475.20/year**

**REC Electricity** –  $\frac{60 \times 74^\circ \times 8.34}{0.95 \times 3,413}$  x \$0.068

**Electricity Cost = \$0.78/day, \$23.30/month, \$297.58/year**

Please contact our Member Services Department if you have questions.





#1775315

## Harvest workers urged to take time to reap safe harvest

It can be an exciting and exhausting time, the culmination of a season of hard work. However, the rush to harvest can also yield tragic outcomes. Each year, dozens of farm workers are killed and hundreds are injured in accidents involving power lines and electrical equipment.

“Things people see every day can fade from view and in the busy-ness of harvest time, it’s easy for farm workers to forget about the power lines overhead,” says Richard McCracken of the Safe Electricity Advisory Board. “But failure to notice them can be a deadly oversight.”

Review with all workers the farm activities that take place around power lines. Inspect the height of farm equipment to determine clearance. Keep equipment at least 10 feet away from power lines – above, below and to the side – a 360-degree rule.

“Always lower grain augers before moving them, even if it’s only a few feet,” says Bob Aherin, PhD, CSP & University of Illinois Professor and Agricultural Safety & Health Program Leader. “Variables like wind, uneven ground, shifting weight or other conditions can combine to create an unexpected result. Also use extreme caution when raising the bed of a grain truck.”

Farm workers should take these steps to ensure a safer harvest season:

- Use care when raising augers or the bed of grain trucks around power lines.
- Use a spotter when operating large machinery near power lines. Do not let the spotter touch the machinery while it is being moved anywhere near power lines.
- As with any outdoor work, be careful not to raise any equipment such as ladders, poles or rods into power lines. Remember, non-metallic materials such as lumber, tree limbs, ropes and hay will conduct electricity depending on dampness, dust and dirt contamination.
- Never attempt to raise or move a power line to clear a path!
- Don’t use metal poles to break up bridged grain inside bins. Know where and how to shut off the power in an emergency.



- Use qualified electricians for work on drying equipment and other farm electrical systems.

Operators of farm equipment or vehicles must also know what to do if the vehicle comes in contact with a power line: Stay on the equipment, warn others to stay away and call 911. Do not get off the equipment until the utility crew says it is safe to do so.

“If the power line is energized and you step outside, touching the vehicle and ground, your body becomes the path and electrocution is the result,” Aherin said. “Even if a power line has landed on the ground, the potential for the area nearby to be energized still exists. Stay inside the vehicle unless there’s fire or imminent risk of fire.”

If this is the case, jump off the equipment with your feet together, without touching the ground and vehicle at the same time. Then, still keeping your feet together, hop to safety as you leave the area.

Once you get away from the equipment, never attempt to get back on or even touch the equipment. Some electrocutions have occurred after the operator dismounts and, realizing nothing has happened, tries to get back on the equipment.

It is very important that all farm workers and seasonal employees are informed of electrical hazards and trained in proper procedures to avoid injury.

*This article was provided by the Energy Education Council (EEC), [SafeElectricity.org](http://SafeElectricity.org).*

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