The LAKELAND TIMES
Minocqua, Wisconsin

The Power of the Sun

Original article by Evan Verploegh, Features Reporter | 12/16/2016 7:29:00 AM
Condensed by SunPeak

LUHS is now home to the largest solar farm of any school in Wisconsin

As renewable energy continually steps forward into the minds of builders, Lakeland Union High School has made a giant leap in the world of solar energy. LUHS has now flipped the switch to the "on" position for the largest solar energy system of any school in the state of Wisconsin.

The project was assisted by Act 32, a piece of legislation passed in 2011 that allows school districts to raise the tax levy for spending on energy efficient projects without taking the issue to referendum. The raised tax levy allows up to $14.6 million to be spent renovations for renewable energy such as the solar panels, improved lighting and updated heating and cooling systems which are exceeding their life expectancy.

The high school has now installed 1,056 solar panels which are now helping power multiple aspects of LUHS. Each panel sits roughly three feet by five feet and the whole farm has the capability of producing a maximum of 280 kilowatts per hour. To put into perspective, your average refrigerator uses around 200 watts, or 0.2 kilowatts per hour.

To power the school effectively, LUHS installed eight inverters in the control room which converts the DC power that is provided by the panels to AC, which the school employs. Each inverter is responsible for converting the energy from 132 of the panels.

On a "good" day, meaning a day with plenty of uninterrupted sunshine, LUHS Principal Jim Bouché and building and grounds director Dave Arnold estimate the system to be able to power 20 percent of Lakeland Union High School. To most effectively acquire as much sun as possible, two panels are connected in the middle with one angling to the east and one to the west to track the sun throughout the day.

Bouché said the ability to expand their solar capability is there. With the panels primarily stored on the north end of the building, over the fieldhouse, there remains plenty of space to install more panels if desired in the future.

The system was installed by SunPeak, a solar company based in Madison. Since the system began working, energy that has been garnered from the panels is transferred into the main grid of the school

and is then diverted to the area it is currently needed the most. Sometimes the system may result in a sale of energy back to Wisconsin Public Service.

"We're hoping that on those really perfect summer days, that we might be able to sell some of that power back," Arnold said. "The only issue with that is with the way the laws are currently set up, they'll only be able to pay about 20 percent. If we're paying about nine cents per kilowatt, they'll pay back about two cents."

These are not the first solar panels that will grace the roof of LUHS, but by far the most expansive layout. Previously the school had 10 panels provided through a grant stemming from WPS's Solarwise program and another 32 which services the water heaters of the pool.

LUHS prepares for the installation of the panels on the roof of the fieldhouse.

"You can go back and see that LUHS has been working with solar panels for about 12 years now. However, much of that has been utilized for educational purposes rather than energy savings," Bouché said. "The Solarwise panels only give us about two kilowatts per hour, but they have been a great addition for work in science classrooms."

Bouché said the installation of the new solar farm will expand the associated learning capabilities immensely, which was just another note on a long line of perks.

"Those initial solar panels were great to implement within our environmental science department. This new farm will be used curricularly with our STEAM (Science, Technology, Engineering, Arts, Mathematics)," he said. "It was really important to me to see how we were going to bring this back to the students. We wanted to explore not only how we could become energy-wise as a school but also provide that energy-knowledge to our students as they come through LUHS."

According to a 2016 report from the Solar Foundation, a non-profit organization in Washington D.C., the field saw an addition of more than 35,000 jobs in 2015, up 20 percent from the previous year.

"If we can help any of our pre-engineering students prepare for becoming involved in this field, it's certainly a feather in our cap because we are then helping students think about their future" Bouché said. "When students heard about what was going on, they became very enthralled with the idea that their school was involved with energy efficiency."

Classes directly related to educating students on the work that the solar panels are performing can be expected to be intertwined into the LUHS curriculum as quickly as spring of 2017.

"As classes get going, Mr. (Dave) Arnold here becomes a teacher, as well. He is able to explain the ins and outs of the procedures and then we're able to become an educational institution across the board," Bouché said.

In addition to the environmental science department becoming involved, the LUHS productions department assisted in documenting the installation of the panels through drone photography and video.

"We've already dived into the academic portion of the process for the students here," Arnold said. "It's really exciting and provides them a great opportunity."