



For release on May 7, 2014

Research project generates electricity from wood stove

CNC power engineering and electronics instructors and students have completed a research project that uses new technology to produce electricity from the heat of a wood stove.

The Thermoelectric Generators (TEG) research project showed electric current can be produced from any hot surface, and have a wide range of uses, including power recovery in cars and charging electronic devices in the backcountry.

CNC's Applied Research and Innovation Department received a \$20,000 grant from the Omenica Beetle Action Coalition to determine the potential for converting heat from woodstoves into electricity, with application in the greenhouse industry.

From a cost perspective, the technology is on-par with solar panels, with the added advantage of being more reliable. "Basically you can control how much wood you burn and when, so you can control the electricity that is generated, which of course is not the case with solar panels," said researcher Oro Barton. "The wood stove has the added advantage over solar panels in that you can generate electricity continuously at night and during winter days with reduced hours of sunlight."

Greenhouse producers looking to extend their growing season often heat their greenhouses with wood stoves, and this research helps them use new technology to produce electricity to run LED lights as well.

"This is not brand new technology, but using it in greenhouse applications is new," explained Hardy Griesbauer, director for CNC's Applied Research and Innovation department. "It's free energy, other than the initial costs of buying the supplies and could add two months to the beginning and end of the regular growing season."

The research team successfully produced enough electricity to run a 40 Watt light continuously, or to charge a battery bank that can then be used to power a lighting system for several hours a day.

The researchers examined the input and output of energy and looked at different wood types on electricity generation. CNC also completed a cost-benefit analysis of the project so growers can see if this kind of technology is a benefit to their operations.

"This technology is well-suited for any off-grid application that has wood supply," Barton said.

College researchers are now looking for industry partners to further develop this technology for off-grid applications. Call 250-562-2131, local 5541.

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