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Oregon-spawned cleantech could save industry millions

Oct 29, 2015, 6:59am PDT Updated: Oct 29, 2015, 10:47am PDT



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New manufacturing technology crafted by an Oregon startup has the potential to save the specialty metals industry hundreds of millions of dollars in energy costs, according to information from a local business accelerator.

KW Associates has developed a system that can be added to titanium and nickel refining furnaces that could significantly reduce waste and improve safety in the melting process, according to Oregon BEST, which provided funding for the Corvallis company.

VAR furnaces, which reportedly cost \$25 million to build and are 20 feet tall, were developed in Oregon in the 1940s and have changed little since then. The furnaces generate an electric arc, or plasma column, that melts a consumable electrode, burning off impurities and creating a large ingot of the specialty metal that is then sold to manufacturers.

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But it has been impossible to see that arc, which prevents fine-tuned control of the process and results in electrical energy loss, as well as unwanted buildup on the ingot surface that must be removed.

This generates waste, adds labor costs and has led to safety issues. KW Associates' Arc Position Sensing technology offers a way to "see" what is happening inside a VAR furnace during the remelting process. It integrates an electric current locator with automated data acquisition and real-time analysis, as well as monitors arc dynamics during operation.

"The specialty metals industry in the U.S. is a \$25 billion dollar industry, and 40 percent of that is from direct sales of ingots produced in VAR furnaces," said [Paul King](#), president and CEO of

KW Associates, in a statement.

"Our technology could save 40 to 50 percent of the energy currently lost in the use of these furnaces, while improving ingot quality, and reducing much of the \$800 million in lost revenue through material waste and associated electrical inefficiencies each year."

A \$150,000 investment by Oregon BEST is helping KW Associates team with Kyle Niemeyer, an assistant professor of mechanical engineering at **Oregon State University**.

The OSU researchers are independently validating the system and finding patterns that will lead to a new software tool that automatically identifies, categorizes and tracks potentially harmful events.

"This project shows how applying clean technology to a long-established industry can generate a wide range of positive results," said Ken Vaughn, director of commercialization programs at Oregon BEST.

James covers energy, natural resources, manufacturing and sustainable business.