

Revolutionizing the Cooling of Electric Motors and Devices with a Technology that Removes Heat from Rotating Machinery and enables Cooling without Liquid



Tim Hassett
Chairman & CEO

Cool Technologies, Inc. (OTCQB: WARM)
<http://cooltechnologiesinc.com/>

Contact:
Timothy J. Hassett
813-975-7467
thassett@cooltechnologiesinc.com

Tim Hassett speaking at Cool Technologies' live presentation of its 80 kVA Mobile Generation (MG) System at the Craftsmen Industries' 35th Anniversary Party in St. Louis on April 27, 2017.

Interview conducted by:
Bud Wayne, Editorial Executive
CEOCFO Magazine

“Cool Tech has harnessed a technology that revolutionizes the cooling of electric motors. It delivers the benefits of liquid cooling system in a simpler, much more economical and efficient process.”
- Tim Hassett

CEOCFO: *Mr. Hassett, you are a 2nd generation mechanical engineer and physicist, have worked with Fortune 500 companies and transformed companies to achieve double-digit growth. What attracted you to Cool Technologies, Inc.?*

Mr. Hassett: From the time I was 9 years old, my father ingrained into my fabric the mindset to create, innovate and lead. Second place was not a good thing, be it sports or life. I love to compete and win and, for me, there's a difference between competition and winning the top prize.

I had great examples to work for in Jim Rogers and Jack Welch, the #1 leadership team in the world at the time. Sure, it was a pressure cooker, but you learned to meet deadlines and beat projections or you were out.

After my stint at GE, I knew I was destined to do my own thing. You see, much of my work life involved taking on challenges and acquiring the skills to run a company. I learned to develop and commercialize new products, create and deliver go-to-market strategies, negotiate deals and contracts, form strategic alliances and partnerships and restructure both domestic and foreign companies to generate top and bottom line growth. The most important thing I learned how to do, though, was close. Put me in a room with someone and, in most cases, I'm going to walk out with a sale.

So, creating Cool Technologies with my co-founding partner, Mark Hodowanec, was a natural progression. Mark and I have worked together for 30 years. We have developed, designed and produced leading technologies for several companies like GE, Siemens, and Rockwell Automation with great success. Cool Tech provides the vehicle for us to take all that we have learned and put it in practice: to innovate and create disruptive technologies and applications that change industries.

CEOCFO: *The differentiator for Cool Technologies is its patented thermal technology, a composite heat pipe. How does it work?*

Mr. Hassett: Heat pipes transfer heat through the evaporation and condensation of a working fluid contained in a sealed metal tube. There are two ends to a heat pipe: the evaporator and the condenser. Heat is input at the evaporator end and the fluid is vaporized which creates a pressure gradient in the pipe that forces the vapor to quickly flow along the pipe to the cooler end where it condenses, releases the heat and turns back into the working fluid. The working fluid returns to the evaporator through the force of gravity or through a porous wick structure that exerts a capillary action.

Heat is the universal enemy of nearly every mechanical or electronic device. Cool Tech, owns a portfolio of patents and trade secrets that remove heat from machinery -- mostly rotating equipment which includes: motors, generators, turbines, brakes, calipers, and more. Simply put, if one removes heat from a motor or generator, it enables you to increase power density or potential output of the machine. Because most electric motors have specific outputs from specific frame sizes, when a manufacturer increases a motor's potential output without increasing the frame size, they can offer the best in class power in the smallest possible package.

A key point to remember is that our technology's passive. Currently, to achieve that same power density increase, manufacturers rely upon the addition of active technologies such as liquid cooling or special high temperature materials. Both add cost, increase the complexity and, in many cases, the size and weight of the machine.

Cool Tech has harnessed a technology that revolutionizes the cooling of electric motors. It delivers the benefits of liquid cooling system in a simpler, much more economical and efficient process.

CEOCFO: *Piping comes in so many shapes and sizes. Is your thermal technology effective in any type situation?*

Mr. Hassett: It's effective in every situation we've targeted. There are some that don't make sense and others we haven't explored. The target markets and applications we compete in, though, total between 300 and 500 billion dollars in annual sales, so I think we are very well positioned to attain market share.



MG80 undergoing durability testing in Fort Collins, Colorado January 2018

CEOCFO: *What does your thermal technology mean for the industries that you play in? Why is it so important? What types of applications is it used in and when used in a motor, how does it increase efficiency?*

Mr. Hassett: The target area we have identified is rotating machinery -- lots of friction, lots of heat from machines that often run 24/7.

There are a ton of applications, but we have focused on electric motors, generators, alternators, pumps (primarily centrifugal and turbine), wet disc brakes, multi-clutch transmissions and, of course, our MG system.

For electric motors, the range of industries to compete in is vast. The possibilities encompass all process manufacturing such as cement, copper, steel and paper as well as oil and gas, pump and compressors, rail, hybrids and wind turbines to name just a few. At least half of the industries categorized by Standard Industrial Classification (SIC) codes have applications that could benefit from the use of radial vent composite heat pipe systems.

For pumps, which are also powered by electric motors, we're initially targeting the water and wastewater industries.

So how does our technology increase efficiency? Simple. All electric motors, no matter what their size, generate heat and heat is wasted energy. Minimize the waste and you increase the efficiency. In other words, the cooler a motor runs, the more potential horsepower it can generate.

By incorporating our technology, an OEM can generate the same output from a smaller size motor or generate more power from the same size motor. Either way, the margins increase. A smaller motor costs less to make and a more powerful motor commands a higher price. Plus, the cooling technology can be incorporated using existing manufacturing systems. It doesn't require costly re-designs.

It's important because electric motors is a very mature industry with 8 established players who control 80 to 85% of the market. They compete through very incremental improvements that save pennies here and there.

With our technology, an OEM can improve power density by 25 to 40% or, in other words, enable a 1,000 horsepower motor to output 1,250 horse, plus reduce their manufacturing costs by up to 30% and, significantly reduce motor maintenance costs for their customers.

That shakes things up in a big way.

CEOCFO: *Cool Technologies has two platforms, Motor / Generator / Pumps and Mobile Generation. Would you tell us about each and their applications?*

Mr. Hassett: To combat heat in motors, generators and pumps, to eliminate the warping, degradation or even the equipment failure it can cause as well as to increase the power density of their electric motors, manufacturers add active cooling systems, either air-cooled or water-cooled. This means doing things like overframing the motors, adding water jackets or closed loop systems as well as the means to power the cooling systems. Our patented cooling technology eliminates all that,

delivers major cost outs, and produces the same power density increases. For vertical dry pit submersible motors, the potential horsepower increase can be as much as 250%.

Our mobile generation system enables Class 3 to 8 work trucks to generate up to 300 kVA of electric power. The system retrofits onto new or existing vehicles and uses the truck's engine to power a generator installed in the chassis. This eliminates the need to tow a generator which frees the hitches for other equipment or materiel.

As the system weighs just one quarter of the weight of a comparable tow behind, it also provides a significant boost in power generation mobility. Wherever you can drive a truck, you can generate single phase and three phase power either individually or both at the same time. No one else offers that.

The system can be operated from the generator panel on the side of the vehicle or from the inside of the cab. Remote operation is also possible thanks to its telematics capabilities.

The MG is also brand agnostic. It works with any brand of truck or tool. And it's fuel agnostic: whatever powers the truck engine, powers the MG – gas, diesel, hydrogen, microturbine, solar or batteries.

CEOCFO: *Would you tell us about some of your recent agreements such as the one with Panasonic to use the company's Mobile Generation systems in their Toughpad rugged tablets? What does this mean for Cool Technologies?*

Mr. Hassett: When you're a small startup company bringing new disruptive technology to the market, you need to have great partners in technology and manufacturing whose products are #1 or #2 as viewed by their customers. The Panasonic Toughpad is such a product and it's a first step in what we hope will be a long term relationship. You work together, become comfortable working together, learn each others' methods, strengths, goals and interests. Then, if you mesh, if the venture is profitable, you take the next step, repeat and take another step.

As an intellectual property company with patents that apply to broad range of industries, it was important to us that our first connection with Panasonic wasn't focused solely on the Toughpad. The Executive Director for Product Planning Strategy and Innovation at Panasonic's Silicon Valley Center was the one who attended a demonstration of the MG technology and received an overview of our thermal dispersion technologies. He then initiated several conversations and meetings regarding the ways our two companies could pursue joint initiatives and opportunities.

Panasonic is moving into what they call "Smart Mobility" for goods, people, information and energy. It was important to explore a range of intersections between our core technologies. The decision to use the Toughpad is the first to grow out of those discussions.

CEOCFO: *How important are presentations at conferences for you such as the Craftsmen Industries' 35th Anniversary Party in St. Louis? Is this a focus for you as CEO?*

Mr. Hassett: I wouldn't call it a focus. Commercializing patents and delivering value to our shareholders are our focus. The presentations are

an important tool in our sales and promotion toolbox. And I will probably do a lot more.

It's a matter of playing to your strengths. If you're comfortable speaking in front of groups. If you can read a room and hold their attention, deliver your message with passion, energy and commitment, that's an advantage. People respond to those emotions.

The best part is to see the light bulb go on – that moment they get it. It doesn't always happen at the same time, particularly in audiences as diverse as the one we had at Craftsman. We had investors, fund managers, military officers, and representatives from major corporations and a variety of industries.

But every time I give a presentation, I learn something. The feedback is incredibly valuable. The questions reflect the thoughts and objections they have. If you address those, good things happen. Deals with Panasonic, Vet Tech and other potential clients and customers I can't mention yet were sparked by that presentation.

Otherwise, I use that feedback to refine the next presentation and make sure our marketing and sales materials are spot on.

CEOCFO: *How do you reach out to potential customers? Do you have an in-house sales staff or is it done through distributors and partners?*

Mr. Hassett: Sales is all about buying from people you know and trust. We have a strong board of directors with very deep industry relationships, for example, Dan Ustian, former Chairman and CEO of Navistar International, and Dick Schul, former president of Emerson Motors and Senior Vice President of Emerson Corp. We also have a few reps from target industries who have great relationships and credibility in those industries.

Another path runs through our manufacturing and up-fitting partners. The only one I can mention at the moment is Craftsmen Industries, which has a very diverse customer base of over 300 companies, corporations, government agencies and the armed forces in the experiential vehicle market. Based on my 30 plus years of industry experience, Craftsmen is the best of the best in delivering engineered products the way their customers dream them up. Our system will find its way into more and more of the vehicles and this exposes Cool Tech to their customer base.

CEOCFO: *Do you have the necessary funding in place to continue product development and growth or will you be reaching out to investors and partners?*

Mr. Hassett: We have some very good investor shareholders who have loyally funded the company, however, we don't need to reach out to them. We have the necessary funding in place to produce all of the 269 purchase commitments for MG systems valued at over 22 million dollars that are logged in our books.

CEOCFO: *In closing, what can we expect from Cool Technologies over the next year?*

Mr. Hassett: The company will, with its partners, ship our MG systems throughout North America with positive EBITDA and cash flow. Our goal

will be to ship as much of our current backlog in 2018 as well as build up an additional backlog of 400 to 600 MG80 units for 2019. Introductions of the MG80 and 125 kVA systems on Class 6 and 7 trucks as well as our mobile charging solutions for electric vehicles are in the cards. We'll be raising the barrier to competition with the integration of our patented thermal technology into the generators.

Most of all, I'm looking forward to adding features that will aid first responders, be they fire, disaster relief, utility or military. After being in the heart of the Northern California wild fires here in Santa Rosa, I was able to see firsthand the problems our first responders faced and how our technology can solve them.



MG Showcased at the North American International Auto Show January 2017