

alphaDIRECT MANAGEMENT SERIES

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IN FOCUS: CAPSTONE TURBINE CORP., AND THE MICROGRID OPPORTUNITIES AND DRIVERS.

This report focuses on Capstone Turbine Corporation (NASDAQ: CPST), and the microgrid opportunities and drivers.



Capstone C200 microturbine installation. Source: www.capstoneturbine.com

THE alphaDIRECT INSIGHT

Capstone's distribution network has been developing microgrid projects for many years, and the Company continues to invest to expand and compete in the market. In our opinion, some of the main advantages with microgrids are that they are compact, quiet and easy to install in multiples allowing for redundancy with less overall kW. Capstone's units have been operating as microgrids even before the term became popular, since they have the ability to operate either connected to a conventional power grid or through its "Stand Alone/Island" mode. Capstone is currently focused on educating communities as well as project developers about the many benefits with microturbines and Capstone's inverter technology in order to capture new market opportunities. We believe that the growing interest in microgrids creates additional markets for Capstone's long-term rental fleet, which should help the company improve its margins and reach its goal of a 10 MW rental fleet by early next year.

CPST Business Snapshot

HQ: Van Nuys, California

NASDAQ Ticker: CPST (NASDAQ)

Full Time Employees: 160

Stock Price: \$0.62*

Market Cap: \$45.04M*

Website: www.capstoneturbine.com

*As of August 26, 2019



About alphaDIRECT Advisors

alphaDIRECT Advisors, a division of EnergyTech Investor, LLC, is an Investor Intelligence and publishing firm that creates and implements digital content and programs to help investors better understand a company's key drivers including industry dynamics, technology, strategy, outlook and risks as well as the impact they could have on the stock price. alphaDIRECT's expertise encompasses a variety of sectors including Clean Transportation, Emerging EnergyTech, Energy Services, Smart Buildings, Solar, Water Value Chain and Industrial. alphaDIRECT was founded by Wall Street veteran and research analyst, Shawn Severson, after seeing a significant shift in the investment industry that resulted in less fundamental research conducted on small cap companies and a significant decline in information available to all investors. alphaDIRECT's mission is to bridge that information gap and engage companies and investors in a way that opens information flow and analytical insights.

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Participants

Mr. James “Jim” Crouse
Executive Vice President of Sales and Marketing
Capstone Turbine Corp.

Mr. Crouse serves as Executive Vice President of Sales and Marketing for Capstone Turbine Corporation (a public NASDAQ corporation), a position he has held since February 2007. Mr. Crouse leads the company's sales, marketing, and distributor efforts globally. During his tenure, he has led a global distributor development effort that added 65+ distributors in 73 countries. He is responsible for bringing several new clean energy and renewable energy microturbine products to the market. Prior to joining Capstone, Mr. Crouse spent 20 years developing distributed generation projects including oil and gas; CHP; bio-gas; thermal energy storage; solar and wind. In addition to his executive career, Mr. Crouse has served on several advisory boards and board of directors, and has testified before Congress on a number of renewable energy and energy efficiency issues on multiple occasions.

Mr. Shawn Severson
Founder and CEO
alphaDIRECT Advisors

Mr. Severson is the founding partner and CEO of alphaDIRECT Advisors (ADA). He has over 20 years of experience as a senior research analyst covering the technology and cleantech industries. Prior to founding ADA, he led the Energy, Environmental and Industrial Technologies practice at the Blueshirt Group. Mr. Severson was frequently ranked as a top research analyst including one of the Wall Street Journal's "Best on the Street" stock pickers and multiple awards as Stamine's top three stock pickers.

ABOUT CAPSTONE TURBINE CORPORATION

Capstone Turbine Corporation is the world's leading developer and manufacturer of clean-and-green microturbine power generation systems and was first to market with its high-efficiency air bearing turbine technology. Capstone has shipped thousands of microturbines to customers worldwide. These innovative and award-winning systems have logged millions of documented runtime operating hours and are compliant with current and future emissions regulations.

With over 88 distributors and Original Equipment Manufacturers (OEMs) worldwide, Capstone's low-emission microturbines serve multiple vertical markets with industry-leading reliability and efficiency. Capstone offers a comprehensive product lineup, providing scalable solutions from 30 kW to 30 MW. Capstone microturbines can also operate on a variety of gaseous or liquid fuels and are the ideal solution for today's distributed generation needs.

Capstone is a member of the U.S. Environmental Protection Agency's Combined Heat and Power Partnership which is committed to improving the efficiency of the nation's energy infrastructure and reducing emissions of pollutants and greenhouse gases. A DQS-Certified ISO 9001:2015 and ISO 14001:2015 certified company, Capstone is headquartered in the Los Angeles area with sales and/or service centers in the United States, Latin America, Europe, Middle East and Asia.



James "Jim" Crouse
Executive Vice President of Sales and Marketing

Shawn Severson: First, I would like to thank you, Jim, for taking the time to speak with alphaDIRECT today. Last time we spoke to Jeff Foster, Capstone's Senior Vice President of Customer Service and Product Development, as we discussed recent developments within Capstone's aftermarket service business. Today we will focus on microgrids and how this sector is impacting Capstone. According to GlobalData, the global market for microgrids was about \$15 billion in 2017 with approximately \$4.6 billion in the U.S. However, the worldwide microgrid market is estimated to be valued at \$30 billion by 2022, with a compound annual growth rate (CAGR) of 15% between 2018 and 2022, led by the American region. For investors new to this sector, can you explain what a microgrid is and what are their advantages to that of conventional grid power?

Jim Crouse: Absolutely, Shawn. A microgrid is a localized group of energy generation resources that typically operates while connected to the utility grid, but can also operate disconnected from the grid, and continue to operate in "island mode" for either economic benefits or resiliency reasons.

Shawn Severson: Can you explain what energy resiliency is and what the advantages of microgrids are to that of conventional grid power?

Jim Crouse: Energy resilience is about ensuring a business has a reliable, constant supply of energy – both electrical and thermal energy. Some of the primary advantages of microgrids are that they can be designed to withstand power surges, natural disasters, bad weather, accidents, and equipment failure. Improved reliability, greater sustainability, and lower costs are also driving the transformation of isolated microgrids, such as island grids.

Shawn Severson: How does the Capstone technology fit into the shift towards microgrids, and can you explain how it helps customers build resiliency?

Jim Crouse: Capstone microturbines have many advantages as our turbines are compact, quiet and can easily be installed in multiples allowing for redundancy with less overall KW's. The microgrids can be connected to larger electricity grids; however, in the event of a widespread outage, microgrids will disconnect from the main grid and continue to operate independently to maintain the electricity supply to commercial and industrial businesses that are connected to the microgrids' electricity network. Additionally these customers can use the thermal energy from the microturbines to heat and/or cool providing not just resilient electricity but also resilient thermal energy.

Capstone microturbines were operating as "Microgrids" even before the term became popular. This is because our microturbines can operate either connected to a conventional power grid or completely isolated from it. We call this our "Grid Connect" and "Stand Alone" (or "Island") modes of operation. Our inverter output is also able to interact with other on-site generation, so we can either become the microgrids "grid forming" voltage source or let other local generation act as the grid reference, and we connect to it. And with our new Seamless Transfer capability in the C200 and C1000 Signature Series microturbines, we can go from Grid Connect to Stand Alone modes in less than one millisecond.

Shawn Severson: You have mentioned the microgrid megatrend as a specific driver for Capstone in the past and based on what is happening today, the move towards

microgrids, and behind the meter power generation is not slowing down anytime soon. What is Capstone doing to take advantage of this trend?

Jim Crouse: Resiliency and microgrids are in the news daily and are a big part of our marketing and sales efforts. From social media to trade shows to sales calls, we are constantly educating customers about the additional benefit Capstone provides to meet customers' need to reduce cost but also provide the power security that is becoming more and more valuable. We work with a balance of plant suppliers to find proven ways to provide economic, environmental, and resiliency benefits with a Capstone combined heat and power (CHP) system. Capstone is already actively participating in Microgrid project opportunities. We are planning to increase awareness of our capabilities using case studies of successful projects and by actively participating in the Microgrid databases managed by Global Data and others. Our new PowerSync family of controllers has the capability to manage a complete microgrid, and we are pursuing projects where Capstone takes more project responsibility for the complete solution.

Shawn Severson: Will you need to expand or enhance your distributor network to better capture these new opportunities, or can you do this with your current partners?

Jim Crouse: Our current distribution network has been developing microgrid projects for many years, as the market grows, we will continue to invest in training our existing distributors to expand with and compete in the market. Capstone has developed marketing tools that we will use both directly and with the distribution network. A significant amount of effort is placed on educating the specific community as well as project

developers about the many benefits of Capstone microturbine based inverter technology.

Shawn Severson: Do microgrids impact your long-term microturbine rental strategy, and if so, how so?

Jim Crouse: Microgrids and resiliency create additional markets for our new long-term microturbine rental fleet. The current plan is to grow the rental fleet from today's 6.4 MW to 10 MW early next year. Today we see most of that going to the oil and gas market, but we are looking at all opportunities that fit our growth strategies to 10 MW and beyond.

Shawn Severson: Could you provide an example of a project or two completed by Capstone that would help investors frame up how you identify, target, and compete for a Microgrid opportunity?

Jim Crouse: We have multiple projects around the world from the U.S. to Canada, to Mexico, Europe and Asia. However, three of the more interesting projects are BioMarin Pharmaceutical Inc., an American biotechnology company headquartered in San Rafael, California; Open Access Technologies Incorporated (OATI), headquartered in Minneapolis, Minnesota; and OATI and Plaza Extra Supermarket in St Thomas, U.S. Virgin Islands.

Shawn Severson: So, we've seen a large addition of total capacity around the world, with North America and the Asia Pacific being home to more than half of the operational microgrid capacity. Can you talk more about your strategies when it comes to geography expansion plans within the growing markets?

Jim Crouse: Capstone has a significant global presence with distributors in approximately 73

countries. These distributors are well trained to identify and pursue all opportunities in their regions. The capacity growth of microgrids in North America has been driven primarily by the economic value of CHP and the need for resiliency due to aging infrastructure and regions affected by severe weather events.

In the Asia Pacific, the drivers have been economical and lack of grid infrastructure in remote locations and islands. We have started to see microgrid and resiliency projects in the UK, Europe, and India. Many of our projects in the oil gas segment globally could be categorized as resiliency projects as we are the only source of on-site power. Another driver globally will be the productization of our microgrid and resiliency solutions, driving down cost, providing streamlined design and quick deployment.

Shawn Severson: As Capstone continues to diversify into new market verticals successfully, can you talk about the importance of the microgrid market specifically, and which markets have the best opportunity for Capstone (manufacturing, retail, hospitality, hospitals, data center, etc.)?

Jim Crouse: Virtually all of our major market verticals are candidates for microgrid solutions, the primary driver will be economical, and the customers need for increased resiliency. These discussions are part of our normal sales process.

Shawn Severson: In fiscal year of 2018, microgrids were 2% of Capstone's total revenue. When you look at industry trends driving Capstone, just how important could this market be? In other words, in your vision of the company over the next 3 to 5 years, how much could this sector grow to as part of your mix?

Jim Crouse: We see this as an important market and expect to see growth of up to 10% in the next 3 to 5 years. The growth will come in the form of new business for microgrid projects, increased average selling price as CHP projects that have the additional benefit of resiliency use Capstone product configurations with higher selling prices, the long-term service opportunity for these project is greater for the same reason, and we will also have the opportunity longer-term to supply the balance of plant service and equipment. In short, a certain amount of growth will be built in as the market move to these solutions.

Shawn Severson: Can you talk about your C65 Signature Series and the plans to improve its microgrid controls and battery storage capabilities?

Jim Crouse: Capstone C65 product already has built-in microgrid capabilities. The signature series C65S will build on these capabilities by providing a new, more powerful control platform, PowerSync. The PowerSync control is already used with our C200 and C1000 series of products and will give the C65S the same seamless transfer capabilities and make it easier to integrate the C65S into microgrids with multiple distributed generation technologies.

Shawn Severson: A trend Capstone specifically mentioned for combined heat and power (CHP) is the benefit of resilience for microgrids. Can you elaborate and also discuss your "plug and play" microgrid product that integrates into a wide range of microgrid applications?

Jim Crouse: CHP (or CCHP) is usually a significant part of any microgrid because of the efficiency/economic benefits. But it also increases resiliency because the heating and cooling outputs are tied to the microturbine

output, which can operate with or without the utility grid. Capstone microturbines are as close to “*plug and play*” as any product in the market today, and can easily integrate with other on-site generation such as solar PV inverters, battery storage systems, and traditional backup generators.

Shawn Severson: In light of the recent widespread power outages that have occurred in both New York City and London, can you discuss the benefits on how microgrids provide customers unlimited hours of power during a planned or unplanned power outage?

Jim Crouse: As it turns out, several of our microturbine installations in New York City were impacted by the recent midtown blackout. The two sites connected with hotels continued to operate as designed and could have continued to provide power indefinitely. It should be a wakeup call for building owners to see portions of the city almost completely dark and vulnerable when a well-designed microgrid using Capstone microturbines could have kept the lights on.

Shawn Severson: As many customers in today's business environment look to reduce their overall operating expenses, do microgrids play a part in offering customers the opportunity to control their future energy costs?

Jim Crouse: Most microgrids require a financial return or financial justification of some kind to allow for their installation. Microgrids that incorporate CHP typically provide that economic benefit. The economic calculation typically includes a comparison to the current energy provider, estimation of the value of resiliency, government incentives when they are available, and a valuation of the carbon

footprint reduction. Capstone and our global distribution network can help customers make these financial calculations and compare options.

Shawn Severson: What do microgrids offer customers that are concerned about the environment and reducing their carbon footprint?

Jim Crouse: First, Capstone microturbines are a very clean technology and meet some of the most stringent criteria pollutant standards in the world. Second, a typical microgrid application will include waste heat utilization (CHP), which increases overall fuel efficiency and reduces carbon emissions. Third, our microturbines are fuel flexible, and can operate on renewable fuels such as digester gas; renewable natural gas; landfill gas; and even hydrogen! This means we can even be carbon negative compared with other alternatives.

Shawn Severson: Thank you very much for taking time out of your busy schedule to speak with me, Jim.

Jim Crouse: My pleasure, Shawn.

SHAWN SEVERSON FOUNDER AND CEO

Mr. Severson founded *alphaDIRECT* Advisors, a division of EnergyTech Investor, LLC, in 2016 after seeing a significant communication and information gap developing between companies and the financial community. Mr. Severson has over 20 years of experience as a senior research analyst covering the technology and cleantech industries. Previously, he was Managing Director at the Blueshirt Group where he was the head of the Energy, Environmental and Industrial Technologies practice. Prior to the Blueshirt Group, Mr. Severson was at JMP Securities where he was a Senior Equity Research Analyst and Managing Director of the firm's Energy, Environmental & Industrial Technologies research team. Before joining JMP, he held senior positions at ThinkEquity, Robert W. Baird (London) and Raymond James. He began his career as an Equity Research Associate at Kemper Securities. He was frequently ranked as a top research analyst including one of the Wall Street Journal's "Best on the Street" stock pickers and multiple awards as Starmine's top three stock pickers.



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