

CLEANSPARK, INC. (NASDAQ: CLSK) An Energy Intelligence Company Growing with Microgrids

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Shawn Severson
Sustainable Investing & BioEconomy Research
shawn@watertowerresearch.com
+1 (312) 283 7595

KEY POINTS

- CleanSpark is a software and component company leveraged to the fast-growing market for microgrids
- The company's software intelligently models and manages microgrids to save money and optimize performance
- The global market for microgrids is expected to grow at a **CAGR of 28% from 2020-2029**
- CleanSpark sits among the top 10 microgrid controller companies in the world.
- The company's software is designed to drive a direct ROI for customers
- Management is pushing to drive higher margins by migrating the business model towards SaaS
- CleanSpark has posted seven consecutive quarters of year-over-year growth as of F3Q20
- Management is targeting \$10 Million in revenue for the 2020 fiscal year, an increase of 222% from \$4.5mm in 2019 and a target of \$40mm in FY2022
- Completed two strategic acquisitions (p2klabs in Feb and GridFabric in Aug), expanding software and service offerings, while being additive to revenue and profit margin
- Launched a strategic partnership platform in July 2020 to accelerate growth and gain market share. The platform provides a way for various participants (battery manufacturers, EPCs, and energy developers) to offer CLSK's software and controls as part of ongoing project proposals or as a reseller
- In October, CleanSpark announced an underwritten registered public offering of 4,444,445 shares of common stock at a price of \$9.00 per share for gross proceeds of ~\$40.0 million. These proceeds will be used for working capital requirements, sales and marketing, product development, and strategic acquisitions

CATALYST MONITOR

- Reach the breakeven point, which management expects to occur in FY20
- Additional add-on acquisitions
- Larger scale business wins
- Accelerating growth of SaaS revenue

KEY STATISTICS

Price:	\$9.28
52 Week Range:	\$0.97 - \$15.14
Avg. Daily Vol. (30 day)	3.3M
Shares Out (MM):	21.8
Market Cap (MM):	\$202.6
Institutional Ownerships	7.12%
Short Int. (MM) / % of float:	2.2 / 10.61%
Debt to Equity:	4.0%
Revenue TTM (MM):	\$10.4

Source: YCharts, *As of October 19, 2020

OUR INSIGHT

The Opportunities

We believe the market for microgrids are in a long-term secular growth trend. One of the key strategies is to make microgrid's smarter, which can optimize performance and drive a better ROI for customers. CleanSpark's software and hardware are vendor agnostic and can connect and communicate with any components of a microgrid regardless of brand. This compares to other industry solutions that are component specific and do not easily allow for a best-in-class approach in building a microgrid. CleanSpark's solution is based on intelligent energy software that can model, measure, monitor and adjust how a microgrid engages with the grid and the various assets. This is an ROI solution for customers.

The Obstacles

The company is a relatively small player in an industry dominated by much larger, very well capitalized competitors. CleanSpark has proven its ability to compete effectively but will need to continue to expand its sales network and ensure its software platform evolves with the industry. Management believes the company is well capitalized to achieve its near-term goals but reaching break-even is a critical milestone to reach in the next twelve months.

COMPANY OVERVIEW

CleanSpark, Inc (CLSK) is a software and services company providing advanced energy software and control technology that enables a plug-and-play and end-to-end enterprise energy solution in microgrid and distributed energy resource (DER) settings as well as hardware systems, specifically switch gear and energy storage solutions. The SaaS and Controls business accounts for approximately 30% of the company's revenue as of 3Q20 but carries an exceptional average margin of about 90%. The core of this business is an integrated software suite comprising mPulse and mVSO, with the core function of enabling a user to accurately model and intelligently manage a complex microgrid. Their software solutions can be widely implemented across commercial, industrial, military, and municipal establishments.

The hardware segment accounts for approximately 70% of revenue as of 3Q20 and carries an average margin of approximately 15%. Hardware sales primarily include switch gear equipment and energy storage solutions. All of CleanSpark's switchgear models are custom designed and manufactured to customer's specifications and requirements with the capability to support all major manufacturer's components. CleanSpark is also a reseller of energy storage batteries, which is a critical component of most microgrid systems. The company is targeting a 50% attachment rate with mPulse sales, which would help to significantly drive revenue going forward. The company is also working on partnerships with multiple battery groups, which will be of a marketing nature with the goal of being the preferred controls provider to as many battery groups as possible.

Financial Summary*

- Seven consecutive quarters of year-over-year growth
- Three-month quarter ending June 30, 2020 revenue of \$3,438,674 - up 181% from \$1,222,736 in 2019
- Total Orders Under Contract (including proposal pipeline) to be delivered in 2020 exceeds \$10 million as of June 30, 2020
- Focus on expanding margin through concentrated sales on software and services
- \$10 Million targeted revenue for the 2020 fiscal year, an increase of 222% from \$4.5 Million in 2019

Balance Sheet Strengthened: CleanSpark announced an underwritten registered public offering of 4,444,445 shares of common stock at a price of \$9.00 per share, for gross proceeds of ~\$40.0 million. The proceeds will be used for working capital requirements, sales and marketing, product development, general corporate purposes, and strategic acquisitions.

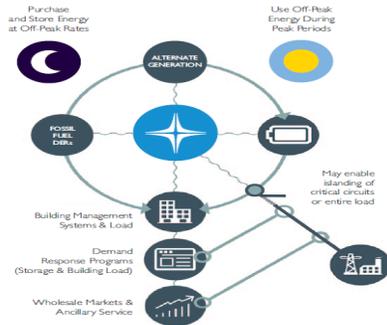
*All figures are based on a September 30, fiscal year end

SOFTWARE AS A SERVICE AND CONTROLS

CleanSpark’s integrated suite of software focus is providing end-to-end microgrid energy modelling and management solutions. The suite consists of two platforms - mVSO, a B2B SaaS product that provides energy modelling, and mPulse, a patented, proprietary platform that enables integration and optimization of multiple energy sources such as solar, batteries, and generators.

A critical aspect of CleanSpark’s software is that it is vendor agnostic to the what type of components are deployed and who they are manufactured by. An overview of CLSK’s end-to-end microgrid energy model is illustrated in Figure 1.

FIGURE 1—CLSK’s Integrated Model for Microgrids



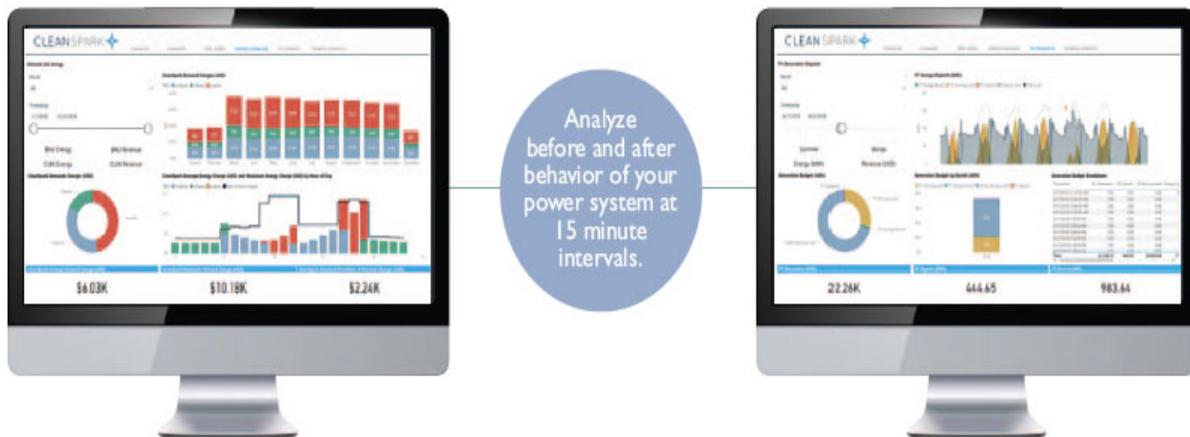
Source: Company presentation

mVSO

B2B SaaS Product for Energy Modelling

Given a facility’s expected power needs and a minimal set of other inputs, including the utility rate structure and the project’s location and physical constraints, mVSO solves for the optimal configuration of solar PV, energy storage, and generator microgrid. mVSO models the interaction of utility power, renewable generation, and energy storage to determine the economics and viability of projects from the beginning and provides detailed reporting of how various DERs in a microgrid are operated to provide the modelled value and customer ROI. mVSO facilitates end customer interaction with detailed reports and sales proposals to support microgrid project development.

FIGURE 2—mVSO Tools



Source: Company presentation

mPulse -Controller & Distributed Energy Resource Management System

mPulse is a distributed energy resource management system (DERMS) designed to work with microgrid applications. Microgrid Knowledge defines DERMS as “a state-of-the-art systems that seamlessly integrate high penetrations of solar energy and other distributed energy resources into the grid. When properly deployed, their capabilities provide multiple benefits to both utilities and their customers, a win-win. Consisting of a suite of software management tools that allow distribution utilities and wire operators to manage an array of DERs, they offer near real-time control of grid assets.” Navigant Research defines DERMS as “a control system that enables optimized control of the grid and DERs, including capabilities such as Volt/VAR optimization (VVO), power quality management and the coordination of DER dispatch to support operational needs.” Energy management software provides tools for reducing energy costs and consumption for buildings or communities. Energy management systems collect energy data and use it for three main purposes: Reporting, Monitoring, and Engagement. Reporting may include verification of energy data, benchmarking, and setting high-level energy use reduction targets. Monitoring includes data collection to support microgrid operations and maintenance, trend analysis, and tracking of energy consumption to identify cost-saving opportunities. Engagement can mean real-time responses (automated or manual) to utility signals, or the initiation of a dialogue between occupants and building managers to promote energy conservation.” mPulse uses monitoring and intelligent forecasting to optimize the microgrid’s performance during changing conditions. Through this type of optimization, mPulse provides a clear ROI for customers.

CleanSpark’s system is designed to be completely technology and hardware agnostic and integrate with any type of renewable generation asset, storage, conventional or legacy generation and controllable loads. Management states that unlike other control and energy management systems, cyber-physical security is built into all levels of CleanSpark’s technology. mPulse allows developers to utilize a plug-and-play approach and has the capability to evolve as the customers’ energy needs change over time, making it highly flexible and adaptive.

mPulse operation is originally informed by the microgrid operational model derived within the mVSO platform. Based on this upfront plan, mPulse collects and analyzes data 24/7 in order to provide real-time control and reporting. Using this granular historical operational data, the system continuously refines how it operates the resources it controls and optimizes based on changing electric rates, facility operation, and weather patterns. All of this translates into improved efficiency, a lower carbon footprint, and significant energy cost savings according to product literature.

FIGURE 3—mPulse Tools



Source: Company presentation

The mPulse DER Energy Manager manages power flow for optimal economics. According to the company, mPulse ensures secure, sustainable energy with a return on investment typically exhibiting payback periods of 4-7 years with unlevered post-tax IRRs ranging from 12-20%.

In September 2020, CleanSpark successfully deployed mPulse software on its latest microgrid project in Costa Rica to coordinate all aspects of the system and improve overall performance. This is the second project and first large scale deployment of the company’s mPulse software and controls in Costa Rica. With microgrid consisting of a 222-kW PV solar system and a Tesla 111-kW/223kWh power pack, this deployment will significantly reduce the use of grid power, while helping to reduce greenhouse gas emissions in the region.

AMONGST THE LARGEST PLAYERS IN MICROGRID CONTROLLER INDUSTRY

CleanSpark ranks among the top ten players in the global microgrid controller industry, ahead of ABB and General Electric according to a study by Navigant. The company cites that one of the key competitive advantages of CLSK over its larger rivals is that its products are vendor and hardware agnostic, which implies a larger market opportunity for their solution. The software is plug and play, enabling a best-in-class integration approach with minimal need for customization. The software’s flexible and intelligent architecture enables customers to fine tune it according to their needs.

FIGURE 4–The Navigant Research Leadership Scores in Microgrids

Rank	Company	Strategy	Execution	Total Score
1	Schweitzer Engineering Laboratories	77.0	91.0	84.3
2	Schneider Electric	91.0	75.8	83.7
3	Opus One Solutions	75.5	75.5	75.5
4	Encorp	69.8	74.0	71.9
5	Siemens	78.0	62.5	70.7
6	S&C Electric	69.8	67.3	68.5
7	PowerSecure	70.3	64.8	67.6
8	Spirae	67.3	61.8	64.6
9	Emerson Automation Solutions	49.5	72.8	62.2
10	CleanSpark	64.0	57.8	61.0
11	ABB	57.3	59.0	58.1
12	General Electric	62.0	52.0	57.2
13	Eaton	53.0	58.3	55.7
14	Lockheed Martin	56.0	49.8	53.0
15	OATI	35.0	53.5	45.2

Source: Company presentation

CleanSpark Believes it Has Competitive Advantages Over Most Solutions in The Market

Vendor and Hardware Agnostic: CLSK’s microgrid platforms are cost efficient and connect across a wide range of energy sources such as solar, fuel cells, CHP, micro turbines, generators, and traditional utility services with minimal human intervention.

Plug and Play Software: CLSK’s microgrid platforms leverage machine learning and advanced modeling and forecasting techniques to optimally manage energy across all resources, reducing greenhouse gas emissions and saving customers money. The learning aspect of the system enables a one-time commissioning of each site with the system automatically adjusting its control logic over time without further customer intervention.

Flexible and Intelligent Architecture: CLSK’s microgrid controls are efficient in terms of flexibility to the energy requirements of users. Users do not need to manually address the system to manage the capacity. System data is accessible through a hosted web platform on any device.

Patent Rights: CLSK received two patents from the United States Patent and Trademark Office (USPTO) for its software systems – one in April 2018 and the other recently in May 2020. While the 2018 patent specifically addresses engineering and data-analytics technologies, processes and procedures, the 2020 patent specifically protects CLSK’s proprietary system and method for distributing energy between microgrids, particularly addressing the challenge of determining when it is appropriate for one microgrid to share power with another microgrid.

Removal of Barriers for DER Aggregators by FERC to Benefit CleanSpark

Federal Energy Regulatory Commission’s (FERC) recent (Sept 2020) new order of removing barriers for distributed energy resource (DER) aggregators to participate in the wholesale capacity, energy,

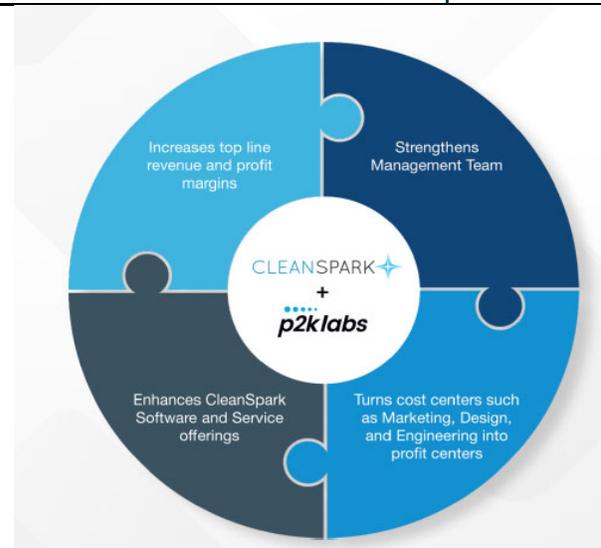
and ancillary service markets would prove to be a significant win for clean energy and alternative energy companies. The new rule should enable microgrid participants and DERs to participate alongside traditional resources to provide new sources of energy and grid services. For CleanSpark, this development presents massive opportunity in microgrid market as microgrid developers of all sizes should now be able to leverage CleanSpark's robust portfolio of patented technologies to add value for their customers. In other words, CleanSpark is well positioned to capitalize on this development with its core product line.

STRATEGIC ACQUISITIONS TO BE VALUE ACCRETIVE

In February 2020, CleanSpark acquired p2klabs Inc, a design and innovation consulting firm that creates intuitive digital experiences and journeys that help transform and grow businesses. The company believes the strategic move will enhance CLSK software and service offerings, increase revenues and strengthen the management team. Management has stated that it expects the acquisition will generate incremental revenues of \$2.0M annually. Approximately \$1.1M worth of contracts were signed through P2kLabs, Inc. in the first month of acquisition, and revenues during the five months ending June 30, 2020 jumped 128% to ~\$600,000 compared to the same period of 2019. CLSK targets \$2.0 million in p2klabs revenue prior to the first anniversary of the acquisition, January 31, 2021.

Subsequent to p2klabs acquisition, in August, CleanSpark completed a strategic acquisition of GridFabric, LLC. GridFabric creates OpenADR software solutions that help power utilities and IoT products in managing energy loads through its core products: Canvas (used by Grid Operators and Aggregators) and Plaid (used by controls and IoT product companies). As part of the deal, principals of GridFabric, Mr. Ben Dupont and Mr. Matt Hale joined the CleanSpark team. The acquisition will bring recurring revenue streams and positive cash flows while providing CleanSpark a competitive strength by advancing

FIGURE 5 –Benefits of P2klabs acquisition



Source: Company Presentation

FIGURE 6 – GridFabric's Energy Solution



Source: GridFabric website

its Demand Response programs integrated into mPulse distributed energy controls platform. GridFabric brings a significant 'built-in' client base that will immediately provide cross-selling opportunities for CleanSpark's core product lines. The company expects that the acquisition will add ~\$1 million in revenue over the coming year and significantly more in the following years.

Subsequent to the acquisition, in October, the company entered the Electric Vehicle (EV) charging station space, providing software solutions to aid in load management for EV charging stations and balancing the impact of increased power demand on the traditional grid. Amid rapidly growing demand of zero-emission vehicles, this entry could present a significant new market opportunity to CleanSpark. The OpenADR protocol allows EV charging companies and their customers to communicate with the utilities for demand response program that allows the utility to easily manage power distribution to the grid.

Launches Strategic Partnership Platform to Accelerate Growth

Recently (July 24, 2020), CLSK launched a strategic partnership platform that enables battery manufacturers, Engineering, Procurement, and Construction Companies, energy developers, and solar installers to work directly with CLSK and offer its software and controls as part of ongoing project proposals or as a reseller. Partners will have access to CLSK's mVSO energy project modeling software, proposal support, and co-marketing suite of services.

The platform represents a significant strategic milestone to increasing CLSK's reach and market share in the industry. The launch featured Bay Area Energy Solutions, a Northern California company providing microgrid services to estate homes and commercial businesses. On August 7, 2020, CLSK announced a partnership partnered with Sunshine Energy Corp., of Costa Rica. As per the agreement, Sunshine will license mVSO energy modeling software for exclusive use in Costa Rica and procure all energy controls and energy storage systems directly through the Company. On August 19, 2020, CLSK announced an exclusive agreement with International Land Alliance (ILAL), an international land investment and development firm based in San Diego, California. Under the agreement, CLSK will provide microgrid power solutions to more than 400 unique residential resort properties (252 fully 'off-grid' cabins in Valle Divino development in Ensenada, Baja, Mexico and 152 luxury villas within the Plaza Bajamar project – both 45 minutes from San Diego) as well as to all commercial facilities within both developments.

Hardware

CleanSpark has two main products in its hardware division: Switchgear and battery systems. Both components are key parts of a distributed energy generation system or microgrid. CleanSpark sells both low voltage and high voltage switchgear, which are custom designed and manufactured to

customer's specifications and requirements with the capability to support all major manufacturer's gen-sets. According to Wikipedia, "in an electric power system, switchgear is composed of electrical disconnect switches, fuses or circuit breakers used to control, protect and isolate electrical equipment. Switchgear is used both to de-energize equipment to allow work to be done and to clear faults downstream. This type of equipment is directly linked to the reliability of the electricity supply. One of the basic functions of switchgear is protection, which is interruption of short-circuit and overload fault currents while maintaining service to unaffected circuits. Switchgear also provides isolation of circuits from power supplies. Switchgear is also used to enhance system availability by allowing more than one source to feed a load, which is the basic premise behind a microgrid."

As part of the broader strategy, CleanSpark intends to maintain the switchgear business for the foreseeable future with steady revenues in the range of \$7mm annually and positive cash flow. This is not an area of strategic growth for the company but does generate a significant portion of revenue and importantly enables the company to get exposure to a larger subset of clients with switchgear as the point of the spear whereas management believes it has an opportunity to sell high value-added software and services.

Another key asset in a microgrid is the energy storage system and CleanSpark is focusing on becoming a reseller of batteries. According to Microgrid Knowledge, "modern storage systems are unique in that they are very fast responding resources that can both generate and absorb power and, in some cases, regulate real and reactive power quality in an electric distribution system. These capabilities allow storage to serve a variety of roles within a microgrid for instances where customers have a need for uninterrupted islanding, have no on-site generation, or need to supplement the on-site generation that exists in their distribution system. Energy storage should be viewed as a valuable asset that can provide significant added benefits to a microgrid. By providing instantaneous power generation, introducing the ability to absorb and discharge power, and helping to maintain power quality of an islanded system, storage systems can serve as the glue that holds the microgrid together while generating value during normal grid-tied operation. The speed of response allows storage systems to provide benefits some customer generation equipment cannot offer."

CleanSpark has stated that it views the battery reseller opportunity as a way to enhance revenue and improve profit margins in the hardware business as an add-on component that is highly synergistic with the existing product portfolio and strategy. Management has stated that they believe they can drive an attachment rate of 50% on all mPulse sales. The company is working on partnerships and wholesale relationships with multiple battery groups. The partnerships will be of a marketing nature, with the objective of becoming the preferred controls provider to as many battery groups as possible. CleanSpark's role in this will be to contribute to their marketing efforts both in sharing costs for combined presentations and supporting joint online marketing efforts. Management has stated a target for 2021 to average 3-5 battery sales per month at an average battery value of \$200k with some potential for higher dollar value wins on a one-off basis. According to management the battery

business can generate margins 10-15% higher than existing hardware margins and as such should be accretive to the overall margins of the company.

Continued contract wins reflect growing demand for CleanSpark’s hardware-based solutions: In September 2020, CleanSpark won a contract for multiple units of its intelligent switchgear equipment from a long-term energy development partner based in Houston, TX. Through this contract, the company received orders for five Switchgear units, generating additional revenue that will be recognized during the coming quarter. So far during the current fiscal year, CleanSpark has shipped in excess of \$7.4 million worth of Switchgear. In the same month, CleanSpark also received a contract to provide intelligent switchgear upgrades and support for a US Embassy located on the African continent for a term of 5 years. These continued developments in the company’s intelligent switchgear business reflect growing demand for its hardware-based solutions.

FINANCIAL REVIEW AND CAPITAL STRUCTURE

Revenue

CleanSpark has been delivering solid growth driven primarily by new software and energy storage wins and has posted seven consecutive quarters of YoY growth. Most recently, the company posted revenue for the first nine months of the fiscal year of \$8.1 million, which already surpasses the entire fiscal 2019 revenues of \$4.5 million by 80%. The backlog has also been growing and bodes well for the company’s ability to continue growth over the next couple quarters. The backlog currently (including proposal pipeline) stands at \$10Mil as of June 30, 2020. According to management, their backlog generally converts over a three-month period. Management has stated that it has targeted \$10 million in revenue for the 2020 fiscal year ending September 2020, which if achieved would imply an increase of 222% from \$4.5 Million in 2019.

FIGURE 7 – CLSK Revenues (\$ Mn)



Source: Bloomberg; WTR Research

Margins

Profit margins vary significantly depending on the mix of software and hardware. Software as a Service & Controls carry a gross margin of approximately 90%, while hardware averages a gross margin of 15% (switch gear 15% and energy storage systems 20%). This clearly shows that higher software sales should have a positive impact on the company's margin and is also aided by greater energy storage systems sales relative to switch gear as well. Management expects that total average margins at the company will expand over the coming quarters given their anticipated revenue mix and areas of growth.

Cash Flow and Capital Structure

In the most recently reported nine months ending June 30th, 2020, the company posted net cash used in operating activities of (\$3,679,081) compared to net cash used in operating activities of (\$5,792,028) over the same period as last year. This is an improvement of \$2,112,947 in cash flows related to operations, demonstrating that management's strategic plans are in fact creating a path to break-even and future profitability, if the trend continues.

Assets

As of June 30, 2020, the company had cash of approximately \$2.0 million with an additional \$421,500 in investments in equity securities and \$487,788 in investment available for sale debt security, at fair value.

The investments in equity securities is related a Memorandum of Understanding (MOU) with International Land Alliance, Inc., (ILAL-OTCQB) a vacation and retirement resort developer. The investment laid a foundational framework where CLSK obtained a 10 year exclusive right to provide its energy solutions products and services to ILAL throughout their development projects, and customers. In connection with the MOU, CleanSpark entered into a Securities Purchase Agreement and acquired 1,000 shares of Series B Preferred Stock of ILAL for an aggregate purchase price of US \$500,000. The Preferred Stock became convertible into common stock in May 2020. The number of conversion shares is equal to the face value of the Preferred Stock divided by the conversion price, which is defined at 65% of the 5 lowest individual daily volume weighted average prices of the common stock since the date of investment. If ILAL triggers certain rights the conversion rate improves in CLSK's favor by 10% for each event. In their June 30, 2020 10-Q the Company disclosed it believed two such events had occurred. For example, if the shares were issued at June 30, 2020 assuming the calculated price of ILAL shares based on the terms, approximately 1.5Mil of ILAL's common shares would be issued to CLSK at a value of \$0.735Mil or \$0.49 per share, which was the quoted price of the shares on June 30, 2020. In connection with the transaction, ILAL also issued 350,000 shares of its common stock to CleanSpark as commitment shares. The commitment shares are recorded at \$171,500, or \$0.49 per share, which was the quoted price of the shares on June 30, 2020.

Noteworthy Debt and Financial Instruments

In October, CleanSpark announced an underwritten registered public offering of 4,444,445 shares of common stock at a price of \$9.00 per share for gross proceeds of ~\$40.0 million and in doing so meaningfully altered its balance sheet in a positive way. These proceeds will be used for working capital requirements, sales and marketing, product development, and strategic acquisitions. Also critical is that company has eliminated an overhanging financial instrument that was fully converted into equity as of June 30, 2020 as further detailed below.

On December 31, 2018, CleanSpark entered into a Securities Purchase Agreement with an institutional investor issuing a \$5,250,000 face value Senior Secured Redeemable Convertible Debenture with a 7.5% original issue discount, a common stock purchase warrant on a cash-only basis to acquire up to 308,333 shares of common stock and 10,000 shares of common stock.

On April 17, 2019, CleanSpark entered into a Securities Purchase Agreement with an institutional investor issuing a \$10,750,000 face value Senior Secured Redeemable Convertible Promissory Note with a 7.5% original issue discount, a common stock purchase warrant on a cash-only basis to acquire up to 230,000 shares of common stock and 125,000 shares of common stock. The aggregate purchase price for the Debenture, the Warrants and the Common Stock was \$10,000,000.

As of June 30, 2020, both (December 31, 2018 and April 17, 2019) the Debentures were fully converted into shares of the company's common stock.

INDUSTRY OVERVIEW

What are Microgrids?

According to [Wikipedia](#), a microgrid is a localized group of electricity sources and loads that normally operates connected to and synchronous with the traditional wide area synchronous grid (microgrid), but can also disconnect to "island mode" — and function autonomously as physical or economic conditions dictate. This structure enables a microgrid to integrate various sources of distributed generation, especially renewable energy sources, providing emergency power through island and connected modes.

Grid-connected – the most prevalent in North America: Of the two modes, grid-connected is widely prevalent and growing in North America due to higher reliability than remote, island microgrids, because of their connectivity with the main grid. Additionally, the grid-connected microgrids offer ancillary services such as trading energy between the microgrid and the main grid, creating potential revenue streams.

Segmental analysis –By location

Microgrids can be broadly categorized into three types based on their location – Remote off-grid microgrids, Urban microgrids, and military microgrids.

Remote off-grid microgrids: These are standalone microgrids operating in island mode in far-away remote locations with no access to the main grid. However, these microgrids can be connected to other similar neighbouring grids to exchange power as well as to minimize voltage fluctuations typical with these self-sufficient microgrids that intermittently use renewable sources. These microgrids form the bulk of the total microgrids market as they are the only source of energy in remote areas.

Urban and Commercial microgrids: These are in cities/towns and industrial areas to serve communities (Community Microgrids) and commercial establishments (commercial & industrial microgrids). Community microgrids may encompass a centralized or distributed energy storage system (some houses having their own renewable sources) and provide electricity, heating, and cooling to several thousand houses in a community. Commercial and industrial microgrids are primarily installed to ensure reliable and secure power supply, the absence of which may cause significant business loss to several manufacturing industries. These microgrids have limited growth in North America and Asia-Pacific, due in part to the lack of standards and the availability of secure power supply by main grids in certain industrial areas.

Military microgrids: Like commercial and industrial microgrids, the primary reason for installation of microgrids at military facilities is to ensure reliable and secure power without relying on the main grid.

Aging Grid and Rising Demand of Renewable Energy Sources Driving Microgrids

There are a number of factors driving the growth in microgrids, but some of the more prevalent include aging grid infrastructure, increasing demand for clean energy, cyber-attacks on energy infrastructure, expansion of renewable energy capacity of all countries of APAC.

Aging grids: Increases in loads along with lack of new large-scale generation facilities are making traditional grids unstable and unreliable. This problem is being compounded by the push to integrate a growing number and variety of renewable but intermittent energy generators and advanced technologies into outdated electrical systems. Additionally, global power grids are prone to several threats including extreme weather, earthquakes, wildfires, and terrorist threats. In the US, while most cities consider microgrids to ensure continuous power supply to the US military's Smart Power Infrastructure Demonstration for Energy Reliability and Security (SPIDERS) aims to provide power to critical facilities in the event of an attack. As microgrids are localized, they avoid many of these problems and are being increasingly sought as an alternative to the traditional grids.

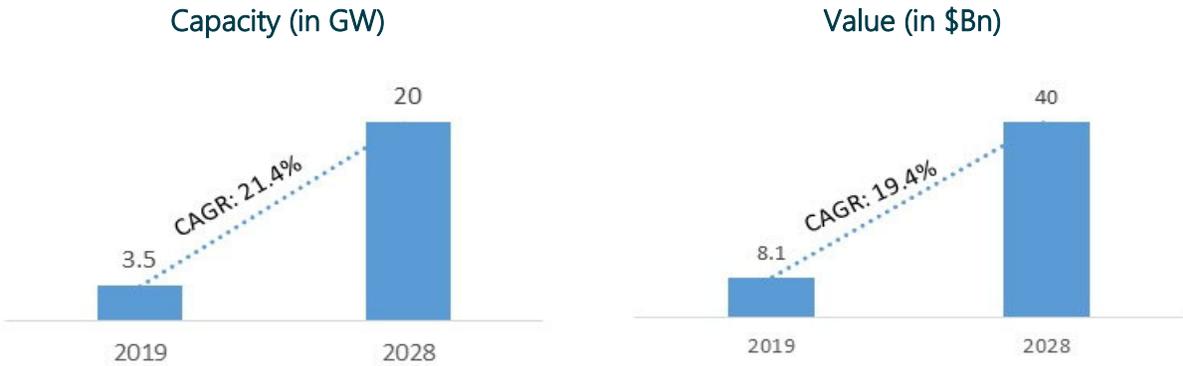
Demand of Renewable Energy Sources for Power Generation: Rapid proliferation of renewable energy sources such as bio power, solar and wind energy, driven by the need to reduce carbon emissions, continues to be the key demand driver for microgrids. According to the International Energy Agency (IEA), renewable sources will account for 40% of global power mix by 2040, from 25% today. Rising environmental concerns of carbon emissions from fossil fuels continue to encourage several governments take initiatives to support renewable energy sources, and microgrid will form a core component facilitating their growth.

Distributed energy resource (DER) systems: From being typical low-voltage AC grids using diesel generators, microgrids are increasingly employing a mixture of different distributed energy resources, small-scale power generation or storage technologies that employ various devices technologies primarily using renewables. These DER systems include biomass, combined heat and power (CHP), fuel cells, hydroelectric, solar PV, and wind, amongst others. Microgrids aggregate and optimize these DERs and represent a key component of an emerging Energy Cloud focused on resilience and renewable energy integration, and with the right set of control technologies, they not only provide energy at sites but also offer value upstream to the larger grid.

Significant market potential – ~30% over next ten years to reach \$40 billion

According to Navigant Research, total microgrid capacity is expected to grow multi-fold over the next decade – reaching 20GW by 2029 from 3.5GW currently. In terms of value, the global market for microgrids is expected to witness a robust CAGR of ~20% through 2028 to reach \$40 billion. According to the research firm, Asia Pacific will continue to be the largest overall market for microgrids, with remote segments making up the majority opportunity, while North America remains the top market for grid-tied microgrids, driven by a burst of new projects in 2019.

FIGURE 8—Global Microgrid Market Size - Volume (Capacity) and Value (\$)

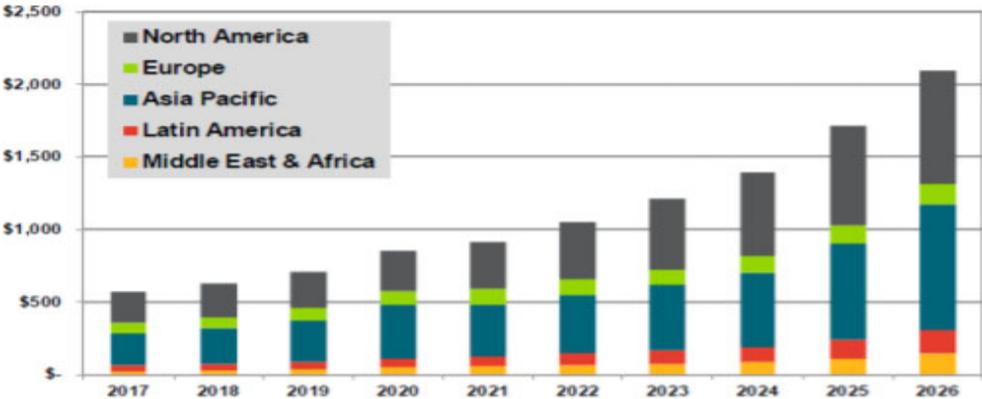


Source: Navigant Research 2019

Microgrids must use software to achieve optimal results

Although hardware assets are the most common and typically serve as the backbone of the microgrid value proposition, microgrid controllers and a host of control technologies enabling their implementation can be viewed as the brain centre of microgrids, presenting significant opportunities for several companies including CLSK. As per a 2018 report by Navigant Research, microgrid controls market is expected to cross \$2.0 billion by 2026 from just \$500 million in 2017.

Figure 9– Microgrid Controls - Market Size (\$ Mn)



Source: Navigant Research 2018, Company presentation Dec 2018

The Company’s software is uniquely placed in that it helps enable a microgrid to be scaled to the user’s specific needs and can be widely implemented across commercial, industrial, military, agriculture, and municipal deployments. Their Integrated suite of software encompassing mVSO and mPulse provides end-to-end microgrid energy modelling and management solution.

RISK ASSESSMENT

Limited Operating History

Limited operating history makes it difficult to evaluate the overall business of a company. Since shifting business focus to microgrid software in 2016, CLSK has generated low sales volume and sustained cumulative losses to the tune of \$93M and recorded a net loss for the year ended September 30, 2019 of \$26M. Although it should be noted that the majority of these losses are non-cash losses and relate to depreciation, amortization and phantom losses related to financing transactions. The Company reported their non-GAAP Adjusted EBITDA loss was \$(4.9M) in FYE 2019 and \$(1.7M) in FYE 2018.

Intensely Competitive Environment

The market for renewable energy products, microgrid technology and related services is highly competitive. Progressing industry standards, rapid price changes and product obsolescence also impact the market. Many domestic, foreign competitors carry significantly greater financial, marketing personnel and other resources. The company believes its success is dependent on their ability to develop superior and cost-effective products. Since the competition is intense, the company may require regular product upgrades and launch new ones to match rapidly changing/evolving technologies.

COMPARABLES

CLSK's primary focus is providing software and control technologies to the microgrids industry. Although there are large microgrid companies, very few provide standalone software to microgrids. The majority of the companies are large integrated providers of microgrids including the physical infrastructure and the associated controls and software.

Schneider Electric

Schneider Electric is a European multinational company providing energy and automation digital solutions for efficiency and sustainability. They address homes, buildings, data centers, infrastructure and industries, by combining energy technologies, real-time automation, software and services. The company offers EcoStruxure Grid from seamless local production and integration at the grid edge to bridge demand and supply. This grid increases the grid's efficiency for sustainable networks. <https://www.se.com/>

Schweitzer Engineering Laboratories

Schweitzer Engineering Laboratories, Inc. designs, manufactures, and supports products and services ranging from generator and transmission protection to distribution automation and control systems. SEL are the experts at microgrid design, specializing in power system dynamics, hardware-in-the-loop (HIL) modelling, controls and protection. With SEL microgrid systems, one can operate an independent power system that prevents blackout, optimizes distributed energy resource operational costs, and protects people from injury and equipment from damage during events of short-circuit. <https://selinc.com/>

Opus One Solutions

Opus One Solutions is a software engineering and solutions company empowering utilities in a decentralized energy economy. It offers Microgrid Management Solutions such as Premise, Community and Utility microgrids. <https://www.opusonesolutions.com/>

Encorp

Encorp is one of the only microgrid vendors in the industry focused on delivering microgrids to diverse clients ranging from military bases and utilities to small commercial entities of all shapes and sizes. The Company's EncorpEgility control platform provides a modular and configurable approach to assembling and managing a microgrid, enabling the integration and control of multiple DERs without the need for costly customized software. <http://encorp.com/>

Siemens

Siemens is a developer in infrastructure and energy solutions, automation and software for industry and is a leader in medical diagnosis. Siemens provides business-to-business financial solutions, rail automation and wind. It also offers Energy automation and smart grids. <https://new.siemens.com/global/en.html>

ABB

ABB is a global engineering company that energizes the transformation of society and industry to achieve a more productive and sustainable future. It connects software to its electrification, robotics, automation and motion portfolio. The company also offers solar packages with the integrated energy storage solutions, utility-scale turnkey solutions and microgrid solutions. <https://new.abb.com/>

General Electric

General Electric Company operates worldwide through its four industrial segments — Power, Renewable Energy, Aviation and Healthcare and its financial services segment Capital. The company has brought all its renewable and grid assets into the business by creating a differentiated offering that can both produce renewable energy reliably and safely integrate it into electrical grids. <https://www.ge.com/>

MANAGEMENT OVERVIEW**ZACHARY K. BRADFORD****CHIEF EXECUTIVE OFFICER AND PRESIDENT**

Zachary K. Bradford is a licensed Certified Public Accountant in Nevada and a member of the American Institute of Certified Public Accountants. He served as the Company's Chief Financial Officer from 2014 through October 2019. He has also served as a partner in a public accounting and consulting firm in Henderson, Nevada since June 2013. Mr. Bradford holds a B.S. in Accounting and a Masters of Accountancy from Southern Utah University. From March of 2015 to July 31, 2016, Mr. Bradford served as a member of the board of directors and Chief Financial Officer of Epic Stores Corp.

LORI LOVE**CHIEF FINANCIAL OFFICER**

Lori Love is a licensed CPA and an experienced finance professional serving in roles in accounting, finance, and risk management. Since July 2015, Ms. Love served as CFO of P2K Labs, a design, technology, and marketing agency based in Las Vegas, Nevada. Prior to 2015, Ms. Love served in the role of Senior Vice President of Finance at Provident Trust Group for over two years and as Vice President of Finance and Operations at WorldDoc, Inc. where she also served as a director. Ms. Love obtained her Bachelor of Business Administration (BBA) in Accounting from University of Nevada, Las Vegas and carries the CPA designation.

AMANDA KABAK**CHIEF TECHNOLOGY OFFICER**

Amanda Kabak is an experienced technology professional with nearly a decade of hands-on and managerial experience in cloud-native and hybrid-cloud platforms. Before joining CleanSpark, Ms. Kabak was a managing consultant for 10th Magnitude, a cloud consulting company and valued Microsoft Partner. Prior to that, she was the Sr. Software Architect at OptiRTC, Inc., an industrial IoT company with a cloud-native platform focused on stormwater management.

AMER TADAYON**CHIEF REVENUE OFFICER**

An experienced executive and entrepreneur, Amer spent the last 25 years in technology, marketing, sales, and design. He is founder and CEO of p2klabs, Inc. and has held leadership positions at Fortune 500 companies including IBM, Cognizant, and frog design. In addition, he has worked with major global brands such as Nike, MTV, and Mattel.

ABOUT THE ANALYST

Shawn Severson, Co-Founder of Water Tower Research
Head of Sustainable Investing and BioEconomy Research



Prior to co-founding Water Tower Research and previously founding predecessor firm alphaDIRECT Advisors, Shawn spent over 20 years as a senior equity research analyst covering the Technology and ClimateTech sectors, including senior positions at JMP Securities, ThinkEquity, Robert W. Baird (London) and Raymond James, and he started his career as an equity research associate at Kemper Securities.

Shawn was frequently ranked as a top research analyst including one of the Wall Street Journal's "Best on the Street" stock pickers and a StarMine Analyst Awards Top 3 stock picker. Shawn's extensive professional experience also includes his former role as Managing Director of the Energy, Environmental and Industrial Technologies Practice at The Blueshirt Group, a leading investor relations and IPO advisory firm. Shawn holds a BA in Finance and Economics from Augustana College.

Mr. Severson heads the Sustainable Investing and BioEconomy Research practices at Water Tower Research. Our ClimateTech & Sustainable Investing research focus is guided by two key principals: Sustainability and Resiliency. We define sustainability by the ability of a product or service to lower the overall carbon footprint and/or reduce resource consumption. This can be driven by a variety of factors including renewable power generation, renewable fuels and chemicals, energy efficiency, resource management, emissions control, and the broader bioeconomy. We measure resiliency by the ability of the company's business model and product to sustain long-term growth; is it flexible enough to adjust and navigate through a variety of external events; and will demand for the company's product or service likely perform above average through economic cycles, regulatory shifts, geopolitical volatility, and pandemics. The Emerging Growth research platform is focused on companies and industries that are on the leading edge of technology and innovation but have not yet reached commercial scale. This spans across numerous sectors but carries the common theme that the company is bringing a "disrupter" technology to market. We also include research on highly differentiated specialty companies that do not necessarily fit within a specific industry sector definition, however, their technology promises to be transformative to one or more end markets.

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Shawn Severson, who is the writer of this report. Mr. Severson covers 9 different companies for us in the ClimateTech & Sustainable Investing and Emerging Growth sectors.

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