

## UPDATE NOTE

ELECTROVAYA, INC. | EQUITY RESEARCH



### ELECTROVAYA, INC.

(OTCMKTS: EFLVF TSX: EFL)

Powering Ahead With Lithium-Ion Batteries For Material Handling and Electric Vehicles

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#### KEY POINTS

- This note provides a summary of recently published open access research on Electrovaya Inc. (EFL), which can also be accessed on our [website](#).
- Lithium-ion batteries (LIBs) are finding growing applications in industrial vehicles like forklifts, lift trucks, electric vehicles, stationary energy storage, and consumer electronics, among others, with Electrovaya well positioned to leverage this megatrend.
- Electrovaya has over two decades of experience. Management believes it has a unique, differentiating technology that delivers greater safety and greater longevity, without compromising the energy and power of other batteries commercially available today. The company holds over 100 patents for its technology and processes, focusing on two disruptive tech platforms, i.e., Infinity and Solid State.
- Infinity is based on lithium-ion ceramic technology. It offers industry-leading safety and the highest longevity without compromising energy and power versus competing for lithium-ion technologies. The second focus is next-generation, solid-state batteries (SSB), which are still in the nascent stage but are a natural evolution.
- The Infinity platform is a proven technology that has already been installed in around 20,000 Mercedes Smart automobiles and thousands of material-handling (MH) vehicles, many of which are produced by Raymond, a Toyota Group subsidiary.
- Electrovaya targets applications that need one or two recharge cycles daily (MH vehicles, e-buses, and e-trucks). MH is on top of that list, and the company has made a very strong entry into that segment, potentially a \$20 billion addressable market.
- Electrovaya does not expect any capacity constraints for the next two years and is trying to localize the supply chain by keeping it in North America to shorten lead times for better control.
- Our prior content on EFL can be accessed [HERE](#).

#### KEY STATISTICS

Price*	\$0.74
52-Week Range	\$0.55 - \$1.37
Avg. Daily Vol. (30 day)	56,503
Shares Out (MM)	146.31
Market Cap (\$MM)	\$108.27
Enterprise Value (\$MM)	\$116.23
Revenue TTM (\$MM)	\$8.45
Fiscal Year End	September

Source: YCharts, \*April 18, 2022

#### OUR INSIGHTS

##### The Opportunities

Electrovaya is uniquely positioned to leverage the rapid growth in lithium-ion battery demand. Demonstrating the company's progress and technology are its strategic relationships with major OEMs, including Raymond and Toyota. In addition, Electrovaya batteries are being used by major material-handling customers, including Walmart, Mars, Home Depot, and a large online retailer. Additionally, there is also a robust opportunity to retrofit existing lithium-ion units from lead-acid batteries. The company believes there are additional opportunities in buses and Class 3 trucks, and recently inked a supply agreement with Vicinity Motors. Solid-state batteries represent the second stage of growth and are a sea change technology under development, with 2023 targeted for launch.

##### The Obstacles

The company has successfully pivoted from e-passenger cars to material handling and commercial vehicles. However, there is still execution risk as the company grows its commercial presence. Furthermore, the performance and commercial viability of the company's SSB platform is still unknown.

## COMPANY OVERVIEW

Electrovaya is a leading manufacturer of safe and long-lasting lithium-ion batteries with differentiated performance and safety attributes, according to the company. The company has two primary battery platforms: Infinity and Solid State. The Infinity battery platform targets commercial vehicles, including lithium-ion e-forklift, e-bus, and e-trucks. This product has been launched commercially through global partners, including Toyota, Raymond, and Walmart. To date, Infinity sales have been primarily to the material handling industry, where lithium-ion batteries are replacing lead-acid batteries and, to some degree, fuel cells. The company's batteries can also be used in larger grid-scale energy storage. The Solid State platform (SSB) is under development and targeted to launch in 2023, focusing on creating the lowest initial \$/energy (kWh) and highest energy density. The target market for SSB will be electric passenger cars where a low initial cost (sticker price) is required. Electrovaya sells its battery solutions through two primary channels: OEM strategic supply agreements and a direct sales force. It primarily utilizes strategic partners for battery sales into new equipment or vehicle production and its direct sales force for the retrofit market. In addition to the two battery platforms, Electrovaya also develops cells, modules, battery management systems, software, and firmware necessary to deliver the systems. Electrovaya has substantial intellectual property in the lithium-ion battery sector and continues to carry out research and development activities in lithium-ion batteries, with over 100 patents in their portfolio. In June 2021, a new operating division named Electrovaya Labs was formed to focus on the R&D and commercialization of other disruptive technologies, including next-gen solid-state cells and a unique patented electrode processing technology. Electrovaya Inc. was founded in 1996 and is headquartered in Mississauga, Canada.

### The Technology

**Infinity Battery Platform:** According to Grand View Research, the global lithium-ion battery market was valued at \$53.6 billion in 2020 and is expected to cross \$216.5 billion by 2028, representing a CAGR of 19%. The Infinity lithium batteries are based on proprietary ceramic technologies, allowing improved safety and longevity without compromising energy and power. The EV-44 is Electrovaya's primary lithium-ion ceramic cell and meets the most stringent safety, energy density, cycle life, and performance standards. In addition, Electrovaya's battery systems are designed to be scaled through a modular approach, which provides flexibility for an application's specific capacity requirements.

**Solid State Platform:** According to Grand View Research, the global solid-state battery market was valued at \$590.9 million in 2020 and is expected to cross \$5.3 billion by 2028, representing a CAGR of 36%. Electrovaya believes it is well-positioned for this next-generation battery technology. Its division, Electrovaya Labs, focuses on developing solid-state battery technology and has targeted 2023 for the debut of its solid-state battery platform.

**Battery Management Systems:** Electrovaya's fifth-generation BMS provides the highest levels of cell balancing, IoT functionality, and safety. Reviewed and certified by UL to UL991 and UL1998 for specific applications, it is available for both low voltage and high voltage battery systems. Electrovaya's hardware and firmware engineering team keep advancing and improving this technology to keep up with the increasing demands of the e-mobility industry. Electrovaya has launched a cloud-based battery analytics system for recurring revenues with a subscription model. The system monitors battery health, utilization, and charging to provide customers with optimized fleet and charging management. Furthermore, the system improves the capability and efficiency of troubleshooting and maintenance. Several customers have started using this analytics system.

### The Markets

**Material Handling:** The material handling industry is undergoing a massive sea change from lead-acid batteries to alternative power sources, including lithium-ion and fuel cells. Electrovaya has notable success in penetrating the material handling market as management believes it has arguably the highest performing battery solution today. In addition, the company's customers have proven meaningful RIOs in material handling compared to lead-acid, showing paybacks as short as a month, opening a significant opportunity for new units sold and retrofits.

**E-Mobility:** In October 2021, Electrovaya announced a strategic supply agreement with e-bus and e-truck manufacturer [Vicinity Motor Corp.](#) for EV buses and fully electric VMC I200 Class 3 trucks. Management believes this is opening a new market for their batteries, and it is targeting further development and commercialization in this market. The company's solid-state battery platform will also target this market, with an expected launch date in 2023.

### RESEARCH SUMMARY

#### Initiation of Coverage Report

**January 20, 2022:** [Powering Ahead With Lithium-Ion Batteries For Material Handling and Electric Vehicles](#)

Extensive coverage on Electrovaya assessing key opportunities, obstacles, technology, industry, risks, competition, financials, management profiles, etc.

#### Fireside Chat Summary

**February 15, 2022:** [WTR Fireside Chat Series: Electrovaya COO Raj DasGupta to Provide a Business Overview on February 17 at 2:00pm EST](#)

We hosted Electrovaya COO Raj DasGupta to provide an overview of company's lithium-ion and solid-state battery platforms and growth strategy.

**March 8, 2022:** [Fireside Chat: Dr. Sankar DasGupta, Co-Founder and CEO of Electrovaya, Inc. March 11, 2022 at 11:00 am EST](#)

We hosted Dr. Sankar DasGupta, Co-Founder and CEO of Electrovaya to discuss the technology of the Lithium-ion Ceramic Infinity battery platform and its suitability for the material handling market as well as commercial transportation..

#### Management Series Summary

**March 10, 2022:** [Two Key Battery Platforms to Drive Growth in Commercial Scale Lithium-Ion and Solid-State Batteries \(SSBs\) On The Horizon](#)

Dr. Raj DasGupta talks about Electrovaya's breakthrough technology, target market, competition, financial expectations, and more.

#### Update Note Summary

**February 17, 2022:** [1Q22 Results: On Course to Fulfill an Aggressive Revenue Target of \\$27 Million in FY22](#)

Electrovaya reported 1Q22 earnings results. The company reiterated its revenue guidance of ~\$27 million for FY22, clearly indicating ways to get there. Electrovaya expects to achieve this through strategic supply agreements (~\$15 million with Raymond Corp).

### ABOUT THE ANALYST



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Shawn Severson is President & Co-Founder of Water Tower Research and is a member of the Board of Managers. 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.

Shawn 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 holds a BA in Finance and Economics from Augustana College.

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