



**Management's Discussion
and Analysis
For the Three and Six Months Ended June 30, 2022**



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**MANAGEMENT’S DISCUSSION AND ANALYSIS
FOR THE THREE MONTHS ENDED JUNE 30, 2022**

The following discussion and analysis of the operations, results, and financial position of POET Technologies Inc., (the “Company” or “POET”) for the three and six months ended June 30, 2022 (the “Period”) should be read in conjunction with the Company’s unaudited condensed consolidated financial statements for the three and six months ended June 30, 2022 and audited consolidated financial statements for the year ended December 31, 2021 and the related notes thereto, both of which were prepared in accordance with International Financial Reporting Standards (“IFRS”). The effective date of this report is August 8, 2022. All financial figures are in United States dollars (“USD”) unless otherwise indicated. The abbreviation “U.S.” used throughout refers to the United States of America.

Forward-Looking Statements

This management discussion and analysis contains forward-looking statements that involve risks and uncertainties. It uses words such as “may”, “would”, “could”, “will”, “likely”, “expect”, “anticipate”, “believe”, “intend”, “plan”, “forecast”, “project”, “estimate”, and other similar expressions to identify forward-looking statements. Forward-looking statements are subject to a variety of risks and uncertainties which could cause actual events or results to differ from those reflected in the forward-looking statements, including, without limitation, risks and uncertainties relating to the early stage of the Company’s development and the possibility that future development of the Company’s technology and business will not be consistent with management’s expectations, difficulties in achieving commercial production or interruptions in such production if achieved, inherent risks of managing design and development operations in multiple countries, risks associated with supplier and sub-contractor delays and other operating uncertainties, the inherent uncertainty of cost estimates and the potential for unexpected costs and expenses, the uncertainty of profitability and cessation of business for failure to obtain adequate financing on a timely basis, amongst other factors. The Company undertakes no obligation to update forward-looking statements if circumstances or Management’s estimates or opinions should change, except to the extent required by law. The reader is cautioned not to place undue reliance on forward-looking statements.

Joint Venture with Xiamen Sanan Integrated Circuit Co. Ltd.

On October 21, 2020, the Company signed a Joint Venture Agreement (“JVA”) establishing a joint venture company, Super Photonics Xiamen Co., Ltd (“SPX”) with Xiamen Sanan Integrated Circuit Co. Ltd. (“Sanan IC”) whose purpose is to design, develop, manufacture and sell 100G, 200G and 400G optical engines based on POET’s proprietary Optical Interposer platform technology.

SPX’S capitalization will consist of a combination of committed cash, capital equipment and intellectual property from Sanan IC and intellectual property and know-how from POET, with a combined estimated value of approximately US\$50M. Capitalization is on-going and has not yet been completed. POET’s contribution of certain intellectual property and know-how was valued by an independent appraiser at \$22.5M. Sanan IC will contribute cash of approximately \$25M for capital equipment and operating expenses over a 2-3 year period, with

the expectation that the eventual ownership of the JV will be approximately 52% Sanan IC and 48% POET. SPX is an independent company and is operated as a true joint venture, so its financial results are not consolidated into POET's but are reported as a gain in the value of the contribution to the JV and a gain or loss in the Company's percentage ownership of the JV.

Sanan IC is a world-class wafer foundry service company with an advanced compound semiconductor technology platform, serving the optical, RF microelectronics and power electronics markets. Sanan IC is a wholly owned subsidiary of Sanan Optoelectronics Co., Ltd. (Shanghai Stock Exchange, SSE: 600703), the leading manufacturer of advanced ultra-high brightness LED epitaxial wafers and chips in the world.

Significant progress on SPX included the registration of SPX, appointment of the board of directors and key personnel, hiring of 36 employees, completion of 5,000 square feet of temporary facilities, ordering of key capital equipment for installation and qualification and outflow of approximately US\$7 million from Sanan IC to cover initial operating and capital expenditures to be contributed to the JV.

While each joint venturer has appointed one member to the Board of Directors of SPX, the company will have its own governance and management structure and will be operated under the laws of the Peoples Republic of China.

During 2021, the Company recognized a gain of \$2,587,500 related to its contribution of intellectual property to SPX in accordance with IAS 28. The Company only recognized a gain on the contribution of the intellectual property equivalent to the Sanan IC's interest in SPX, the unrecognized gain of \$19,912,500 will be applied against the investment and periodically realized as the Company's ownership interest in SPX is reduced. As at June 30, 2022, Sanan IC's and the Company's ownership interests were approximately 11.5% and 88.5% respectively.

The Company's investment in joint venture can be summarized as follows:

Balance, January 1, 2021	\$ -
Contribution of intellectual property	22,500,000
Unrecognized gain on contribution of intellectual property	(19,912,500)
Share of loss in joint venture for the year ended December 31, 2021	(1,142,249)
Investment balance, December 31, 2021	1,445,251
Share of loss in joint venture for the six months ended June 30, 2022	(1,176,282)
Effect of changes in foreign exchange rates	(32,023)
Investment balance, June 30, 2022	\$ 236,946

Summarized financial information of the joint venture is as follows:

	December 31, 2021	June 30, 2022
Current assets	\$ 2,287,252	\$ 765,642
Intangible assets	\$ 22,500,000	\$ 21,407,239
Liabilities	\$ (44,683)	\$ (360,187)
Owners Equity	\$(24,742,569)	\$(21,812,694)
Net loss for the six months ended June 30, 2021 and 2022	\$ -	\$ 1,329,525

BUSINESS

Overview

The Company is incorporated under the laws of the Province of Ontario. The Company's shares trade under the symbol "POET" on the Nasdaq in the U.S and under the symbol "PTK" on the TSX Venture Exchange in Canada.

POET Technologies is a design and development company offering photonic integration solutions based on the POET Optical Interposer™, a novel platform that allows the seamless integration of electronic and photonic devices into a single multi-chip module using advanced wafer-level semiconductor manufacturing techniques and packaging methods. POET's Optical Interposer eliminates costly components and labor-intensive assembly, alignment, burn-in and testing methods employed in conventional photonics. We believe the cost-efficient integration scheme and scalability of the POET Optical Interposer brings value to devices or systems that integrate electronics and photonics, including high-growth areas of communications and computing, such as high-speed networking for cloud service providers and data centers, 5G networks, machine-to-machine communication, sometimes referred to as the "Internet of Things" (IoT), self-contained "Edge" computing applications, such as inference engines for Artificial Intelligence (AI) systems and sensing applications, such as LIDAR systems for autonomous vehicles and point-of-use health care products.

POET targeted as the first application of the Optical Interposer the development of optical engines for transceivers used in data centers. Transceivers are used to convert digital electronic signals into light signals and vice versa, and to transmit and receive those light signals via fiber optic cables within datacenters and between datacenters and metropolitan centers in a vast data and tele-communications network.

In its initial target market of optical transceiver modules, the Corporation believes that, because of its ability to produce, test and burn-in optical engines fully at wafer-scale, that it can deliver devices that are: a) lower in cost by a factor of 25% to 40% than competitive assemblies; and b) that those sub-assemblies can be produced at a capital cost that is 90% lower than conventional approaches. In addition, because of its fundamental design and architecture, the POET Optical Interposer platform can be used for multiple product designs, multiple generations of the same product and multiple product extensions. The Company anticipates entering other related markets for the POET Optical Interposer following its initial focus on optical engines for transceivers, such as 5G communications and the areas of co-packaged optics, which includes stand-alone applications such as optical AI accelerator chips, and high-value sensing applications, such as LIDAR for autonomous vehicles and spectrometry and other sensing devices for use in point-of-care diagnostic and consumer products.

In order to address the challenge of producing devices in the large quantities that are needed by customers in the high-volume data communications industry, POET entered into an agreement in late 2020 with Xiamen Sanan Integrated Circuit Co. Ltd. ("Sanan IC"), a subsidiary of Sanan Optoelectronics Xiamen Co. Ltd. to form a joint venture to assemble, test and sell optical engines in high volumes. Sanan is the world's largest manufacturer of compound semiconductor devices, producing over 25 million eight-inch wafers per year across a variety of substrate types and applications. The objective of the joint venture company, which is named "Super Photonics Xiamen" ("SPX") is to assemble, test and sell optical engines based on the POET Optical Interposer, along with devices procured from various suppliers, including Sanan IC, into finished products. Optical engines for 100G and 200G applications will be sold exclusively world-wide by SPX. 400G optical engines will be sold by SPX in the China territory while the Company will sell 400G optical engines to customers in the United States, Europe and elsewhere outside the China territory. Until SPX is in full operation, prototypes and samples are currently being fabricated by POET using both internal resources and external suppliers, foundries and vendors. As designs are completed and the prototypes are delivered to customers, the Company will begin to benefit from revenues associated with Non-Recurring Engineering (NRE), along with expense reimbursements for delivered prototypes.

Volume production of optical engines designed for specific customers is expected to begin in 2022, with high volumes expected to ramp later in the year and into 2023. The Company expects that as samples of generic POET optical engines (i.e., those produced to what is referred to as a "reference design") become available, that additional design opportunities will emerge with customers that have seen the potential benefit of POET's platform approach to optical engine design and development.

Research & Development

Prior to the announcement of its invention of the POET Optical Interposer in January of 2018, the Company had focused its efforts on the integration of multiple functions into a single chip or multiple devices into a single multi-chip package. Beginning in 2017, POET designed lasers for data communications applications and directed DenseLight a former subsidiary of the Company, to build such lasers in addition to its line of lasers used for sensing devices. and later designed lasers of both types to be compatible with its Optical Interposer platform., In 2019 the Company decided to adopt a "fab light" strategy, common among semiconductor companies, and divested its fabrication operations through the sale of DenseLight, in November of that year. Since the announcement of the invention of the Optical Interposer, virtually all the R&D spending in the Company has been dedicated to development of the Optical Interposer as a platform technology, suitable for the design of multiple products, product generations, applications and extensions. This included the development of multiple features embedded in the Optical Interposer that enhance its utility, and the design and development of compatible active devices that are unique to the Optical Interposer platform.

As it transitioned from technology to product development in the second half of 2021, the Company committed to investing approximately \$2 million in development and engineering programs to produce prototype samples of 100G and 200G optical engines in several configurations, including customized designs for specific customers or applications. The Company will invest approximately \$7.5 million in development and engineering programs in 2022 related to its 400/800G optical engine designs, co-packaged optics designs and fabrication technologies.

Photonics Markets

As a supplier of integrated photonics components, POET operates within a market that is large and rapidly growing. Within the data- and tele-communications segments, the ever-present need for higher speed and lower cost switching and transmission is driving the conversion away from copper to light-based systems that are far more efficient and cost effective to operate and maintain. Light-based sensing devices find uses across a broad expanse of applications, from autonomous vehicles to medical devices and consumer products.

We believe that a strong and sustained trend towards an increase in demand for optical solutions, which increase network capacity, is the result of growing bandwidth demand driven by increased transmission of video, voice and data over optical communications networks. Increasing speeds at the edge of the network, including the significant increase in speed in 5G mobile networks, combined with increasing demand for high bandwidth applications and services, including streaming video, will result in increasing demand for additional capacity in datacenters.

The overall Photonics Market (the market for LEDs, lasers, sensors, detectors, optical components and systems)

was valued at \$589.8 billion in 2020 and is projected to grow to \$1,019.8 billion, by 2026, equal to a 11.6% CAGR¹ over the 5-year period of 2021-2026. Much of this growth is being driven by the explosion in demand for data storage and information distribution and the corresponding growth in internet traffic and cloud services. Based on data from Structure Research, in a 2022 report on global data centers, Cushman & Wakefield estimated that the combined 2022 revenue of largest of the data center operators, so-called “hyperscalers”, had reached \$91 billion and would grow to \$526 billion by 2026, a CAGR of 55.1%².

Data center market growth drives the most immediate demand for POET’s products that are key components to Optical Transceivers. In revenue terms, the global market for optical transceivers was estimated at \$7 billion in 2021 and projected to reach a \$14.3 billion by 2026, growing at a CAGR of 15.2% over the period 2021-2026.³

Other markets for POET’s integrated photonics solutions include co-packaged optics (CPO) which merge ASICs with photonics in the same package), optically-integrated Artificial Intelligence accelerator chips, 5G interconnect markets, such as PON and GPON, edge computing for machine-to-machine communications, and selected sensing markets, including LIDAR, Optical Coherence Tomography for medical devices, and certain consumer products, such as virtual reality systems.

Our Strategy

Our vision for the Company is to become a global leader in chip-scale photonic solutions by deploying our Optical Interposer technology to enable the seamless integration of electronics and photonics for a broad range of vertical market applications. Our Mission for the Company is to establish an industry leadership position in chip-scale integrated photonics with validated disruptive, IP protected, Optical Interposer platform components.

As we near production of our first Optical Interposer-based products, we have refined our strategy to reflect our current thinking about how best to achieve our vision and mission for the Company:

- *Support Super Photonics Xiamen (SPX), a joint venture between POET and Sanan IC, as an independent company to drive growth in optical transceivers and deliver maximum cash flow to partners.* As our designs for Optical Engines are realized in the form of Alpha samples that provide performance data to potential customers and Beta samples that those customers can test, demonstrating an ability to supply devices in volume is a challenge that must be met. The Company has done so through the formation of Super Photonics Xiamen (SPX), a joint venture between POET and Sanan IC, a leading manufacturer of compound semiconductor-based components in China. In addition to providing the required investment and ability to rapidly scale manufacturing capacity, as a JV partner, Sanan IC also offers the benefits of being a qualified supplier of lasers and detectors for Optical Engines, a company with an outstanding reputation within the industry, and one with a direct presence in the largest market for the Company’s products. POET’s immediate path to commercial success and its ability to generate profits over the longer term are directly influenced by the level of support that it can provide to the joint venture. Delivery of samples and subsequent sales of Optical Engines to customers in China, where virtually all optical transceiver module manufacturers are located, will demonstrate the technological viability and market acceptance of POET’s designs. As large volumes of Optical Engines are produced by SPX, the expectation for rapid scaling of manufacturing to meet customer demand will be confirmed.

- *Continue to engage with industry leaders and incumbents to design, develop and sell devices based on*

¹ Mordor Intelligence, *Photonics Market – Growth, Trends, COVID-19 Impact, and Forecasts (2022 - 2027)*, 2021

² Cushman & Wakefield, *2022 Global Data Center Market Comparison*, 2022

³ MarketsAndMarkets, *Optical Transceiver Market with COVID-19 Impact Analysis - Global Forecast to 2026*, 2022

the Optical Interposer. The POET Optical Interposer is designed to be a flexible platform for the combination or integration of various photonic and electronic components. The low cost makes it suitable for applications like transceivers and automotive LIDAR. The compatibility of the Optical Interposer manufacturing process with standard silicon CMOS processing and the ability to construct architectures with substantially lower energy consumption opens up large and critical data processing applications where super high-speed processing is essential, such as integration with next generation switches and artificial intelligence. The small size and form factor of the Optical Engines that have been developed by the Company are bound to open new applications and markets where miniaturization is a key element, such as point-of-care medical devices and consumer products.

· *Exploit “localization” imperative in China to expand scope of existing operations and to seek both organic and inorganic growth opportunities and exit strategies.* China as a nation has increased its efforts to “localize” supplies of key resources and technologies. As a result, there is strong interest from both government and private financial interests in investing in local companies. As an independent operating company, Super Photonics Xiamen is in a strong position to attract capital from outside sources to grow its presence in China and to build a franchise in assembly and test operations all linked to the POET Optical Interposer.

· *Form additional partnerships in target sectors to establish fabrication and sales operations globally.* Currently, the focus of SPX is the data and telecommunications market, specifically limited to building Optical Engines for 100/200G and 400G optical transceivers. The market for 5G interconnect applications is a closely related market, but one which necessitates further planning regarding how best to both enter and supply. As a platform technology that is applicable to many vertical market applications outside of optical transceivers and 5G interconnects, our strategy must include the ability to identify and exploit a variety of different applications. To do so, the Company needs to form additional partnerships in those market segments and to design appropriate strategies for the fabrication of devices whose functions will be materially different from those of transceivers and with correspondingly different distribution and sales. The form of such partnerships may also be different than what was established for transceivers.

· *Pursue complementary strategic alliance or acquisition opportunities for inorganic growth.* We intend to evaluate and selectively pursue strategic alliances or acquisition opportunities that we believe will accelerate our penetration of specific applications or vertical markets with our technology or products.

· *Explore technology licensing opportunities for growth in non-target sectors.* It is not possible for the Company to pursue all potential applications for the POET Optical Interposer. We will consider carefully opportunities to license our technology to others when and if appropriate.

Our Products

The Company has been developing the following products:

- POET’s 100/200G CWDM4/FR4 product lines for data center operations, including fully validated receive (RX), transmit (TX) and integrated (TXRX) Optical Engines. Samples mounted on evaluation boards were deployed to selected customers;
- POET’s 100G LR4 product line for high performance Optical Engines meeting the demanding specifications for long-range (10km) communications on the client side of long-haul networks with a monolithic 4-channel multiplexing and demultiplexing functionality built directly into the Optical Interposer waveguides;
- POET’s 400G DR4/FR4 product line being demonstrated in pre-alpha stage integrated with a 400G Silicon Photonics (SiPh)-based high speed modulator and/or Thin Film Lithium Niobate (TFLN)-based modulator; and

- *LightBar*[™] and *LightBar-C*[™] products as fully aligned, multiplexed light source products operating in the “O-band” for data communications applications and the “C-band” for sensing and computing applications. Both *LightBar* products come fully assembled with fiber attached for easy adaptation to existing transceiver module, CPO and optical computing applications.

Intellectual Property

We have 70 issued patents and 22 patent applications pending, including four provisional patent applications. Of the 70 issued patents, 18 are directly related to the Optical Interposer and include fundamental design and process patents. All 22 applications pending are Optical Interposer-related. Multiple additional applications are in various stages of preparation. The patents cover device structures, underlying technology related to the Optical Interposer, applications of the technology, and fabrication processes. We intend to continue to apply for additional patents in the future. We believe these patents provide a significant barrier to entry against competition along with company trade secrets and know-how. Currently, we are working on the design of integrated devices, manufacturing processes, assembly and packaging processes, and products for data communication applications in the data center market.

MD&A Highlights

Net loss for the six months ended June 30, 2022 was \$10,715,441. The net loss included \$4,865,381 incurred for research and development activities directly related to the development and commercialization of the POET Optical Interposer Platform. Research and development included non-cash costs of \$803,478 related to stock-based compensation. \$4,829,917 was incurred for selling, marketing and administration expenses which included non-cash costs of \$1,163,624 related to stock-based compensation and \$615,695 related to depreciation and amortization.

The Company incurred \$26,421 of interest expense which was entirely non-cash.

During the period ended June 30, 2022, the Company recognized its share of SPX's losses using the equity method. The Company recognized approximately 88.5% or \$1,176,282 of the net operating loss of SPX. The Company's current share of the operating loss is a result of the high value of the Company's initial contribution. The Company's share of the loss will reduce as Sanan IC periodically contributes cash and other assets to SPX.

The Company's statement of financial position as of June 30, 2022 reflects assets with a book value of \$18,557,775 compared to \$27,153,977 as of December 31, 2021. Seventy-six percent (76%) of the book value at June 30, 2022 was in current assets consisting primarily of cash, cash equivalents and short-term investments of \$13,764,652 compared to eighty percent (80%) of the book value as of December 31, 2021, which consisted primarily of cash, cash equivalents and short-term investments of \$21,308,603.

Non-current assets included \$236,946 (2021 - \$1,445,251) related to the Company's investment in SPX.

Significant Events and Milestones the Six Months Ended June 30, 2022

We achieved the following significant milestones during the six months ended June 30, 2022:

- 1) On January 24, 2022, the Company was named to the 2022 OTCQX® Best 50, a ranking of top performing companies traded on the OTCQX Best Market last year.
- 2) On February 10, 2022, the Company entered into an agreement with Celestial AI to provide multi-laser integrated external light source (ELS) modules using its advanced packaging platform based on the POET

Optical Interposer. The agreement includes a contract for continued platform development, along with a purchase order for initial quantities of the advanced modules.

- 3) On February 24, 2022, the Company announced a collaboration with Liobate Technologies to incorporate advanced Thin-Film Lithium Niobate (“TFLN”) modulators onto POET’s Optical Engines supporting power-efficient ultra-high-bandwidth electro-optic conversion for data center and telecom applications. This multi-phase, co-development project is initially focused on delivering and commercializing a POET 400/800Gps Transmit and Receive Optical Engine.
- 4) On February 24, 2022, the Company filed Articles of Amendment to consolidate its common shares on a ten-for-one basis. For further clarity, for every ten (10) pre-consolidated common shares, shareholders received one (1) post-consolidated common share. On February 28, 2022 the Company's common shares began trading on the TSX Venture Exchange on a post consolidation basis. The Company's name and trading symbol remained unchanged.
- 5) On March 3, 2022, the Company announced the launch of its 400G FR4 and 800G (2x400G FR4) Receive (RX) Optical Engines based on the POET Optical Interposer, a unique hybrid silicon photonics platform.
- 6) On March 14, 2022, the Company’s common shares began trading on Nasdaq under the ticker symbol “POET”.
- 7) On April 19, 2022, the Company announced that it has joined the Singapore Hybrid-Integrated Next Generation micro-Electronics (SHINE) Center located in the College of Design and Engineering at the National University of Singapore (NUS).
- 8) On June 7, 2022, the Company announced that it appointed Theresa Lan Ende, currently Chief Procurement Director of Arista Networks, as an advisor to the Company’s Board of Directors. The Company also announced that it intends to nominate Theresa Lan Ende as a director at its Annual General Meeting currently scheduled for October 6, 2022.
- 9) On June 21, 2022, the Company announced that it appointed Michal Lipson, a pioneer and thought leader in silicon photonics as well as a highly published researcher in physics, as an advisor to the Company’s Board of Directors. The Company also plans to nominate Lipson as a director at its upcoming Annual General Meeting currently scheduled for October 6, 2022.
- 10) On June 29, 2022, the Company announced the availability of its 400G FR4 and 800G (2x400G FR4) Receive (RX) Optical Engines based on the POET Optical Interposer.
- 11) On July 6, 2022, the Company announced sampling of its 200G FR4 Transmit (TX) and Receive (RX) Optical Engines. The Optical Engines are based on the POET Optical Interposer.

Summary of Quarterly Results

Following are the highlights of financial data of the Company for the most recently completed eight quarters, which have been derived from the Company’s consolidated financial statements prepared in accordance with IFRS:

	<u>Jun 30/22</u>	<u>Mar 31/22</u>	<u>Dec 31/21</u>	<u>Sep 30/21</u>	<u>Jun 30/21</u>	<u>Mar 31/21</u>	<u>Dec 31/20</u>	<u>Sep 30/20</u>
Sales	\$ 120,261	\$ -	\$ -	\$ -	\$ 209,100	\$ -	\$ -	\$ -
Research and development	1,829,369	2,232,534	2,010,793	1,231,676	1,812,924	1,339,784	2,229,672	1,217,849
Depreciation and amortization	313,677	302,018	281,178	296,424	270,189	252,731	242,385	206,819
Professional fees	291,185	248,112	269,306	354,163	247,742	284,105	374,737	123,664
Wages, benefits and consulting fees	728,313	608,518	610,428	623,731	593,280	816,012	720,877	442,605

	<u>Jun 30/22</u>	<u>Mar 31/22</u>	<u>Dec 31/21</u>	<u>Sep 30/21</u>	<u>Jun 30/21</u>	<u>Mar 31/21</u>	<u>Dec 31/20</u>	<u>Sep 30/20</u>
Impact of joint venture	745,961	430,321	(1,022,417)	(422,834)	-	-	-	-
Stock-based compensation ⁽¹⁾	969,661	997,441	1,181,375	1,295,864	1,236,593	820,538	893,664	1,096,013
General expense, rent and facility	552,410	622,060	377,223	275,078	381,539	357,980	305,495	167,608
Amortization of debt issuance costs	-	-	-	-	-	-	-	-
Impairment and other loss	-	-	-	-	-	-	-	-
Interest expense	12,627	13,794	15,512	19,729	94,799	234,579	248,823	243,805
Other (income), including interest	<u>(40,300)</u>	<u>(21,999)</u>	<u>(26,650)</u>	<u>(208,100)</u>	<u>(19,772)</u>	<u>(7,309)</u>	<u>(7,333)</u>	<u>(13,910)</u>
Net loss, continuing operations before taxes	<u>\$ 5,282,642</u>	<u>\$ 5,432,799</u>	<u>\$ 3,696,748</u>	<u>\$ 3,465,731</u>	<u>\$ 4,408,194</u>	<u>\$ 4,098,420</u>	<u>\$ 5,008,320</u>	<u>\$ 3,484,453</u>
Net loss per share, continuing operations	<u>\$ (0.14)</u>	<u>\$ (0.15)</u>	<u>\$ (0.10)</u>	<u>\$ (0.10)</u>	<u>\$ (0.13)</u>	<u>\$ (0.13)</u>	<u>\$ (0.17)</u>	<u>\$ (0.12)</u>

(1) Stock based compensation allocated between General & Administrative and Research & Development issuances are combined for MD&A purposes. For financial statement presentation purposes, stock-based compensation is split between *General & Administrative* and *Research & Development*.

Explanation of Quarterly Results for the three months ended June 30, 2022 (“Q2 2022”) compared to the same three-month period in the prior year (“Q2 2021”)

Net loss for Q2 2022 was \$5,282,642 compared to a net loss of \$4,408,194 in Q2 2021, an increase of \$874,448 (20%). The following discusses the significant variances between Q2 2022 and Q2 2021.

Non-recurring engineering revenue (“NRE”) decreased by \$88,839 (42%) to \$120,261 in Q2 2022 from \$209,100 in Q2 2021. The Company provided services under an NRE contract to one customer in 2021. In 2022, the Company is now providing similar services to multiple customers, one of which continued to contract services from last year. The revenue relates to unique projects that are being addressed utilizing the capabilities of the POET Optical Interposer

Professional fees increased by \$43,443 (18%) to \$291,185 in Q2 2022 from \$247,742 in Q2 2021. The increase is a result of the auditing fee for the Sarbanes Oxley audit of internal controls related to fiscal 2021. The audit invoice was received in Q2 2022.

Interest expense decreased by \$82,172 (87%) to \$12,627 in Q2 2022 from \$94,799 in Q2 2021. The decrease in interest expense is a result of interest no longer being paid on convertible debentures a balance of which was held by the Company in Q2 2021. The interest expense was significantly reduced as the convertible debentures were converted or matured throughout 2021. The interest expense in Q2 2022 is non-cash.

Depreciation and amortization increased by \$43,488 (16%) to \$313,677 in Q2 2022 from \$270,189 in Q2 2021. In late 2019, the Company embarked on a “fab-light” strategy with a required test facility situated in Singapore and design facility in Allentown, Pennsylvania. The increase in depreciation and amortization was a result of assets acquired for the new facilities.

Wages and benefits increased by \$135,033 (23%) to \$728,313 in Q2 2022 from \$593,280 in Q2 2021. The Company hired a new VP Product Line Management in Q2 2022. Additionally, the wages of the GM in China is now classified as administrative wages as the responsibilities of that role is considered administrative by regulatory standards. Those wages were classified as R&D in Q2 2021.

General expenses and rent increased by \$170,871 (45%) to \$552,410 in Q2 2022 from \$381,539 in Q2 2021. The increase was a result of the increase in directors and officers insurance (“D&O”) subsequent to the Company’s listing on the Nasdaq. D&O insurance is substantially higher for US listed Companies than for Canadian listed Companies. The Company was only listed on the TSXV in Q2 2021.

Impact of joint venture in Q2 2022 was \$745,961 which related to the Company's non-cash share of the loss of SPX using the equity method of accounting. The Company's share of loss is approximately 88.5% of the loss of SPX. The Company did not report a similar loss in Q2 2021.

Non-cash stock-based compensation decreased by \$266,932 (22%) to \$969,661 in Q2 2022 from \$1,236,593 in Q2 2021. The valuation of stock options is driven by a number of factors including the number of options granted, the strike price and the volatility of the Company's stock. The stock option expense is dependent on the timing of the stock option grant and the amortization of the options as they vest. The stock options vest in accordance with the policies determined by the Board of Directors at the time of the grant consistent with the provisions of the Plan.

Other (income), including interest increased by \$20,528 (104%) to \$40,300 in Q2 2022 from \$19,772 in Q2 2021. The increase in other (income), including interest was a result of interest income earned from short-term investments and cash equivalents during Q2 2022.

Explanation of Results for the six months ended June 30, 2022 (the "period") compared to the same six-month period in the prior year ("2021")

Net loss for the period was \$10,715,441 compared to a net loss of \$8,506,614 in 2021, an increase of \$2,208,827 (26%). The following discusses the significant variances between the period and 2021.

During the period, NRE revenue decreased by \$88,839 (42%) to \$120,261 in Q2 2022 from \$209,100 in Q2 2021. The Company provided services under an NRE contract to one customer in 2021. In 2022, the Company is now providing similar services to multiple customers, one of which continued to contract services from last year. The revenue relates to unique projects that are being addressed utilizing the capabilities of the POET Optical Interposer R&D increased by \$909,195 (29%) to \$4,061,903 in the period from \$3,152,708 in 2021. The increase in R&D is a result of the new stage of the Company's development where it is transitioning from technology development to product development. As the transition occurs, qualified engineers are needed to fill roles related to new production introduction and quality control. R&D wages increased by \$678,252 from \$1,269,625 in 2021 to \$1,947,877 in the period. The Company has also engaged with new suppliers, through non-recurring engineering and qualification programs, to ensure that the supply of required products and services will meet the Company's standards and will be available as needed. These programs resulted in an increase in R&D supplies and subcontract fees of \$230,943 from \$1,883,083 in 2021 to \$2,114,026 in the period.

Interest expense was \$26,421 in the period as compared to \$329,378 in 2021, a decrease of \$302,957 (92%). The Company raised \$3,729,921 in convertible debentures between April 2019 and September 2019 with two-year maturities. The Company was required to pay monthly interest on the convertible debentures. As the convertible debentures reached maturity during 2021, interest cost was reduced. All convertible debentures were either converted or matured in 2021. Interest in the period is non-cash.

Depreciation and amortization increased by \$92,775 (18%) to \$615,695 in the period from \$522,920 in 2021. With the sale of DenseLight, the Company embarked on a "fab-light" strategy with a required test facility situated in Singapore and product development facility in China. The increase in depreciation and amortization was a result of assets acquired for these new facilities.

Impact of joint venture in the period was \$1,176,282 which related to the Company's non-cash share of the loss of SPX using the equity method of accounting. The Company's share of loss is approximately 88.5% of the loss of SPX. The Company did not report a similar loss in 2021.

General expenses and rent increased by \$434,951 (59%) to \$1,174,470 in the period from \$739,519 in 2021. The increase was primarily a result of the increase in D&O insurance subsequent to the Company's listing on the Nasdaq. D&O insurance is substantially higher of US listed Companies than for Canadian listed Companies. The Company was only listed on the TSXV in Q2 2021. Additional increases were a result of the fees associated with listing on the Nasdaq, costs associated with the new shareholder outreach program and costs related to the Company's presentation at the Optical Fiber Conference. The Company did not have similar costs in 2021.

Other (income), including interest increased by \$35,218 (130%) to \$62,299 in the period from \$27,081 in 2021. The increase in other (income), including interest was a result of interest income earned from short-term investments and cash equivalents during the period.

Explanation of Material Variations by Quarter for the Last Eight Quarters

Q2 2022 compared to Q1 2022

Net loss decreased by \$150,157 (3%) in Q2 2022 to \$5,282,642 from \$5,432,799 in Q1 2022.

R&D decreased by \$403,165 (18%) to \$1,829,369 in Q2 2022 from \$2,232,534 in Q1 2022. R&D for a Company at this stage of development will vary from period to period as variable expenses with contract manufacturers will fluctuate based on the development cycle and the immediate product development needs of the Company. The decrease in Q2 2022 was partially a result of the supply chain challenges currently faced in the semiconductor industry.

Professional fees increased by \$43,073 (17%) to \$291,185 in Q2 2022 from \$248,112 in Q1 2022. The increase is a result of the auditing fee related to the Sarbanes Oxley audit of internal controls related to fiscal 2021. The audit invoice was received in Q2 2022.

Wages and benefits increased by \$119,795 (20%) to \$728,313 in Q2 2022 from \$608,518 in Q1 2022. The Company hired a new VP Product Line Management in Q2 2022. Additionally, the wages of the GM in China is now classified as administrative wages. Those wages were classified as R&D in Q1 2022.

Impact of joint venture increased by \$315,640 (73%) to \$745,961 from \$430,321 in Q1 2022. The impact of joint venture relates to the Company's activity related to its investment in SPX. The increased loss is a function of the increased activity at SPX as the joint venture prepares for production activities later in 2022 and 2023. The Company recognized approximately 88.5% of the net operating loss of SPX for Q2 2022 and Q1 2022.

General expenses and rent decreased by \$69,650 (11%) to \$552,410 in Q2 2022 from \$622,060 in Q1 2022. In Q1 2022, the Company incurred one-time costs associated with listing on the Nasdaq, costs associated with the new shareholder outreach program and costs related to the Company's presentation at the Optical Fiber Conference. The Company did not have similar costs in Q2 2022. Those costs were however, offset by the increased D&O insurance in Q2 2022.

Other (income), including interest increased by \$18,301 (83%) to \$40,300 in Q2 2022 from \$21,999 in Q1 2022. The increase in other (income), including interest was a result of interest income earned from short-term investments and cash equivalents during the period.

Q1 2022 compared to Q4 2021

Net loss increased by \$1,736,051 (47%) in Q1 2022 to \$5,432,799 from \$3,696,748 in Q4 2021.

R&D increased by \$221,741 (11%) to \$2,232,534 in Q1 2022 from \$2,010,793 in Q4 2021. R&D for a Company at this stage of development will vary from period to period as variable expenses with contract manufacturers will fluctuate based on the development cycle and the immediate product development needs of the Company. The increase in Q1 2022 was a result of certain NRE commitments with large tier one industry suppliers established to manage the Company's supply chain and associated risks.

Impact of joint venture decreased by \$1,452,738 (142%) to a loss of \$(430,321) from a net gain of \$1,022,417 in Q4 2021. The impact of joint venture relates to the Company's activity related to its investment in SPX. During Q1 2022, the Company recognized its share of SPX's losses using the equity method. The Company recognized approximately 88.5% or \$430,321 of the net operating loss of SPX for Q1 2022 compared to approximately 92.8% or \$507,583 of the net operating loss of SPX for Q4 2021. Additionally, in Q4 2021, the Company recognized a

gain of \$1,530,000 related to its contribution of intellectual property to SPX in accordance with IAS 28. The Company did not recognize a gain in Q1 2022.

General expenses and rent increased by \$244,837 (65%) to \$622,060 in Q1 2022 from \$377,223 in Q4 2021. The increase was a result of the fees associated with listing on the Nasdaq, costs associated with the new shareholder outreach program and costs related to the Company's presentation at the Optical Fiber Conference.

Non-cash stock-based compensation decreased by \$183,934 (16%) to \$997,441 in Q1 2022 from \$1,181,375 in Q4 2021. The valuation of stock options is driven by a number of factors including the number of options granted, the strike price and the volatility of the Company's stock. The stock option expense is dependent on the timing of the stock option grant and the amortization of the options as they vest. The stock options vest in accordance with the policies determined by the Board of Directors at the time of the grant consistent with the provisions of the Plan.

Q4 2021 compared to Q3 2021

Net loss increased by \$231,017 (7%) in Q4 2021 to \$3,696,748 from \$3,465,731 in Q3 2021.

R&D increased by \$779,117 (63%) to \$2,010,793 in Q4 2021 from \$1,231,676 in Q3 2021. R&D for a Company at this stage of development will vary from period to period as variable expenses with contract manufacturers will fluctuate based on the development cycle and the immediate product development needs of the Company. The increase in Q4 2021 was a result of certain NRE commitments with large tier one industry suppliers established to manage the Company's supply chain and associated risks.

Other (income), including interest decreased by \$181,450 (87%) to \$26,650 in Q4 2021 from \$208,100 in Q3 2021. During Q3 2021, the Company received notice from the Small Business Administration of Washington, DC that its Covid related PPP loan of \$186,747 was forgiven in full. The Company did not have a similar event in Q4 2021 where the income consisted mainly on interest income on investment balances invested consistent to the Company investment policy.

Professional fees decreased by \$84,857 (24%) to \$269,306 in Q4 2021 from \$354,163 in Q3 2021. Professional fees in Q3 2021 related to the fees for multiple projects in the quarter that required professional guidance related to certain analysis associated with ensuring the Company's compliance to international regulations. While these projects are on-going, the effort incurred in Q3 2021 was more than that of Q4 2021.

General expenses and rent increased by \$102,145 (37%) to \$377,223 in Q4 2021 from \$275,078 in Q3 2021. The increase was primarily driven by increased travel in Q4 2021. With the gradual lifting of COVID-19 related travel restrictions certain POET staff were able to travel nationally and internationally to further the Company's business in Q4 2021.

Impact of joint venture increased by \$599,583 (142%) to \$1,022,417 from \$422,834 in Q3 2021. The impact of joint venture represents a net gain on the Company's activity related to its investment in SPX. During Q4 2021, the Company recognized a gain of \$1,530,000 related to its contribution of intellectual property to SPX in accordance with IAS 28. Q3 2021 gain was \$1,057,500. The Company only recognized a gain on the contribution of the intellectual property equivalent to the SAIC's interest in SPX. Additionally, the Company recognized its share of SPX's losses using the equity method. The Company recognized 92.8% or \$507,583 of the net operating loss of SPX for Q4 2021 compared to 95.3% or \$634,666 of the net operating loss of SPX in Q3 2021. The Company's current share of the operating loss is a result of the high value of the Company's initial contribution.

Q3 2021 compared to Q2 2021

Net loss decreased by \$942,463 (21%) in Q3 2021 to \$3,465,731 from \$4,408,194 in Q2 2021.

In Q2 2021, the Company reported non-recurring revenue of \$209,100. No revenue was reported in Q3 2021.

R&D decreased by \$581,248 (32%) to \$1,231,676 in Q3 2021 to \$1,812,924 in Q2 2021. R&D for a Company at this stage of development will vary from period to period as variable expenses with contract manufacturers will

fluctuate based on the development cycle and the immediate product development needs of the Company. The decreased spend is also driven by the current contraction in the semiconductor chip supply chain that is being experienced globally. The current under supply has resulted in slower deliveries of orders made by the Company which, as a consequence has resulted in decreased spend during Q3 2021.

Interest expense decreased by \$75,070 (79%) to \$19,729 in Q3 2021 from \$94,799 in Q2 2021. The decrease in interest expense is a result of interest no longer being paid on \$3,571,342 of convertible debentures that were converted in 11,197,500 units of the Company up-to June 30, 2022. The Company's interest obligation on convertible debentures was eliminated as the convertible debentures were either converted or matured.

Other (income), including interest increased by \$188,328 (952%) to \$208,100 in Q3 2021 from \$19,772 in Q2 2021. During Q3, the Company received notice from the Small Business Administration of Washington, DC that its Covid related PPP loan of \$186,747 was forgiven in full. The Company did not have a similar event in Q2 2021.

Professional fees increased by \$106,421 (43%) to \$354,163 in Q3 2021 from \$247,742 in Q2 2021. The increase in Q3 2021 related to the fees for multiple projects in the quarter that required professional guidance related to certain analysis associated with ensuring the Company's compliance to international regulations.

General expenses and rent decreased by \$106,461 (28%) to \$275,078 in Q3 2021 from \$381,539 in Q2 2021. The Company incurred regulatory fees in Q2 2021 related to its annual filings, filing fees related to its shelf prospectus and exchange membership fees. Similar filing fees were not incurred in Q3 2021.

Q2 2021 compared to Q1 2021

Net loss increased by \$309,774 (8%) in Q2 2021 to \$4,408,194 from \$4,098,420 in Q1 2021.

In Q2 2021, the Company reported non-recurring revenue of \$209,100. No revenue was reported in Q1 2021.

R&D increased by \$473,140 (35%) to \$1,812,924 in Q2 2021 from \$1,339,784 in Q1 2021. R&D for a Company at this stage of development will vary from period to period as variable expenses with contract manufacturers will fluctuate based on the development cycle and the immediate product development needs of the Company. The increased cost contributed to the Company's announcement of the Lightbar, 100G and 200G CWDM4 Optical Engines samples that would become available in Q3 2021.

Wages and benefits decreased by \$222,732 (27%) to \$593,280 in Q2 2021 from \$816,012 in Q1 2021. In Q1 2021, the Company paid a bonus of \$250,000 to certain employees. No bonus was paid in Q2 2021.

Interest expense decreased by \$139,780 (60%) to \$94,799 in Q2 2021 from \$234,579 in Q1 2021. The decrease in interest expense is a result of interest no longer being paid on \$3,377,887 of convertible debentures that were converted in 10,592,500 units of the Company up-to June 30, 2022. The Company's interest obligation was eliminated as the convertible debentures were converted.

Non-cash stock-based compensation increased by \$416,055 (51%) to \$1,236,593 in the Q2 2021 from \$820,538 in Q1 2021. The valuation of stock options is driven by a number of factors including the number of options granted, the strike price and the volatility of the Company's stock. The stock option expense is dependent on the timing of the stock option grant and the amortization of the options as they vest. The stock options vest in accordance with the policies determined by the Board of Directors at the time of the grant consistent with the provisions of the Plan.

Q1 2021 compared to Q4 2020

Net loss decreased by \$909,900 (18%) in Q1 2021 to \$4,098,420 from 5,008,320 in Q4 2020.

The most significant driver of the decreased loss from Q4 2020 to Q1 2021 was a decrease in R&D of \$889,888 (40%) from \$2,229,672 in Q4 2020 to \$1,339,784 in Q1 2021. In Q4 2020, the Company settled certain R&D expenses by transferring \$897,727 worth of equipment to the supplier. The equipment was initially installed in

the fabrication facility of the supplier who provided discounted R&D services to the Company. The equipment will be used by the supplier for volume production primarily for the benefit of the Company.

Wages and benefits increased by \$95,135 (13%) to \$816,012 in Q1 2021 from \$720,877 in Q4 2020. The increase is due to a bonus of \$250,000 paid in Q1 2021. The increase over Q4 2020 is however, only \$95,135 because Q4 2020 included a reclassification of \$153,000 of certain wages and benefits that were classified as R&D in the first three quarters of 2020.

Professional fees decreased by \$90,632 (24%) to \$284,105 in Q1 2021 from \$374,737 in Q4 2020. In Q4 2020, the Company incurred legal and other professional fees relating to negotiating and drafting agreements related to the \$50 million joint venture that was announced on June 30, 2020. The agreement was signed in Q4 2020 and the JVC was formed. The Company incurred unusually high legal and professional fees relating to the agreement and the establishment of the JVC. Additionally, the Company incurred legal and other professional fees to establish POET Optoelectronics Shenzhen Co. Ltd, in China, a wholly owned subsidiary of Company, to support the efforts of the JVC.

Q4 2020 compared to Q3 2020

Net loss from continuing operations increased by \$1,523,867 (44%) in Q4 2020 to \$5,008,320 from \$3,484,453 in Q3 2020.

R&D increased by \$1,011,823 (83%) to \$2,229,672 in Q4 2020 from \$1,217,849 in Q3 2020. During Q4 2020, the Company settled certain R&D expenses by transferring \$897,727 worth of equipment to the supplier. The equipment was initially installed in the fabrication facility of the supplier who provided discounted R&D services to the Company. The equipment will be used by the supplier for volume production primarily for the benefit of the Company. R&D is expected to fluctuate period over period.

Professional fees increased by \$251,073 (203%) to \$374,737 in Q4 2020 from \$123,664 in Q3 2020. The Company incurred legal and other professional fees relating to negotiating and drafting agreements related to the \$50 million joint venture that was announced on June 30, 2020. The agreement was signed in Q4 2020 and the JVC was formed. The Company incurred unusually high legal and professional fees relating to the agreement and the establishment of the JVC. Additionally, the Company incurred legal and other professional fees to establish POET Optoelectronics Shenzhen Co. Ltd, in China, a wholly owned subsidiary of Company, to support the efforts of the JVC.

Wages and benefits increased by \$278,272 (63%) to \$720,877 in Q4 2020 from \$442,605 in Q3 2020. The increase in Q4 2020 is a result of a reclassification of \$153,000 of certain wages and benefits that were classified as R&D in the first three quarters of 2020.

General expenses and rent and facility increased by \$137,887 (82%) to \$305,495 in Q4 2020 from \$167,608 in Q3 2020. The expense in Q4 2020 includes the general and expenses incurred in setting up the new facility in Shenzhen and annual filing and listing fees related to the Company's listing on the OTCQX and other costs related to the Company's expanded market communications strategy.

Segment Disclosure

The Company and its subsidiaries operate in a single segment; the design, manufacture and sale of semiconductor products and services for commercial applications. The Company's operating and reporting segment reflects the management reporting structure of the organization and the manner in which the chief operating decision maker regularly assesses information for decision making purposes, including the allocation of resources. A summary of the Company's operations is below:

OPEL, ODIS, POET Shenzhen and PTS

OPEL, ODIS, POET Shenzhen and PTS are the developers of the POET platform semiconductor process IP for monolithic fabrication of integrated circuit devices containing both electronic and optical elements on a single die.

BB Photonics

BB Photonics developed photonic integrated components for the datacom and telecom markets utilizing embedded dielectric technology that enables the low-cost integration of active and passive devices into photonic integrated circuits. BB Photonics' operation is currently dormant.

On a consolidated basis, the Company operates geographically in Singapore, China (collectively "Asia"), the United States and Canada. Geographical information is as follows:

2022

As of June 30,	Asia	US	Canada	Consolidated
Current assets	\$ 520,907	\$ 254,186	\$ 13,371,282	\$ 14,146,375
Investment in joint venture	236,946	-	-	236,946
Property and equipment	2,715,328	647,166	-	3,362,494
Patents and licenses	-	496,760	-	496,760
Right of use assets	88,756	226,444	-	315,200
Total Assets	\$ 3,561,937	\$ 1,624,556	\$ 13,371,282	\$ 18,557,775

For the Six Months Ended June 30,	Asia	US	Canada	Consolidated
Revenue	\$ 120,261	\$ -	\$ -	\$ 120,261
Selling, marketing and administration	\$ (1,046,671)	\$ (2,998,510)	\$ (784,736)	\$ (4,829,917)
Research and development	(2,674,508)	(2,078,915)	(111,958)	(4,865,381)
Interest expense	(11,024)	(15,362)	(35)	(26,421)
Share of loss in joint venture	(1,176,282)	-	-	(1,176,282)
Other income, including interest and loan forgiveness	-	-	62,299	62,299
Net loss	\$ (4,788,224)	\$ (5,092,787)	\$ (834,430)	\$ (10,715,441)

2021

As of December 31,	Asia	US	Canada	Consolidated
Current assets	\$ 537,647	\$ 291,772	\$ 20,959,707	\$ 21,789,126
Investment in joint venture	1,445,251	-	-	1,445,251
Property and equipment	2,787,273	276,961	-	3,064,234
Patents and licenses	-	528,476	-	528,476
Right of use assets	150,134	176,756	-	326,890
Total Assets	\$ 4,920,305	\$ 1,273,965	\$ 20,959,707	\$ 27,153,977

For the Six Months Ended June 30,	Asia	US	Canada	Consolidated
Revenue	\$ 209,100	\$ -	\$ -	\$ 209,100
Selling, marketing and administration	\$ (719,250)	\$ (2,949,242)	\$ (942,220)	\$ (4,610,712)
Research and development	(2,266,515)	(1,016,024)	(520,166)	(3,802,705)
Interest	(18,769)	(16,316)	(294,293)	(329,378)
Other income, including interest	-	-	27,081	27,081
Net loss	\$ (2,795,434)	\$ (3,981,582)	\$ (1,729,598)	\$ (8,506,614)

Liquidity and Capital Resources

The Company had working capital of \$12,402,950 on June 30, 2022 compared to \$19,865,170 on December 31,

2021. The Company's statement of financial position as of June 30, 2022 reflects assets with a book value of \$18,557,775 compared to \$27,153,977 as of December 31, 2021. Seventy-six percent (76%) of the book value at June 30, 2022 was in current assets consisting primarily of cash, cash equivalents and short-term investments of \$13,764,652 compared to eighty percent (80%) of the book value as of December 31, 2021, which consisted primarily of cash, cash equivalents and short-term investments of \$21,308,603.

During the six months ended June 30, 2022, the Company had negative cash flows from operations of \$7,043,800. The Company has prepared a cash flow forecast which indicates that it does not have sufficient cash to meet its minimum expenditure commitments and therefore needs to raise additional funds to continue as a going concern. As a result, there is substantial doubt about the Company's ability to continue as a going concern for the next twelve months from the date of these condensed unaudited consolidated financial statements.

The Company has put in place a program of strict expense management while being focussed on generating sufficient revenue to fund operations over the next twelve months. The Company has a reasonable expectation that it will be able to manage its finances in order to continue its operations.

Related Party Transactions

Compensation to key management personnel (Executive Chairman and CEO, CFO, VP Finance and administration, VP Product Line Management, President & General Manager of the Company, VP & General Manager of PTS, Senior VP & General Manager of Asia) for the six months ended June 30, was as follows:

	2022	2021
Salaries	\$ 968,197	\$ 972,382
Share-based payments (1)	871,401	1,052,080
Total	\$ 1,839,598	\$ 2,024,462

(1) Share-based payments are the fair value of options granted to key management personnel and expensed during the various years as calculated using the Black-Scholes model.

All transactions with related parties have occurred in the normal course of operations and are measured at the exchange amounts, which are the amounts of consideration established and agreed to by the related parties.

Critical Accounting Estimates

Property and equipment

Property and equipment are recorded at cost. Depreciation is calculated based on the estimated useful life of the asset using the following method and useful lives:

Machinery and equipment	Straight Line, 5 years
Leasehold improvements	Straight Line, 5 years or life of the lease, whichever is less
Office equipment	Straight Line, 3 – 5 years

Patents and licenses

Patents and licenses are recorded at cost and amortized on a straight-line basis over 12 years. Ongoing maintenance costs are expensed as incurred.

Stock-based Compensation

Stock options and warrants awarded to non-employees are accounted for using the fair value of the instrument awarded or service provided, whichever is considered more reliable. Stock options and warrants awarded to employees are accounted for using the fair value method. The fair value of such stock options and warrants granted is recognized as an expense on a proportionate basis consistent with the vesting features of each tranche of the grant. The fair value is calculated using the Black-Scholes option-pricing model with assumptions applicable at the date of grant.

Other stock-based payments

The Company accounts for other stock-based payments based on the fair value of the equity instruments issued or service provided, whichever is more reliable.

Cumulative Translation Adjustment

IFRS requires certain gains and losses such as certain exchange gains and losses arising from the translation of the financial statements of a self-sustaining foreign operation to be included in comprehensive income.

Financial Instruments and Risk Management

The Company's financial instruments consist of cash and cash equivalents, short-term investments, covid-19 government support loans, contract liabilities and accounts payable and accrued liabilities. Unless otherwise noted, it is management's opinion that the Company is not exposed to significant interest risk arising from these financial instruments. The Company estimates that carrying value of these instruments approximates fair value due to their short-term nature.

The Company has classified financial assets and (liabilities) as follows:

	June 30, 2022	December 31, 2021
Cash and cash equivalents, measured at amortized cost:		
Cash and cash equivalents	11,398,499	\$14,941,775
Short-term investments	2,366,153	6,366,828
Other liabilities, measured at amortized cost:		
Accounts payable and accrued liabilities	(1,177,113)	(1,791,222)
Contract liabilities	(341,975)	-
Covid-19 government support loans	(31,068)	(31,660)

Exchange Rate Risk

The functional currency of each of the entities included in the accompanying consolidated financial statements is the local currency where the entity is domiciled. Functional currencies include the Chinese Yuan, US, Singapore and Canadian dollar. Most transactions within the entities are conducted in functional currencies. As such, none of the entities included in the consolidated financial statements engage in hedging activities. The Company is exposed to a foreign currency risk when its subsidiaries hold current assets or current liabilities in currencies other than its functional currency. A 10% change in foreign currencies held would increase or decrease other comprehensive loss by \$479,000.

Interest Rate Risk

Cash equivalents bear interest at fixed rates, and as such, are subject to interest rate risk resulting from changes in fair value from market fluctuations in interest rates. The Company does not depend on interest from its investments to fund its operations.

Credit Risk

The Company is not exposed to credit risk at this point as it does not currently generate revenue from its operations.

World Economic Risk

Like many other companies, the world economic climate could have an impact on the Company's business and the business of many of its current and prospective customers. A slump in demand for electronic-based devices, due to a world economic crisis may impact any anticipated licensing revenue.

Obsolescence Risk

The Company designs, manufactures and sells various highly technological optoelectronic products that could become obsolete should lower priced competitors or new technology enter the market. This would expose the company to obsolescence risk in the product offering. The redesign of the product offering could take significant time or could never occur.

Liquidity Risk

The Company predominately relies on equity funding for liquidity to meet current and foreseeable financial requirements. The Company currently does not maintain credit facilities. The Company's existing cash and cash resources are considered sufficient to fund operating and investing activities beyond one year from the issuance of these consolidated financial statements.

Outstanding Share Data***Common Shares***

Total common shares of the Company outstanding at June 30, 2022 and August 8, 2022 was 36,692,815.

Stock Options, Warrants and Compensation Options

Total warrants and broker warrants outstanding to purchase common shares of the Company at June 30, 2022 and August 8, 2022 was 2,971,353 priced between CA\$5.00 and CA\$11.50 per common share.

Total stock options outstanding as at June 30, 2022 and August 8, 2022 was 4,983,181 priced between CA\$2.30 and CA\$11.90 per common share.

Additional detailed share data information is available in the Company's Notes to Consolidated Financial Statement.

Off-Balance Sheet Arrangements

The Company has not entered into any off-balance sheet arrangements.

Impact of COVID-19 on Operations

While COVID-19 has negatively affected the Company, its impact was limited and economically manageable. Our main priority remains the health and safety of our employees. We continue to monitor and take safety measures to protect our employees and support those employees who work from home so that they can be productive. Our offices in all geographic locations remain open to enable critical on-site business functions in accordance with local government guidelines.

Due to the stage of the Company's development, it was not exposed to any loss of revenue and the associated consequences of downsizing. In Singapore and the US, the Company benefited from government programs designed to financially assist Company's that qualify for such assistance based on certain expenditure limits.

The Company's Canadian operations were unaffected by COVID-19 as its activities are primarily administrative.

Recent reports have documented the impact COVID-19 is having on the shortage of semiconductor chips in the market. The shortage is driven by the suppliers' inability to keep pace with demand. The Company is reliant on many of these suppliers for products and services. The lack of supply in the industry has resulted in a delay of approximately three to six months in the Company's product development cycle. While the delay has pushed out the Company's timeline for its products to reach the market, it has not resulted in a material financial loss to the Company. It is not possible to quantify the potential impact of the delays on future sales. Management will continue to monitor the impacts of COVID-19 on operations and report such impacts to shareholders.

Controls and Procedures

(a) Disclosure Controls and Procedures

Disclosure controls and procedures are defined by Rules 13a-15(e) and 15d-15(e) under the Exchange Act as controls and other procedures that are designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified by the SEC's rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, to allow timely decisions regarding required disclosures.

We carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of December 31, 2021, our disclosure controls and procedures were not effective due to a material weakness in our internal control over financial reporting relating to user access controls over certain software we utilize for financial reporting. Specifically, it was found that adequate restrictions were not in place to ensure appropriate segregation of duties among our personnel, which could result in inappropriate access rights in certain instances (the "User Access Material Weakness"). A material weakness, as defined in the Sarbanes Oxley Act of 2002 ("SOX"), is a control deficiency, or combination of control deficiencies, in internal control over financial reporting such that there is a reasonable possibility that a material misstatement of the annual consolidated financial statements will not be prevented or detected on a timely basis.

(b) Management's Annual Report on Internal Control over Financial Reporting

Our management, under the oversight of our Board of Directors (in particular its audit committee), is responsible for establishing and maintaining adequate internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act and as set forth in Section 404 of SOX). The Company's internal control system was designed to provide reasonable assurance to management and the Board of Directors regarding the reliability of financial reporting and the preparation and fair presentation of its published consolidated financial statements. Under the SOX framework, our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board. Our internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of consolidated financial statements in accordance with IFRS, and that our receipts and expenditures are being made only in accordance

with authorizations of our management and directors; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our consolidated financial statements.

All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective may not prevent or detect misstatements and can provide only reasonable assurance with respect to financial statement preparation and presentation. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of the Company's internal control over financial reporting as of December 31, 2021. In making this assessment, it used the criteria established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Based on that assessment and those criteria, management concluded that we did not maintain effective internal controls over financial reporting as of December 31, 2021 as a result of the User Access Material Weakness.

The User Access Material Weakness did not result in a material misstatement of our consolidated financial statements for the fiscal year ended December 31, 2021 or any prior annual or interim periods nor has it resulted in any failure to safeguard our assets, including our cash and fixed assets. However, if the User Access Material Weakness is not remediated, a material misstatement of account balances or disclosures may not be prevented, and may go undetected, which could result in a material misstatement of future annual or interim consolidated financial statements.

Following the identification of the User Access Material Weakness (which occurred subsequent to December 31, 2021), management has taken steps to remediate that material weakness. Specifically, management has:

- Removed administrative user access to financial reporting systems from members of the finance department.
- Removed user access provisioning from members of the finance department.
- Limited the user access rights of significant control owners to view only access rights over certain financial reporting data.
- Initiated quarterly user access review to certify that only approved users have access rights to financial reporting software.

Although management has taken immediate remedial steps, the User Access Material Weakness will not be considered remediated until the applicable remedial controls operate for a sufficient period of time and management has concluded, through testing, that these controls are operating effectively. Further, our independent registered accounting firm has not performed a new audit of our internal control over financial reporting and we cannot give assurances that the measures we have thus far taken to remediate the aforementioned material weakness were sufficient or that they will prevent future material weaknesses. As management continues to evaluate and work to improve our internal control over financial reporting, we may determine it necessary to take additional measures or modify the remediation measures we have taken to date.

(c) Attestation Report of Registered Public Accounting Firm

Marcum LLP, an independent registered public accounting firm, has audited our internal control over financial reporting as of December 31, 2021, as stated in their report which appears herein.

(d) Changes in Internal Controls over Financial Reporting

Although we have undertaken the remediation efforts described above subsequent to December 31, 2021, there were no changes in our internal control over financial reporting during year ended December 31, 2021 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Key Business Risks and Uncertainties

We have a history of large operating losses. We may not be able to achieve or sustain profitability in the future and as a result we may not be able to maintain sufficient levels of liquidity.

We have historically incurred losses and negative cash flows from operations since our inception. As of December 31, 2021, we had an accumulated deficit of \$172,986,970. We incurred losses of \$10,715,441 for the six months ended June 30, 2022.

As of June 30, 2022, we held \$13,764,652 in cash and cash equivalents and short-term investments, and we had working capital of \$12,402,950.

The Company has prepared a cash flow forecast which indicates that it does not have sufficient cash to meet its minimum expenditure commitments and therefore needs to raise additional funds to continue as a going concern. As a result, there is substantial doubt about the Company's ability to continue as a going concern for the next twelve months from the date of these condensed unaudited consolidated financial statements.

The optical data communications industry in which we have chosen to operate is subject to significant risks, including rapid growth and volatility, dependence on rapidly changing underlying technologies, market and political risks and uncertainties and extreme competition. We cannot guarantee that we will be able to anticipate or overcome any or all of these risks and uncertainties, especially as a small company operating in an environment dominated by large, well-capitalized competitors with substantially more resources.

The optical data communications industry is subject to significant operational fluctuations. In order to remain competitive, we incur substantial costs associated with research and development, qualification, prototype production capacity and sales and marketing activities in connection with products that may be purchased, if at all, long after we have incurred such costs. In addition, the rapidly changing industry in which we operate, the length of time between developing and introducing a product to market, frequent changing customer specifications for products, customer cancellations of products and general down cycles in the industry, among other things, make our prospects difficult to evaluate. As a result of these factors, it is possible that we may not (i) generate sufficient positive cash flow from operations; (ii) raise funds through the issuance of equity, equity-linked or convertible debt securities; or (iii) otherwise have sufficient capital resources to meet our future capital or liquidity needs. There are no guarantees we will be able to generate additional financial resources beyond our existing balances.

We divested our major operating asset, adopted a new “fab-light” strategy, and we plan to focus on the Optical Interposer as our main business. Any or all of these decisions if incorrect may have a material adverse effect on the results of our operations, financial position and cash flows, and pose further risks to the successful operation of our business over the short and long-term.

There are substantial risks associated with our adoption of a “fab-light” strategy, including the loss of revenue associated with the divested operation, the loss of control over an internal development asset, and the loss of key technical knowledge available from personnel who will no longer be employed by the Company, many of whom we may have to replace.

We have some previous experience with managing development without an internal development resource under a similar “fab-light” strategy which was not successful, and there is no guarantee that our new approach to operating a company with our chosen strategy will be successful. Further, our strategy will be solely dependent

on the future market acceptance and sale of Optical Interposer-based solutions, which are either not fully developed or are in qualification stages, and which no customer has yet fully committed to adopting in a production product.

We have taken substantial measures to protect POET's intellectual property in the Optical Interposer, including development and production with a separate third-party company which engaged no engineering personnel from our former subsidiary company DenseLight. We conducted development of component devices with a segregated team at our DenseLight facility and took measures to protect POET's intellectual property on those developments as well. However, we cannot guarantee that all our measures to protect our intellectual property on either the POET Optical Interposer or its component devices have been totally effective. In addition, we cannot guarantee that DenseLight or any other third-party that we rely on to perform development, manufacturing, packaging or testing services will perform as expected and produce the devices we will need to grow our Optical Interposer business.

There can be no assurance that we will be successful in addressing these or any other significant risks we may encounter in the divestment of DenseLight, the adoption of a "fab-light" strategy or the focus of our business solely on the Optical Interposer.

We have contributed a portion of our intellectual property and exclusive assembly and sales rights for certain key initial products to a joint venture company that we have recently formed in China. Although we believe that the joint venture offers significant opportunities for growth that we might not otherwise have and solves several major known challenges, we also recognize that there are substantial risks and uncertainties associated with executing a major portion of our strategy through a joint venture, regardless of the intentions and capabilities of the parties involved. Further, joint venture accounting rules do not allow the Company to consolidate the revenue and expenses of the joint venture into its financials nor fully reflect the potential market value of the asset.

On October 21, 2020, the Company signed a Joint Venture Agreement ("JVA") with Sanan IC to form a joint venture company, Super Photonics Xiamen Co., Ltd. ("SPX"), which will eventually be owned 48% by the Company once SAIC is fully invested. SPX will assemble, test, package and sell certain optical engines on an exclusive basis globally and certain others on an exclusive basis in the territory of Greater China. Optical engines based on the POET Optical Interposer are expected to be a primary component of several types of optical transceivers used in data centers. The joint venture is based on the contribution by the Company of certain assembly and test know-how and other intellectual property and cash to be contributed by Sanan IC in stages, subject to meeting certain milestones, to cover all capital and operating expenses of SPX until it is self-sustaining. We cannot guarantee that SPX will meet each milestone or that Sanan IC will or will not contribute capital on schedule when and if such milestones are met, nor can we guarantee that SPX will be successful in assembling and testing optical engines, nor in the marketing and sales once the optical engines are tested and qualified by potential customers.

Because no party to the joint venture, including the Company has a control position, we are not able to consolidate revenue and expenses directly into the Company's financial statements. The earnings or loss from the joint venture operations are included as a single line item in the financial statements and the gain or loss on the intellectual property contributed to the joint venture is reported on another. Further, even though the joint venture may appreciate in market value if successful, the Company will not be able to reflect any increase in fair value, other than adding or subtracting on a periodic basis the income or loss experienced by the joint venture in relation to the Company's percentage ownership at the time.

The Company's investment into "Super Photonics Xiamen" ("SPX") is into an independent company operating as a true joint venture under the laws of the Peoples Republic of China ("PRC"). There are significant governance and operational risks associated with joint ventures and with companies operating in the PRC, in

general. We cannot guarantee that we will be able to anticipate or overcome the risks and uncertainties of operating a joint venture company in China.

Although SPX has its own governance structure to which both parties contribute directors, most major decisions must be unanimous, which means that such decisions will require the support of the management of SPX and both of the JV partners. Although the Company has sought the support of well-known and competent legal and other professional advisors and has had a major role in the recruitment of the senior management team of SPX, the Company has no prior experience with either the operation of a joint venture or with the operation of a JV company under the laws of the PRC, so we cannot guarantee that the joint venture will be successfully managed without substantial investment in time and effort by the Company's current management team or at all.

In order to qualify for listing on the Nasdaq, we recently consolidated our common shares on a 10-for-1 basis, thereby reducing the total number of our common shares which are outstanding on a post-consolidation basis. We cannot guarantee that the reduction in the number of our outstanding common shares as a result of the consolidation will not adversely affect the liquidity of our common shares or decrease the overall value of the Company in the future.

On February 28, 2022, the Company completed a 10-for-1 consolidation of our outstanding common shares, resulting in a total of 36,496,456 common shares of the Company outstanding on a post-consolidation basis. The reduced number of outstanding shares may reduce market liquidity of our common shares and/or affect investor perception of the value of the Company, and as a result shareholders may not be able to sell their shares on a timely basis, or at all.

In order to attract a wider investor audience for our shares and thereby to achieve a higher market value, we have listed on the Nasdaq Capital Market.

Our participation in this new market for our shares involves several levels of uncertainty and additional costs, in both capital and management time and attention. In addition, our Directors and Officers (D&O) liability insurance expense will increase dramatically, reflecting an increased prevalence of derivative shareholder lawsuits in the United States versus Canada. We cannot guarantee that listing on the Nasdaq will improve our stock price or liquidity, or attract a wider investor audience for our shares.

We may not be able to obtain additional capital when desired, on favorable terms or at all.

We operate in a market that makes our prospects difficult to evaluate and, to remain competitive, we will be required to make continued investments in capital equipment, facilities and technology. We expect that substantial capital will be required to continue technology and product development, to expand our contract manufacturing capacity if we need to do so and to fund working capital for anticipated growth. If we do not generate sufficient cash flow from operations or otherwise have the capital resources to meet our future capital needs, we may need additional financing to implement our business strategy.

If we raise additional funds through the issuance of our common stock or convertible securities, the ownership interests of our stockholders could be significantly diluted. These newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. Additional financing may not, however, be available on terms favorable to us, or at all, if and when needed, and our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our infrastructure or respond to competitive pressures could be significantly limited. If we cannot raise required capital when needed we may be unable to continue technology and product development, meet the demands of existing and prospective customers, adversely affecting our sales and market opportunities and consequently our business, financial condition and results of operations.

The process of developing new, technologically advanced products in semiconductor manufacturing and photonics products is highly complex and uncertain, and we cannot guarantee a positive result.

The development of new, technologically advanced products is a complex and uncertain process requiring frequent innovation, highly skilled engineering and development personnel and significant capital, as well as the accurate anticipation of technological and market trends. We cannot assure you that we will be able to identify, develop, manufacture, market or support new or enhanced products successfully or on a timely basis. Further, we cannot assure you that our new products will gain market acceptance or that we will be able to respond effectively to product introductions by competitors, technological changes or emerging industry standards. We also may not be able to develop the underlying core technologies necessary to create new products and enhancements, license these technologies from third parties, or remain competitive in our markets.

If our customers do not qualify our products for use on a timely basis, our results of operations may suffer.

Prior to the sale of new products, our customers typically require us to “qualify” our products for use in their applications. At the successful completion of this qualification process, we refer to the resulting sales opportunity as a “design win.” Additionally, new customers often audit our manufacturing facilities and perform other evaluations during this qualification process. The qualification process involves product sampling and reliability testing and collaboration with our product management and engineering teams in the design and manufacturing stages. If we are unable to accurately predict the amount of time required to qualify our products with customers, or are unable to qualify our products with certain customers at all, then our ability to generate revenue could be delayed or our revenue would be lower than expected and we may not be able to recover the costs associated with the qualification process or with our product development efforts, which would have an adverse effect on our results of operations.

We have limited operating history in the data center market, and our business could be harmed if this market does not develop as we expect.

The initial target market for our Optical Interposer-based optical engine is the data center market for data communications within the data center and beyond. We have limited experience in selling products in this market. We may not be successful in developing a product for this market and even if we do, it may never gain widespread acceptance by large data center operators. If our expectations for the growth of the data center / datacom market are not realized, our financial condition or results of operations may be adversely affected.

Customer demand is difficult to forecast accurately and, as a result, we may be unable to match production with customer demand.

We make planning and spending decisions, including determining the levels of business that we will seek and accept, production schedules, component procurement commitments, personnel needs and other resource requirements, based on our estimates of product demand and customer requirements. Our products are typically sold pursuant to individual purchase orders. While our customers may provide us with their demand forecasts, they are typically not contractually committed to buy any quantity of products beyond firm purchase orders. Furthermore, many of our customers may increase, decrease, cancel or delay purchase orders already in place without significant penalty. The short-term nature of commitments by our expected customers and the possibility of unexpected changes in demand for their products reduce our ability to accurately estimate future customer requirements. If any of our customers decrease, stop or delay purchasing our products for any reason, we will likely have excess manufacturing capacity or inventory and our business and results of operations would be harmed.

The markets in which we operate are highly competitive, which could result in lost sales and lower revenues.

The market for optical components and modules is highly competitive and this competition could result in our existing customers moving their orders to our competitors. We are aware of a number of companies that have developed or are developing integrated optical products, including silicon photonics engines, remote light sources, pluggable components, modules and subsystems, photonic integrated circuits, among others, that compete (or may in the future compete) directly with our current and proposed product offerings.

Some of our current competitors, as well as some of our potential competitors, have longer operating histories, greater name recognition, broader customer relationships and industry alliances and substantially greater financial, technical and marketing resources than we do. We may not be able to compete successfully with our competitors and aggressive competition in the market may result in lower prices for our products and/or decreased gross margins. Any such development could have a material adverse effect on our business, financial condition and results of operations.

We depend on a limited number of suppliers and key contract manufacturers who could disrupt our business and technology development activities if they stopped, decreased, delayed or were unable to meet our demand for shipments of their products or manufacturing of our products.

We depend on a limited number of suppliers of epitaxial wafers and contract manufacturers for our Indium Phosphide (“InP”) laser developments and optical interposer production activities. Some of these suppliers are sole source suppliers. We typically have not entered into long-term agreements with our suppliers. As a result, these suppliers generally may stop supplying us materials and other components at any time. Our reliance on a sole supplier or limited number of suppliers could result in delivery problems, reduced control over technology development, product development, pricing and quality, and an inability to identify and qualify another supplier in a timely manner. Some of our suppliers that may be small or under-capitalized may experience financial difficulties that could prevent them from supplying us materials and other components. In addition, our suppliers, including our sole source suppliers, may experience manufacturing delays or shutdowns due to circumstances beyond their control such as pandemics, earthquakes, floods, fires, labor unrest, political unrest or other natural disasters. A change in supplier could require technology transfer that could require multiple iterations of test wafers. This could result in significant delays in resumption of production.

Any supply deficiencies relating to the quality or quantities of materials or equipment we use to manufacture our products could materially and adversely affect our ability to fulfill customer orders and our results of operations. Lead times for the purchase of certain materials and equipment from suppliers have increased and, in some cases, have limited our ability to rapidly respond to increased demand, and may continue to do so in the future. To the extent we introduce additional contract manufacturing partners, introduce new products with new partners and/or move existing internal or external production lines to new partners, we could experience supply disruptions during the transition process. In addition, due to our customers’ requirements relating to the qualification of our suppliers and contract manufacturing facilities and operations, we cannot quickly enter into alternative supplier relationships, which prevent us from being able to respond immediately to adverse events affecting our suppliers.

Our international business and operations expose us to additional risks.

We have significant tangible assets located outside the United States and Canada. Conducting business outside Canada and the United States subjects us to a number of additional risks and challenges, including:

- periodic changes in a specific country's or region's economic conditions, such as recession;
- licenses and other trade barriers;
- the provision of services may require export licenses;
- environmental regulations;
- certification requirements;
- fluctuations in foreign currency exchange rates;
- inadequate protection of intellectual property rights in some countries;
- preferences of certain customers for locally produced products;

- potential political, legal and economic instability, foreign conflicts, and the impact of regional and global infectious illnesses in the countries in which we and our customers, suppliers and contract manufacturers are located;
- Canadian and U. S. and foreign anticorruption laws;
- seasonal reductions in business activities in certain countries or regions; and
- fluctuations in freight rates and transportation disruptions.

These factors, individually or in combination, could impair our ability to effectively operate one or more of our foreign facilities or deliver our products, result in unexpected and material expenses, or cause an unexpected decline in the demand for our products in certain countries or regions. Our failure to manage the risks and challenges associated with our international business and operations could have a material adverse effect on our business.

If we fail to attract and retain key personnel, our business could suffer.

Our future success depends, in part, on our ability to attract and retain key personnel, including executive management. Competition for highly skilled technical personnel is extremely intense and we may face difficulty identifying and hiring qualified engineers in many areas of our business. We may not be able to hire and retain such personnel at compensation levels consistent with our existing compensation and salary structure. Our future success also depends on the continued contributions of our executive management team and other key management and technical personnel, each of whom would be difficult to replace. The loss of services of these or other executive officers or key personnel or the inability to continue to attract qualified personnel could have a material adverse effect on our business.

Our predecessor company received subsidies and other types of funding from government agencies. The funding agreements stipulate that if we do not comply with various covenants, including eligibility requirements, and/or do not achieve certain pre-defined objectives, those government agencies may reclaim all or a portion of the funding provided. If they find that we were ineligible for such funding, then they may both reclaim the funds and add penalties and interest. If this were to occur, we would either not be in a position to repay the claimed amounts or would have to borrow large sums in order to do so or refinance with dilutive financing, which could adversely affect our financial condition.

Our predecessor company, Opel Solar and an affiliated company, ODIS, now a wholly owned subsidiary, received research and development grants from the United States Air Force and from NASA. The rules for eligibility vary widely across government agencies, are complex and may be subject to different interpretations. We cannot guarantee that one or more agencies will not seek repayment of all or a portion of the funds provided or make claims that we were ineligible to receive such funds, and if this were to occur, we could have to borrow large sums or refinance with dilutive financing in order to make the repayments, which would adversely affect our financial condition.

If we fail to protect, or incur significant costs in defending, our intellectual property and other proprietary rights, our business and results of operations could be materially harmed.

Our success depends on our ability to protect our intellectual property and other proprietary rights. We rely on a combination of patent, trademark, copyright, trade secret and unfair competition laws, as well as license agreements and other contractual provisions, to establish and protect our intellectual property and other proprietary rights. We have applied for patent registrations in the U.S. and in foreign countries, some of which have been issued. We cannot guarantee that our pending applications will be approved by the applicable governmental authorities. Moreover, our existing and future patents and trademarks may not be sufficiently broad to protect our proprietary rights or may be held invalid or unenforceable in court. A failure to obtain patents or trademark

registrations or a successful challenge to our registrations in the U.S. or foreign countries may limit our ability to protect the intellectual property rights that these applications and registrations intended to cover.

Policing unauthorized use of our technology is difficult and we cannot be certain that the steps we have taken will prevent the misappropriation, unauthorized use or other infringement of our intellectual property rights. Further, we may not be able to effectively protect our intellectual property rights from misappropriation or other infringement in foreign countries where we have not applied for patent protections, and where effective patent, trademark, trade secret and other intellectual property laws may be unavailable or may not protect our proprietary rights as fully as Canadian or U.S. law. We may seek to secure comparable intellectual property protections in other countries. However, the level of protection afforded by patent and other laws in other countries may not be comparable to that afforded in Canada and the U.S.

We also attempt to protect our intellectual property, including our trade secrets and know-how, through the use of trade secret and other intellectual property laws, and contractual provisions. We enter into confidentiality and invention assignment agreements with our employees and independent consultants. We also use non-disclosure agreements with other third parties who may have access to our proprietary technologies and information. Such measures, however, provide only limited protection, and there can be no assurance that our confidentiality and non-disclosure agreements will not be breached, especially after our employees end their employment, and that our trade secrets will not otherwise become known by competitors or that we will have adequate remedies in the event of unauthorized use or disclosure of proprietary information. Unauthorized third parties may try to copy or reverse engineer our products or portions of our products, otherwise obtain and use our intellectual property, or may independently develop similar or equivalent trade secrets or know-how. If we fail to protect our intellectual property and other proprietary rights, or if such intellectual property and proprietary rights are infringed or misappropriated, our business, results of operations or financial condition could be materially harmed.

In the future, we may need to take legal actions to prevent third parties from infringing upon or misappropriating our intellectual property or from otherwise gaining access to our technology. Protecting and enforcing our intellectual property rights and determining their validity and scope could result in significant litigation costs and require significant time and attention from our technical and management personnel, which could significantly harm our business. We may not prevail in such proceedings, and an adverse outcome may adversely impact our competitive advantage or otherwise harm our financial condition and our business.

We may be involved in intellectual property disputes in the future, which could divert management's attention, cause us to incur significant costs and prevent us from selling or using the challenged technology.

Participants in the markets in which we sell our products have experienced frequent litigation regarding patent and other intellectual property rights. There can be no assurance that third parties will not assert infringement claims against us, and we cannot be certain that our products would not be found infringing on the intellectual property rights of others. Regardless of their merit, responding to such claims can be time consuming, divert management's attention and resources and may cause us to incur significant expenses. Intellectual property claims against us could result in a requirement to license technology from others, discontinue manufacturing or selling the infringing products, or pay substantial monetary damages, each of which could result in a substantial reduction in our revenue and could result in losses over an extended period of time.

If we fail to obtain the right to use the intellectual property rights of others that are necessary to operate our business, and to protect their intellectual property, our business and results of operations will be adversely affected.

From time to time, we may choose to or be required to license technology or intellectual property from third parties in connection with the development of our products. We cannot assure you that third party licenses will be available to us on commercially reasonable terms, if at all. Generally, a license, if granted, would include payments of up-front fees, ongoing royalties or both. These payments or other terms could have a significant adverse impact on our results of operations. Our inability to obtain a necessary third-party license required for our product offerings or to develop new products and product enhancements could require us to substitute technology of lower

quality or performance standards, or of greater cost, either of which could adversely affect our business. If we are not able to obtain licenses from third parties, if necessary, then we may also be subject to litigation to defend against infringement claims from these third parties. Our competitors may be able to obtain licenses or cross-license their technology on better terms than we can, which could put us at a competitive disadvantage.

Failure to comply with requirements to design, implement and maintain effective internal control over financial reporting could have a materially adverse impact on our financial reporting and our business. Although we were previously exempt from certain requirements to audit our internal controls over financial reporting, as a result of our “emerging growth company” status recently expiring, we are now, and in the future expect to continue to be, required to have our internal controls over financial reporting audited under Section 404(b) of the Sarbanes-Oxley Act. The audit of our internal control over financial reporting identified a material weakness in our internal control over financial reporting as of December 31, 2021.

Preparing our consolidated financial statements involves a number of complex manual and automated processes, which are dependent upon individual data input or review and require significant management judgment. One or more of these elements may result in errors that may not be detected and could result in a material misstatement of our consolidated financial statements. The Sarbanes-Oxley Act in the U.S. requires, among other things, that as a publicly traded company we disclose whether our internal control over financial reporting and disclosure controls and procedures are effective. Until December 31, 2021 we qualified as an “emerging growth company” under the JOBS Act, and, as a result, were exempted from certain SEC reporting requirements, including those requiring registrants to include an auditor’s report regarding the Company’s internal controls as part of such registrant’s periodic reports. Our “emerging growth company” status expired on December 31, 2021, and the report of our auditors regarding the effectiveness of our internal controls over disclosure and financial reporting as of December 31, 2021 is attached as an exhibit to this annual report.

Our internal control over financial reporting cannot guarantee that no accounting errors exist or that all accounting errors, no matter how immaterial, will be detected because a control system, no matter how well designed and operated, can provide only reasonable, but not absolute assurance that the control system’s objectives will be met. If we are unable to implement and maintain effective internal control over financial reporting, our ability to accurately and timely report our financial results could be adversely impacted. This could result in late filings of our annual and quarterly reports under the *Securities Act* (Ontario) and the Securities Exchange Act of 1934 (the “Exchange Act”), restatements of our consolidated financial statements, a decline in our stock price, suspension or delisting of our common stock by the TSX Venture Exchange, or other material adverse effects on our business, reputation, results of operations or financial condition.

The process of designing and implementing effective internal control over financial reporting is a continuous effort that requires us to anticipate and react to changes in our business and the economic and regulatory environments and to expend significant resources to maintain a system of internal control that is adequate to satisfy our reporting obligations as a public company. In addition, we are required, pursuant to Section 404(a) of the Sarbanes-Oxley Act, to furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting. This assessment must include disclosure of any material weaknesses identified by our management in our internal control over financial reporting. The rules governing the standards that must be met for our management to assess our internal control over financial reporting are complex and require significant documentation, testing and possible remediation. Testing and maintaining our internal control over financial reporting may divert our management’s attention from other matters that are important to our business. In connection with the implementation of the necessary procedures and practices related to our internal control over financial reporting, we and/or our independent registered accounting firm may identify material weaknesses and other deficiencies that may require significant effort and expense to remediate. We may encounter problems or delays in completing the remediation of any such weaknesses or other deficiencies.

In the process of completing their audit of our internal control over financial reporting as of December 31, 2021, our independent registered accounting firm identified a material weakness with respect to user access controls

over certain software we utilize for financial reporting. Specifically, our independent registered accounting firm found that adequate restrictions were not in place to ensure appropriate segregation of duties among our personnel, which could result in inappropriate access rights in certain instances. Accordingly, we and our independent registered accounting firm determined that our internal control over financial reporting, and our management determined that our disclosure controls and procedures, were not effective as of December 31, 2021. See Item 15 “Controls and Procedures.”

Although we have taken steps to remediate the material weakness identified to us by our independent registered accounting firm, the material weakness will not be considered remediated until the applicable remedial controls operate for a sufficient period of time and management has concluded, through testing, that these controls are operating effectively. Further, our independent registered accounting firm has not performed a new audit of our internal control over financial reporting and we cannot give assurances that the measures we have thus far taken to remediate the aforementioned material weakness were sufficient or that they will prevent future material weaknesses. As management continues to evaluate and work to improve our internal control over financial reporting, we may determine it necessary to take additional measures or modify the remediation measures we have taken to date.

If we or our independent registered accounting firm later determine that the remedial measures we have taken are insufficient to address such material weakness, we will continue to disclose such material weakness in our periodic reports. Additionally, if there is a change in conditions, or the degree of compliance with policies or procedure deteriorates, internal review of our internal control over financial reporting or the subsequent testing by our independent registered public accounting firm may reveal other deficiencies in our internal control over financial reporting that are deemed material weaknesses. If this occurs, our consolidated financial statements or disclosures may contain material misstatements and we could be required to restate our financial results. In addition, we may not be able to conclude on an ongoing basis that we have effective internal control over financial reporting or our independent registered public accounting firm may not in future issue an unqualified opinion, each of which could lead to investors losing confidence in our reported financial information, which could have a material adverse effect on the trading price of our common stock, and we may be unable to maintain compliance with applicable stock exchange listing requirements.

Our ability to use our net operating losses and certain other tax attributes may be limited.

As of June 30, 2022, we had accumulated net operating losses (“NOLs”), of approximately \$129 million. Varying jurisdictional tax codes have restrictions on the use of NOLs, if a corporation undergoes an “ownership change,” the Company’s ability to use its pre-change NOLs, R&D credits and other pre-change tax attributes to offset its post-change income may be limited. An ownership change is generally defined as a greater than 50% change in equity ownership. Based upon an analysis of our equity ownership, we do not believe that we have experienced such ownership changes and therefore our annual utilization of our NOLs is not limited. However, should we experience additional ownership changes, our NOL carry forwards may be limited.

We are subject to governmental export and import controls that could subject us to liability or impair our ability to compete in international markets. Such controls have recently increased for companies in China under the US government’s “control list”, and may further limit or impair our ability to use certain sub-contractors or to sell directly to companies on the list

We are subject to export and import control laws, trade regulations and other trade requirements that limit which raw materials and technology we can import or export and which products we sell and where and to whom we sell our products. Specifically, the Bureau of Industry and Security of the U.S. Department of Commerce is responsible for regulating the export of most commercial items that are so called dual-use goods that may have both commercial and military applications. A limited number of our products are exported by license under certain classifications. Export Control Classification requirements are dependent upon an item’s technical characteristics, the destination, the end-use, and the end-user, and other activities of the end-user. Should the regulations

applicable to our products change, or the restrictions applicable to countries to which we ship our products change, then the export of our products to such countries could be restricted. As a result, our ability to export or sell our products to certain countries could be restricted, which could adversely affect our business, financial condition and results of operations. Changes in our products or any change in export or import regulations or related legislation, shift in approach to the enforcement or scope of existing regulations, or change in the countries, persons or technologies targeted by such regulations, could result in delayed or decreased sales of our products to existing or potential customers. In such event, our business and results of operations could be adversely affected.

Our manufacturing operations are subject to environmental regulation that could limit our growth or impose substantial costs, adversely affecting our financial condition and results of operations.

Our properties, operations and products are subject to the environmental laws and regulations of the jurisdictions in which we operate and sell products. These laws and regulations govern, among other things, air emissions, wastewater discharges, the management and disposal of hazardous materials, the contamination of soil and groundwater, employee health and safety and the content, performance, packaging and disposal of products. Our failure to comply with current and future environmental laws and regulations, or the identification of contamination for which we are liable, could subject us to substantial costs, including fines, cleanup costs, third-party property damages or personal injury claims, and make significant investments to upgrade our facilities or curtail our operations. Identification of presently unidentified environmental conditions, more vigorous enforcement by a governmental authority, enactment of more stringent legal requirements or other unanticipated events could give rise to adverse publicity, restrict our operations, affect the design or marketability of our products or otherwise cause us to incur material environmental costs, adversely affecting our financial condition and results of operations.

We are exposed to risks and increased expenses and business risk as a result of Restriction on Hazardous Substances, or RoHS directives, which have been amended but are still in effect.

Following the lead of the European Union, or EU, various governmental agencies have either already put into place or are planning to introduce regulations that regulate the permissible levels of hazardous substances in products sold in various regions of the world. For example, the RoHS directive for EU took effect on July 1, 2006. The labeling provisions of similar legislation in China went into effect on March 1, 2007 and is still in effect, as amended. Consequently, many suppliers of products sold into the EU have required their suppliers to be compliant with the new directive. We anticipate that our customers may adopt this approach and will require our full compliance, which will require a significant amount of resources and effort in planning and executing our RoHS program, it is possible that some of our products might be incompatible with such regulations. In such events, we could experience the following consequences: loss of revenue, damages reputation, diversion of resources, monetary penalties, and legal action.

Failure to comply with the U.S. Foreign Corrupt Practices Act could subject us to penalties and other adverse consequences.

We are subject to the U.S. Foreign Corrupt Practices Act, which generally prohibits companies operating in the U.S. from engaging in bribery or other prohibited payments to foreign officials for the purpose of obtaining or retaining business. In addition, we are required to maintain records that accurately and fairly represent our transactions and have an adequate system of internal accounting controls. Non-U.S. companies, including some that may compete with us, may not be subject to these prohibitions, and therefore may have a competitive advantage over us. If we are not successful in implementing and maintaining adequate preventative measures, we may be responsible for acts of our employees or other agents engaging in such conduct. We could suffer severe penalties and other consequences that may have a material adverse effect on our financial condition and results of operations.

Natural disasters or other catastrophic events could harm our operations.

Our operations in the U.S., Canada, Singapore and China could be subject to significant risk of natural disasters, including earthquakes, hurricanes, typhoons, flooding and tornadoes, as well as other catastrophic events, such as epidemics, terrorist attacks or wars. For example, our testing facility in Singapore is in an area that is susceptible to hurricanes. Any disruption in our facilities or those of our contractors and suppliers arising from these and other natural disasters or other catastrophic events could cause significant delays in the production or shipment of our products until we are able to arrange for third parties to manufacture our products. We may not be able to obtain alternate capacity on favorable terms or at all. Our property insurance coverage with respect to natural disaster is limited and is subject to deductible and coverage limits. Such coverage may not be adequate or continue to be available at commercially reasonable rates and terms. The occurrence of any of these circumstances may adversely affect our financial condition and results of operation.

We may be subject to disruptions or failures in information technology systems and network infrastructures that could have a material adverse effect on our business and financial condition.

We rely on the efficient and uninterrupted operation of complex information technology systems and network infrastructures to operate our business. A disruption, infiltration or failure of our information technology systems as a result of software or hardware malfunctions, system implementations or upgrades, computer viruses, third-party security breaches, employee error, theft or misuse, malfeasance, power disruptions, natural disasters or accidents could cause a breach of data security, loss of intellectual property and critical data and the release and misappropriation of sensitive competitive information and partner, customer, and employee personal data. Any of these events could harm our competitive position, result in a loss of customer confidence, cause us to incur significant costs to remedy any damages and ultimately materially adversely affect our business and financial condition.

A significant disruption in, or breach in security of, our information technology systems or violations of data protection laws could materially adversely affect our business and reputation.

In the ordinary course of business, we collect and store confidential information, including proprietary business information belonging to us, our customers, suppliers, business partners and other third parties and personally identifiable information of our employees. We rely on information technology systems to protect this information and to keep financial records, process orders, manage inventory, coordinate shipments to customers, and operate other critical functions. Our information technology systems may be susceptible to damage, disruptions or shutdowns due to power outages, hardware failures, telecommunication failures and user errors. If we experience a disruption in our information technology systems, it could result in the loss of sales and customers and significant incremental costs, which could materially adversely affect our business. We may also be subject to security breaches caused by computer viruses, illegal break-ins or hacking, sabotage, or acts of vandalism by disgruntled employees or third parties. The risk of a security breach or disruption, particularly through cyberattack or cyber intrusion, including by computer hackers, foreign governments and cyber terrorists, has increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. Our information technology network and systems have been and, we believe, continue to be under constant attack. Accordingly, despite our security measures or those of our third-party service providers, a security breach may occur, including breaches that we may not be able to detect. Security breaches of our information technology systems could result in the misappropriation or unauthorized disclosure of confidential information. Such breaches could also result in legal action against us by third parties.

The COVID-19 outbreak could delay our development activities and adversely affect our results of operations.

The global outbreak of COVID-19 has resulted in Canada, the United States, Singapore, China and other countries halting or sharply curtailing the movement of people, goods and services. The curtailed activity has negatively affected many businesses, including the Company and other businesses that operate in our sector. The prolonged economic impact of COVID-19 remains uncertain. At this point, we believe the conditions may have a material adverse impact on our business, as our suppliers are experiencing major delays resulting from high backlogs of orders and an inability to operate at full capacity. Such delays have resulted in a four to six

months delay or longer in the Company achieving certain development objectives. Given the rapidly changing developments we cannot accurately predict what effects these developments will have on our business going forward, which will depend on, among other factors, the ultimate geographic spread of the virus, governmental limitations, the duration of the outbreak, travel restrictions and business closures.

The Company may experience these factors in the future and these factors may have a material adverse effect on the Company's business, operating results and financial condition.

Please refer to the Company's Annual Information Forms filed on SEDAR for a detailed discussion of Risks and Uncertainties most recently filed on April 26, 2022.

Additional Information

Additional information relating to the Company is available on SEDAR at www.sedar.com including the information contained in the Company's Annual Information Form filed on SEDAR on April 26, 2022.





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