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Zacks Small-Cap Research

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Lisa Thompson
312-265-9154
lthompson@zacks.com

scr.zacks.com

10 S. Riverside Plaza, Chicago, IL 60606

POET Technologies Inc. (NASDAQ: POET)

POET Revenues Slip, But Interest Increases from AI-focused Hardware and Data Center Providers Needing 800G and Beyond

Given its unique product offering and large TAM we believe POET shares are worth $5.60 based on peer multiples given no further equity dilution than forecast.

Current Price (11/27/23)	US$1.31
Valuation	**US$5.60**

OUTLOOK

POET Technologies is a startup seeking to disrupt the photonics industry with a new design that eliminates parts of an optical transceiver and replaces them with a single integrated device which is smaller, cheaper and faster than the current solutions. It has a $50M joint venture with Sanan IC to make and sell optical engines to data centers and telecom. Its solution can be produced in a fab, eliminating costly manual steps, and allowing it to be easily produced in large quantities and at low cost. Recently, POET's technology has been successfully used for light sources powering the connections between GPUs and memory chips in Artificial Intelligence processors. We believe POET's platform can be applied to many other large photonics markets including AI, high-speed computing, co-packaged optics, Medtech, wearables, augmented reality, LIDAR, and the Internet of Things.

SUMMARY DATA

52-Week High	**$5.62**
52-Week Low	**$1.00**
One-Year Return (%)	**-57.3**
Beta	**1.1**
Average Daily Volume (sh)	**156,992**
Shares Outstanding (mil)	**40.7**
Market Capitalization ($mil)	**$53**
Short Interest Ratio (days)	**4.6**
Institutional Ownership (%)	**2.0**
Insider Ownership (%)	**0.6**
Annual Cash Dividend	**$0.00**
Dividend Yield (%)	**0.00**
5-Yr. Historical Growth Rates	
Sales (%)	**N/A**
Earnings Per Share (%)	**N/A**
Dividend (%)	**N/A**
P/E using TTM EPS	**N/M**
P/E using 2023 Estimate	**N/M**
P/E using 2024 Estimate	**N/M**

Risk Level	**Above Average**
Type of Stock	**Small-Growth**
Industry	**Elec Comp-Semis**

ZACKS ESTIMATES

Revenue
(in millions of US$)

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2021	$0.0 A	$0.2 A	$0.0 A	$0.0 A	$0.0 A
2022	$0.0 A	$0.1 A	$0.2 A	$0.2 A	$0.6 A
2023	$0.2 A	$0.2 A	$0.0 A	$0.0 E	$0.4 E
2024					$2.0 E

Earnings Per Share

	Q1 (Mar)	Q2 (Jun)	Q3 (Sep)	Q4 (Dec)	Year (Dec)
2021	-$0.13 A	-$0.13 A	-$0.10 A	-$0.10 A	-$0.45 A
2022	-$0.15 A	-$0.14 A	-$0.11 A	-$0.17 A	-$0.57 A
2023	-$0.14 A	-$0.11 A	-$0.13 A	-$0.13 E	-$0.50 E
2024					-$0.47 E

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WHAT'S NEW

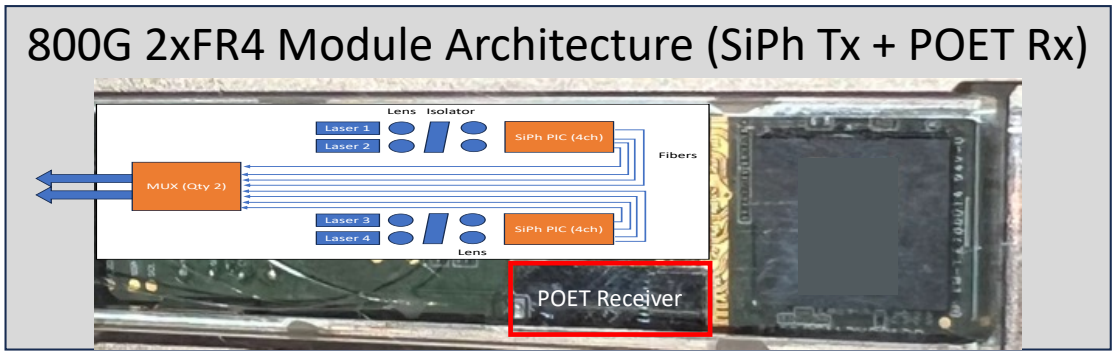
POET Revenues Slip, But Interest Increases from AI-focused Hardware and Data Center Providers Needing 800G and Beyond

Q3 showed no revenues and we expect no revenues again in Q4. While we still expect NREs to be generated going forward from customers other than Celestial AI (who has moved to the product stage) none will be booked in Q4. We now expect POET to start selling Interposer wafers in volume to SPX in Q1'24. Celestial AI will begin to take in completed light source modules toward the end of 2024. POET is about to send Celestial AI alpha samples of a new design it requested. Celestial AI is working with Samsung to design light-enabled memory drives for AI applications. POET is talking to all of the other AI hardware players including Lightelligence in China, Light Matter, and Ayar Labs.

Despite these setbacks, we do expect the company to announce that several well-known data center module makers, who sell to data centers supporting AI, have chosen POET as a source of 800G engines. We expect those customers to migrate their entire centers to 800G. Eventually, other data centers may adopt 800G however at the moment AI is the only application driving the current need.

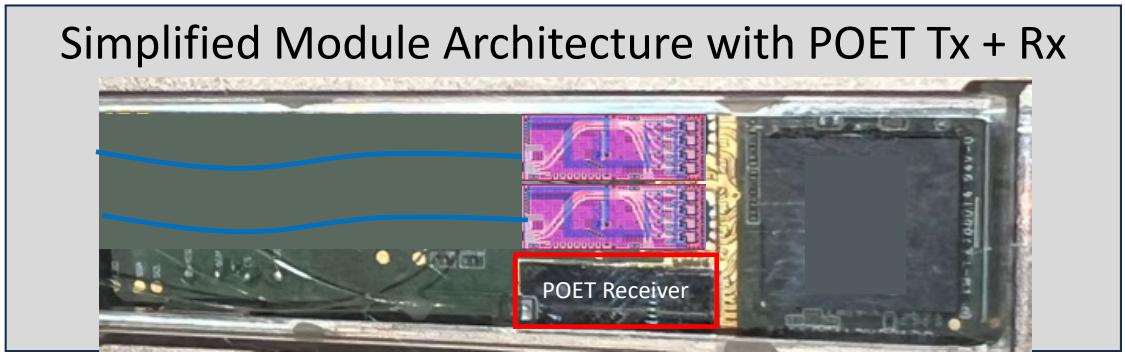
As technology and requirements shift, it seems that Luxshare Technology may be ahead of ADVA in bringing a product to market in 2024 using POET's optical interposer technology. POET has an 800G receive optical engine ready and is working to release the transmit side with both DML and EML lasers. By next year POET should also have optical engines for a 1.6T pluggable design available.

Below we show what a customer is doing now for an 800G 2xFR4 transceiver using POET's receiver optical engine and a silicon photonics-based transmitter.



Source: POET Technologies

…and what it can do with a POET's receiver plus Infinity transmitter engines:



Source: POET Technologies

During the Third Quarter

On July 26, 2023, POET announced the sample readiness of 100G LR4 Transmit and 100G LR4 Receive optical engines that are part of the "POET Legacy™" product family.

On August 15, 2023, it announced the development of an optical interposer platform for 1.6T transceivers and beyond using 200G per lane technology for next-generation data centers and AI networks.

POET attended the China International Optoelectronics Expo on September 6th through 8th where it showed live demonstrations of end-to-end optical solutions for 800G, 400G, and 200G optical transceivers using its highly integrated optical engines.

Q3 2023 Earnings Report

In Q3 2023 POET had no revenues versus $233,000 in Q3 2022 from NREs. We expect the company to book only product sales going forward. Total operating expenses were $5.1 million compared to $4.4 last year, and up $537,000 sequentially. The year-over-year increase was mostly due to an increase in stock-based compensation of $370,852 due to the granting of stock options Stock-based compensation was $1.3 million in Q3 2023 up from $881,000 in Q3 2022 and $698,000 in Q2 2023. SM&A & R&D expenses both increased sequentially and year over year.

The joint venture generated a loss of $1,003,000 in the quarter, of which POET booked $528,000 which was offset by a gain of $528,000 which resulted from its JV partner adding cash to the JV to fund its operations. POET's JV partner, SAIC covers cash losses through its required investment. It is also committed to increasing capacity by 10X through the purchase of additional capital equipment and a move to full-wafer production.

The net loss was $5.1 million compared to $4.0 million in Q3 2022 and $4.4 million in Q2 2023. This resulted in an IFRS loss per share of $0.13 per share and a non-IFRS loss of $0.10 per share, compared to a loss of $0.11 and a non-IFRS loss of $0.09 last year. The average shares outstanding for the September quarter were 40.6 million, up 10.6%.

Balance Sheet

POET Technologies ended the September quarter with $4.5 million in cash and marketable securities and no debt. Working capital was $3.3 million. The company had a negative cash flow (excluding changes in working capital) of $2.3 million and a negative free cash flow of $3.3 million as it spent $1 million on capex. The company is burning about $1.1 million a month. On June 29th, it set up an ATM facility through which it can raise up to $30 million. During the quarter, POET raised a net $1.1 million from the sale of stock. On November 2nd POET announced it has commenced an underwritten public offering in the United States via Maxim and a non-brokered offering in Canada of stock and warrants.

KEY POINTS

- The Holy Grail in photonics is cost reduction (through efficiencies in process and materials) combined with lower power consumption. Throw in a smaller size, and higher performance and customers should beat a path to your door. POET believes it can provide all four with its proprietary "optical interposer" based on a novel low-loss material that can allow multiple components to be integrated

into a single package entirely at wafer-scale. What this means is that it can eliminate steps in the labor-intensive assembly process currently used when manufacturing optical transceivers. Manual assembly results in higher scrap rates, longer production times, and higher equipment costs. Also, its base material is far better suited to use in the management of light than silicon due to its lower loss and planar architecture, thus allowing lower-powered lasers, resulting in lower power consumption and the ability to use less expensive lasers. POET hopes to disrupt the current market for photonics devices and have its Optical Engine platform become the standard in the industry.

- In 2021, POET established a $50 million joint venture with Xiamen Sanan Integrated Circuit Co. Ltd. of Xiamen, China (SPX). POET is contributing know-how and a license to some of its technology, and Xiamen is contributing intellectual property, capital, and production facilities. It will ultimately be 53% owned by Sanan IC and 47% by POET, but today POET owns 78.4%. Its percent ownership is reduced as its partner's investment increases. Its first products will be optical engines to be sold to manufacturers of 100G, 200G, and 400G devices for use in data centers and telecommunications. This joint venture could generate as much as $100-$200 million in revenues per year by 2026 by taking a modest market share.

- The stock currently trades at a fully diluted enterprise value of $49 million. According to Yole Group, the optical transceiver market is rising at a CAGR of 15% from $10.4 billion in 2021 to about $24.7 billion in 2027. POET's product is a component of an optical transceiver and the market is about a third of the transceiver market. If POET can secure even a small portion of that market with its unique offering, its valuation should far exceed its current price. We believe the stock could be worth $5.60 per share based on 2026 revenues at 6.3xs EV to Sales, discounted at 30% back to present value.

VALUATION

POET's business model would make it similar to fabless semiconductor companies. Third parties would provide the production of its devices and we expect it would have margins similar to those companies below. If we throw out NVIDIA, they average 6.3xs enterprise value to estimated 2023 revenues. We need to look out to where we think revenues could be by 2026. If we say the joint venture can reach $100 million in revenues by then and the rest of the business can ramp to $50 million that would be $100 million in revenues for POET in 2026 (with half the joint venture). Using 6.3xs gives us an enterprise valuation of $630 million. For the valuation, we take the current diluted share count of 41 million shares and add 10 million shares for estimated dilution. $630 million divided by 51 million shares is approximately US$12.35 per share by 2026. This would be a present value of approximately $5.60 discounted by 30% per year.

		Calendar				EBIDTA	Enterprise Value / Sales			EV/EBITDA	Included	
Company	Ticker	2024E	2023E	LTM	EBITDA	Margin	2024E	2023E	LTM		in Average?	Ent. Value
AMD	AMD	$26,370	$22,630	$22,110	3,050	14%	7.2x	8.4x	8.6x	62.3x	y	190,000
Broadcom	AVGO	NA	$36,300	$35,450	20,330	57%	NA	0.0x	0.0x	0.0x	y	432
Cirrus Logic	CRUS	NA	$1,712	$1,760	362	21%	NA	2.3x	2.2x	10.8x	y	3,910
Lightwave Logic	LWLG	NA	NA	$0	(20)	NM	NA	NA	NA	-24.6x	n	492
Marvell	MRVL	$6,520	$5,530	$5,620	1,280	23%	7.9x	9.3x	9.1x	40.1x	y	51,320
Monolithic Power Sys	MPWR	$2,090	$1,820	$1,850	584	32%	12.0x	13.7x	13.5x	42.8x	y	25,000
NVIDIA	NVDA	$83,790	$55,070	$32,680	12,380	38%	14.7x	22.3x	37.6x	99.4x	n	1,230,000
Qualcomm	QCOM	NA	$35,900	$35,820	10,460	29%	NA	4.0x	4.0x	13.8x	y	144,600
Average						**18%**	**9.0x**	**6.3x**	**6.3x**	**28.3x**		**235,037**

RISKS

- POET is a startup and has virtually no revenues. It may not be able to close customers if its technology does not work or work within the needed parameters. Given its cash burn rate, we expect it will need to raise capital adding the risk of equity dilution.
- Many potential customers may be hesitant to do business with a small, money-losing start-up, making market penetration even more difficult.
- The company and its joint venture may take longer to book sales, ramp slower, or produce less than expected sales and profits. The current foundry capacity shortage has caused the timetable for the company to produce and ship samples to customers and we believe industry conditions beyond its control could lead to further delays.
- POET's solution is significantly different from that currently used in the industry. For customers to switch, it may take more time than expected to persuade them to leave their legacy methodology.
- The pandemic continues to affect the supply chain and POET has experienced shipping delays and acquiring needed components from suppliers. General decision-making has been slowed with potential customers as well due to their supply chain issues.
- The potential of worldwide recession would affect POET and its customers and suppliers.

POET INCOME STATEMENT

	Q1 22	Q2 22	Q3 22	Q4 22	Q1 23	Q2 23	Q3 23	Q4 23E	2021	2022	2023E	2024E
Revenue	**$ 0**	**$ 120,261**	**$ 232,928**	**$ 199,559**	**$ 180,836**	**$ 177,390**	**$ 0**	**$ 0**	**$ 209,100**	**$ 552,748**	**$ 358,226**	**$ 2,000,000**
Cost of revenue	0	0	0	0	0	0	0	0	0	0	0	1,300,000
Gross margin	0	120,261	232,928	199,559	180,836	177,390	0	0	209,100	552,748	358,226	700,000
Gross margin %	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	NM	70.0%	100.0%	100.0%	100.0%	35.0%
Operating expenses												
Selling, marketing and administration	2,445,944	2,383,973	2,074,704	2,611,650	2,719,922	2,355,901	2,697,199	2,697,199	9,055,528	9,516,271	10,470,221	10,000,000
R&D	2,564,739	2,300,642	2,361,991	3,519,371	2,801,711	2,254,352	2,449,800	2,449,800	8,165,128	10,746,743	9,955,663	12,000,000
Operating expenses	5,010,683	4,684,615	4,436,695	6,131,021	5,521,633	4,610,253	5,146,999	5,146,999	17,220,656	20,263,014	20,425,884	22,000,000
Operating income	(5,010,683)	(4,564,354)	(4,203,767)	(5,931,462)	(5,340,797)	(4,432,863)	(5,146,999)	(5,146,999)	(17,011,556)	(19,710,266)	(20,067,658)	(21,300,000)
Impairment and other loss	0	0	0	0	0	0	0	0	0	0	0	0
Interest expense	(13,793)	(12,627)	(11,707)	(11,611)	(10,531)	(11,214)	(34,890)	(34,890)	(364,619)	(49,738)	(91,525)	(10,000)
Interest income	21,999	40,300	57,429	68,592	78,041	57,454	45,448	20,000	75,084	188,320	200,943	0
Forgiveness of COVID govt loans	0	0	0	0	0	0	0	0	186,747	0	0	0
Impact of joint venture (78.4%	(430,321)	(745,961)	(379,368)	(1,656,343)	0	0	(527,857)	(527,857)	(1,142,249)	(3,211,993)	(1,055,714)	(5,000,000)
Gain on contribution of IP to JV	0	0	496,115	1,250,872	0	0	527,857	527,857	2,587,500	1,746,987	1,055,714	5,000,000
Pretax loss	**(5,432,798)**	**(5,282,642)**	**(4,041,298)**	**(6,279,952)**	**(5,273,287)**	**(4,386,623)**	**(5,136,441)**	**(5,161,889)**	**(15,669,093)**	**(21,036,690)**	**(19,958,240)**	**(21,310,000)**
Income tax	0	0	0	0	0	0	0	0	0	0	0	0
Net loss	(5,432,798)	(5,282,642)	(4,041,298)	(6,279,952)	(5,273,287)	(4,386,623)	(5,136,441)	(5,161,889)	(15,669,093)	(21,036,690)	(19,958,240)	(21,310,000)
Non-IFRS net loss	(4,435,357)	(4,312,981)	(3,160,502)	(4,691,246)	(4,071,269)	(3,688,933)	(3,884,793)	(3,661,889)	(11,134,723)	(16,600,086)	(15,521,636)	(16,810,000)
Basic and diluted net loss per share	$ (0.15)	$ (0.14)	$ (0.11)	$ (0.17)	$ (0.14)	$ (0.11)	$ (0.13)	$ (0.13)	$ (0.45)	$ (0.57)	$ (0.50)	$ (0.47)
Yr-to-yr growth	16.4%	12.8%	11.8%	62.7%	-8.0%	-23.9%	14.9%	-20.9%		26.2%	10.0%	-17.3%
Non-IFRS loss per share	(0.12)	(0.12)	(0.09)	(0.12)	(0.11)	(0.09)	(0.10)	(0.09)	(0.32)	(0.45)	(0.39)	(0.37)
Share outstanding (millions)	36.5	36.7	36.7	38.0	38.5	40.0	40.6	39.5	34.5	36.7	40.0	45.0
Yr-to-yr growth	13.9%	6.3%	4.3%	4.4%	5.5%	9.1%	10.6%	3.9%	18.4%	6.4%	15.8%	22.5%
Adjusted EBITDA	(3,711,224)	(3,281,017)	(2,986,525)	(4,001,738)	(3,693,735)	(3,272,430)	(3,986,566)	(4,012,014)	(11,376,664)	(13,980,504)	(14,964,745)	(11,271,010)

SPX INCOME STATEMENT

	Q1 23	Q2 23	Q3 23	Q4 23E	2023E	2024E	2025E	2026E
Revenue	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 0**	**$ 3,000,000**	**$ 25,000,000**	**$ 100,000,000**
Operating expenses	1,121,421	880,383	913,152	1,000,000	3,914,956	(10,142,857)	(27,857,143)	(95,000,000)
Net loss	(1,121,421)	(880,383)	(1,003,000)	(1,000,000)	(3,914,956)	(7,142,857)	(2,857,143)	5,000,000

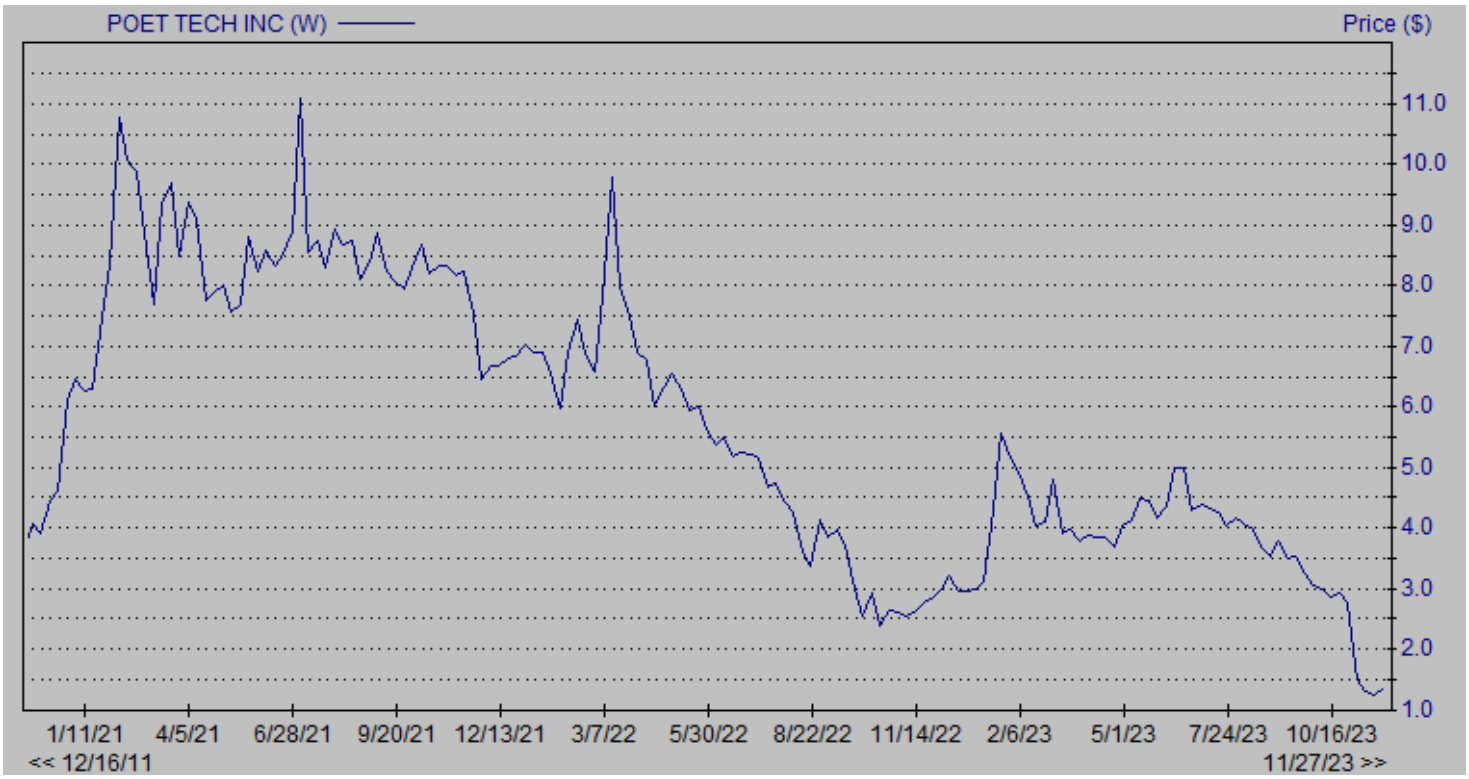
CASH FLOWS

US Dollars	2021	Mar. 31, 2022	Jun. 30, 2022	Sep. 30, 2022	Dec. 31, 2022	2022	Mar. 31, 2023	Jun. 30, 2023	Sep. 30, 2023
OPERATING ACTIVITIES									
Net loss	$ (15,669,093)	$ (5,432,799)	$ (5,282,642)	$ (4,041,298)	$ (6,279,951)	$ (21,036,690)	$ (5,273,287)	$ (4,386,623)	$ (4,041,298)
Adjustments for:									
Depreciation of property and equipment	840,366	233,854	253,414	282,812	284,184	1,054,264	386,469	399,813	434,808
Amortization of patents and licenses	69,560	20,376	20,440	82,529	(43,099)	80,246	22,650	21,706	84,766
Amortization of right of use assets	190,596	47,788	39,822	(28,895)	99,933	158,648	35,925	41,224	(11,091)
Accretion of debt discount on converts & int.	213,843	13,794	12,627	11,707	11,610	49,738	10,531	11,214	18,322
Stock-based compensation	4,534,370	997,441	969,661	880,796	1,588,706	4,436,604	1,202,018	697,690	1,251,648
Non-cash settled operating costs	13,814	0	0	0	40,029	40,029	0	0	0
Gain on contribution of IP to JV	(2,587,500)	0	0	(496,115)	(1,250,872)	(1,746,987)	0	0	(527,857)
Share of loss in JV	1,142,249	430,321	745,961	379,368	1,656,343	3,211,993	0	0	527,857
Forgiveness of COVID loans	(186,747)	0	0	0	0	0	0	0	0
Net change in non-cash working capital accounts:									
Accounts receivable	0	0	0	0	(61,099)	(61,099)	31,592	20,331	10,077
Prepaid and other current assets	134,926	175,956	(77,334)	30,893	(485,714)	(356,199)	(84,891)	105,173	(210,270)
Accounts payable and accrued liabilities	70,323	(139,990)	(414,464)	305,454	1,845,690	1,596,690	(706,759)	(766,669)	(530,973)
Contract liabilities	0	0	341,975	47,586	(142,708)	246,853	0	(165,263)	0
Cash flows from operating activities	(11,233,293)	(3,653,259)	(3,390,540)	(2,592,749)	(2,736,948)	(12,325,910)	(4,375,752)	(4,021,404)	(2,994,011)
INVESTING ACTIVITIES									
Purchase of short-term investments	(6,366,828)	(16,474)	4,017,149	2,366,153	(6,366,828)	0	0	0	0
Maturity of short-term investments	0	0	0	0	6,366,828	6,366,828	0	0	0
Purchase of property and equipment	(771,523)	(381,815)	(491,357)	(492,745)	(1,645,645)	(3,011,562)	(62,438)	(59,649)	(1,010,427)
Purchase of patents and licenses	(159,359)	(9,100)	0	(53,375)	0	(62,475)	(79,110)	0	0
Cash flows from investing activities	(7,297,710)	(407,389)	3,525,792	1,820,033	(1,645,645)	3,292,791	(141,548)	(59,649)	(1,010,427)
FINANCING ACTIVITIES									
Issue of common shares for cash, net	26,791,311	363,736	1,588,712	87,637	2,936,440	3,639,722	6,310,416	1,588,712	1,175,066
Payment of lease liability	(237,634)	(59,190)	(53,663)	(46,905)	(44,760)	(204,518)	(46,868)	(55,458)	(70,699)
Cash flows from financing	26,553,677	304,546	198,246	40,732	2,891,680	3,435,204	6,263,548	1,500,919	1,104,367
EFFECT OF EX RATE ON CASH	46,207	28,715	(149,387)	(444,953)	451,610	(114,015)	(5,130)	116,922	(36,059)
NET CHANGE IN CASH	8,068,881	(3,727,387)	184,111	(1,129,351)	(1,039,303)	(5,711,930)	1,741,118	(2,463,212)	(4,031,273)
CASH AND CASH EQUIVALENTS, beginning	6,872,894	14,941,775	11,214,388	11,398,499	10,269,148	14,941,775	9,229,845	10,970,963	8,507,751
CASH AND CASH EQUIVALENTS, end	14,941,775	11,214,388	11,398,499	10,269,148	9,229,845	9,229,845	10,970,963	8,507,751	4,476,478
Cash flow	(11,438,542)	(3,689,225)	(3,240,717)	(2,929,096)	(3,893,117)	(13,752,155)	(3,615,694)	(3,214,976)	(2,262,845)
Free cash flow	(12,210,065)	(4,071,040)	(3,732,074)	(3,421,841)	(5,538,762)	(16,763,717)	(3,678,132)	(3,274,625)	(3,273,272)

BALANCE SHEET

	Sept 30, 2023	June 30, 2023	Qtr-Qtr % Growth	Sept 30, 2022	Yr-Yr % Growth
Current					
Cash and cash equivalents	**$ 4,476,478**	**$ 8,507,751**	-47%	**$ 10,269,148**	-25%
Accounts receivable	0	9,957	-100%	0	NM
Prepaids and other current assets	462,922	295,548	57%	342,054	-23%
Current Assets	4,939,400	8,813,256	-44%	10,611,202	-38%
Investment in joint venture	0	0	0%	308,327	-100%
Property and equipment	4,880,250	4,366,414	12%	3,339,830	30%
Patents and licenses	523,757	545,459	-4%	532,236	10%
Right of use asset	365,681	419,878	-13%	274,689	33%
Total Assets	10,709,088	14,145,007	-24%	15,066,284	-24%
Liabilities					
Accounts payable and accrued liabilities	1,353,208	1,936,357	-30%	1,422,380	65%
Contract liabilities	105,263	105,263	0%	389,561	-69%
Covid-19 government support loans	29,428	30,196	-3%	28,916	-3%
Lease liability	167,051	179,962	-7%	193,269	-7%
Current Liabilities	1,654,950	2,251,778	-27%	2,034,126	29%
Lease liability	232,408	273,897	-15%	117,568	76%
Total liabilities	1,887,358	2,525,675	-25%	2,151,694	33%
Shareholders' Equity					
Share capital	165,205,349	163,747,008	1%	148,926,833	10%
Warrants & comp options	670,115	829,439	-19%	5,248,908	-84%
Contributed surplus	54,446,740	53,319,043	2%	49,428,102	10%
Accumulated other comprehensive loss	(2,680,463)	(2,592,588)	3%	(2,945,544)	14%
Deficit	(208,820,011)	(203,683,570)	3%	(187,743,709)	11%
Shareholder's Equity	8,821,730	11,619,332	-24%	12,914,590	-30%
Tot Liabilities and Share. Equity	$ 10,709,088	$ 14,145,007	-24%	$ 15,066,284	-24%
Cash and short-term investments	$ 4,476,478	$ 8,507,751	-47%	$ 10,269,148	-38%
Current ratio	3.0	3.9	-24%	5.2	-52%
Working capital	3,284,450	6,561,478	-50%	8,577,076	-47%
Debt	0	0	0%	0	0%
Debt/total assets	0.0%	0.0%	0%	0.0%	0%

HISTORICAL STOCK PRICE



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