

# POET Technologies Inc.

POET: NASDAQ | PTK: TSXV

Annual General and Special Meeting  
June 30, 2023

# Safe Harbor

## Forward-Looking Statements

This presentation contains forward-looking statements and forward-looking information within the meaning of United States and Canadian securities laws, including but not limited to statements relating to revenue potential, growth and/or projections, as well as the expected performance of products.

Forward-looking statements and information can generally be identified by the use of forward-looking terminology or words, such as, "continues," "with a view to," "is designed to," "pending", "predict," "potential," "plans," "expects," "anticipates," "believes," "intends," "estimates," "projects," and similar expressions or variations thereon, or statements that events, conditions or results "can", "might", "will", "shall", "may", "must", "would", "could", or "should" occur or be achieved and similar expressions in connection with any discussion, expectation, or projection of future operating or financial performance, events or trends. Forward-looking statements and forward-looking information are based on management's current expectations and assumptions, which are inherently subject to uncertainties, risks and changes in circumstances that are difficult to predict.

Such forward-looking information or statements are based on a number of risks, uncertainties and assumptions which may cause actual results or other expectations to differ materially from those anticipated and which may prove to be incorrect. Assumptions have been made regarding, among other things, management's expectations regarding such statements, including POET Technologies Inc.'s (the "Company") expectations with respect to the success of the Company's joint venture, product development efforts, the performance of its products, the expected results of its operations, meeting revenue targets, and the expectation of continued success in its financing efforts, the capability, functionality, performance and cost of the Company's technology as well as the market acceptance, inclusion and timing of the Company's technology in current and future products, plans for and completion of projects by the Company's third-party consultants, contractors and partners, and the necessity to incur capital and other expenditures. Actual results could differ materially due to a number of factors, including, without limitation, operational risks in the completion of the Company's anticipated projects, delays or changes in plans with respect to the development of the Company's products, a delay in or failure to deliver needed supplies or services from any of the Company's suppliers, risks affecting the Company's ability to execute projects, the ability of the Company to generate interest in or sales for its products, the ability to attract key personnel, and the ability to raise additional capital, and other risks, uncertainties and factors discussed in the Company's filings on Canada's System for Electronic Document Analysis and Retrieval (or "SEDAR") and with the United States Securities and Exchange Commission, including under the heading "Risk Factors: in such filings. Although the Company believes that the expectations reflected in the forward-looking information or statements are reasonable, the prospective investors in the Company's securities should not place undue reliance on forward-looking statements because the Company can provide no assurance that such expectations will prove to be correct. Forward-looking information and statements contained in this presentation are as of the date of this presentation and the Company assumes no obligation to update or revise any forward-looking information and statements except as required by law.

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## Third-Party Data

This presentation contains certain industry, customer and market data and statistics, third-party estimates and other information (including industry forecasts and projections). The Company has obtained significant portions of this information from databases and research prepared by third parties and other third-party sources. Information attributed to any such third parties has not been prepared by the Company and the Company has not independently verified any such information.

# POET Technologies at a Glance

1

“Semiconductorization” of Photonics with a Disruptive Platform Technology

2

POET Optical Interposer™ Delivers Compelling Value in Scalability, Size & Power

3

Initial Target Markets: Transceivers for Cloud Data Centers and Light Sources for Artificial Intelligence

4

Customer Penetration Underway - Proving Best-in-Class Technology

\$12+B

Datacom / Telecom and AI-ML Markets

6+

Years of Technology and Product Development

1

JV with Sanan IC - Super Photonics Xiamen

11

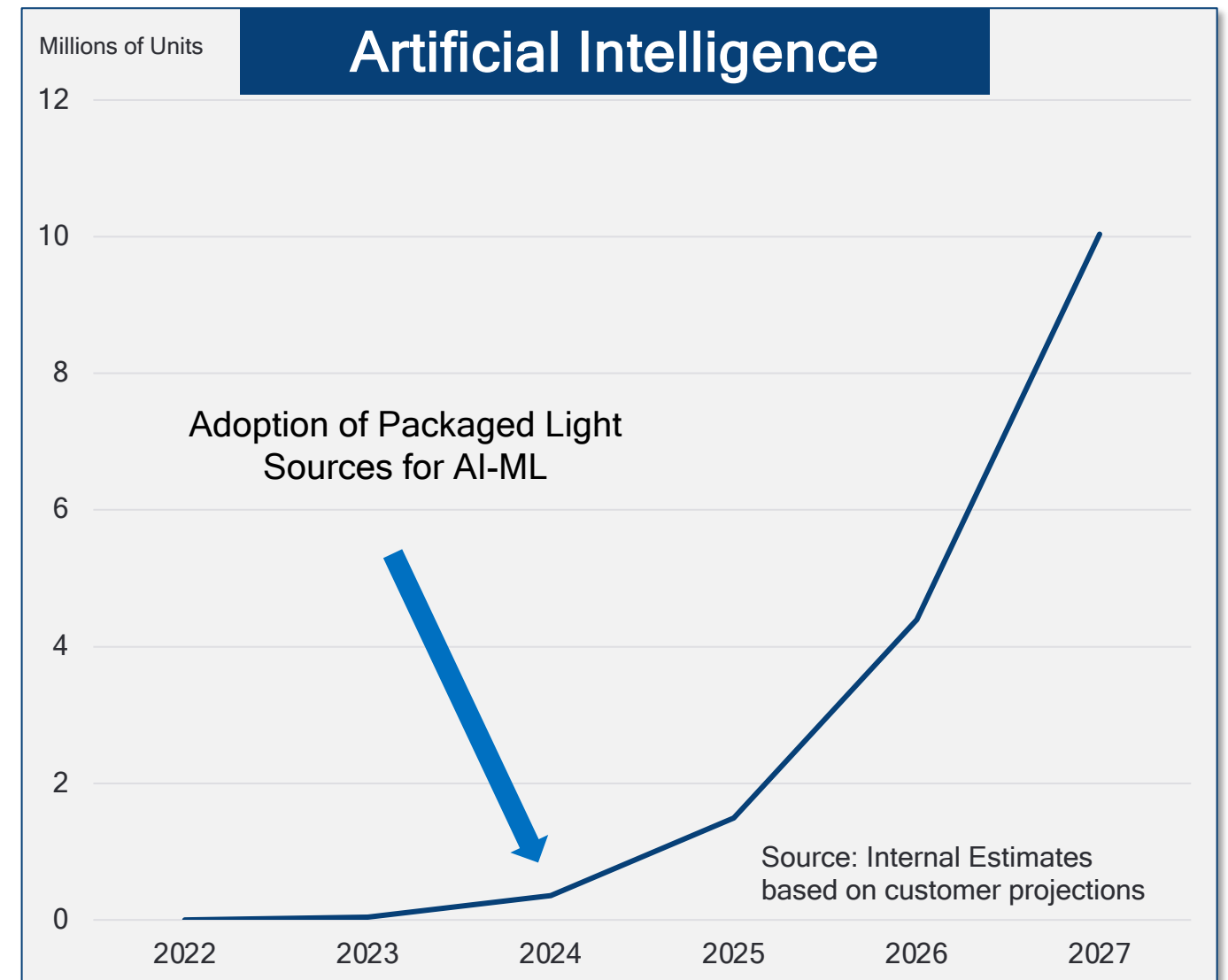
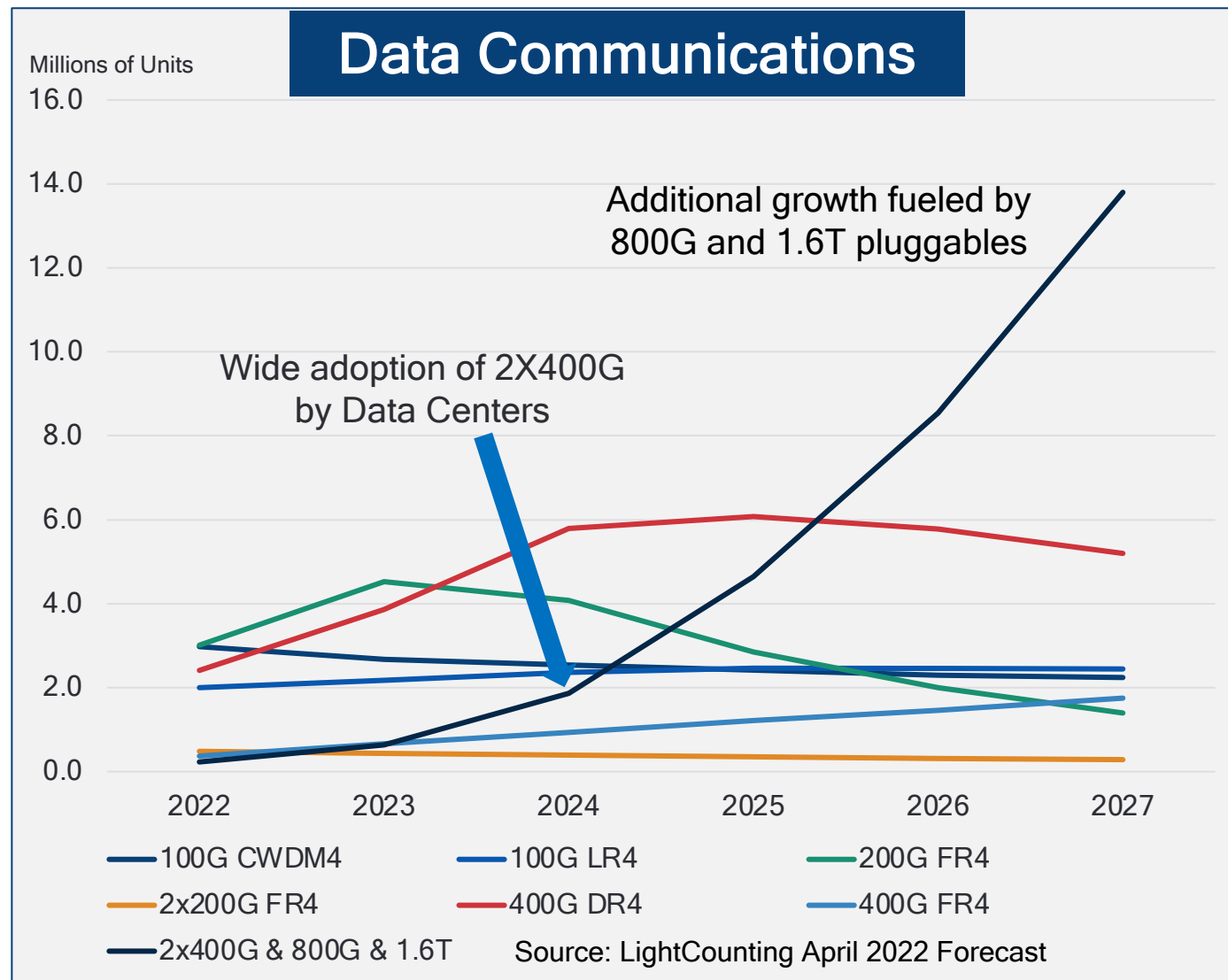
Current Customer Projects

26+17

Patents and Patents Pending

# Market : High Speed Data Communications

Two key market inflection points represent major growth opportunities, both playing to POET's strengths and driven by customers



# Why Photonics is a big deal for Artificial Intelligence

## I/O Bandwidth and Power dissipation concerns!

- Need enough bandwidth between all GPUs to keep them fully utilized
- Need to bridge the growing gap between memory demand and supply
- Reduce power consumption and carbon footprint
- External Light sources needed to use photonic chips for AI Accelerators and Optical IO

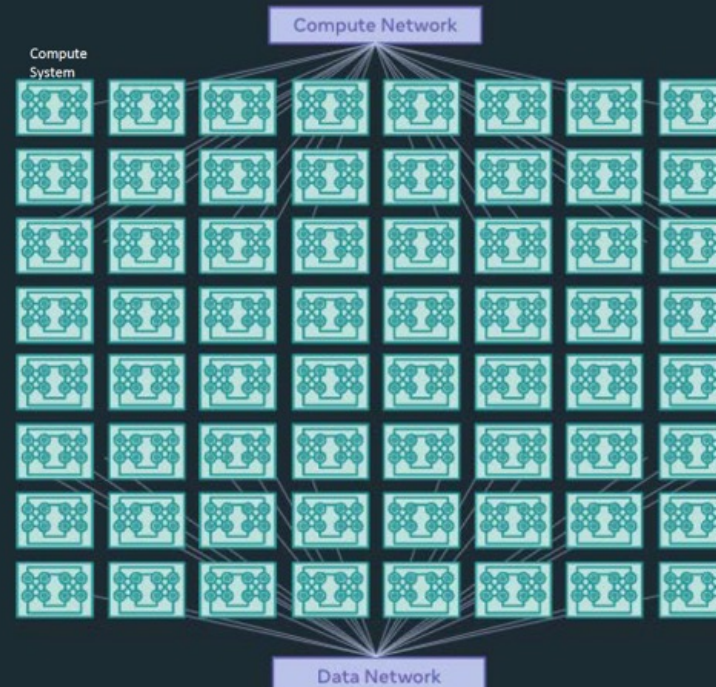
### Growth of Optics in AI/ML?

#### Factors Driving Use of More Optics

1. Increasing BW per GPU
2. Move to 200Gb/s SERDES
3. Larger GPU-GPU domains
4. MoR and EoR Switching
5. Any-to-Any Latency

Source: Nvidia

### AI Training Cluster of the Future (2025+)



~4K  
Accelerators

>1TB/s  
of compute  
network per accelerator

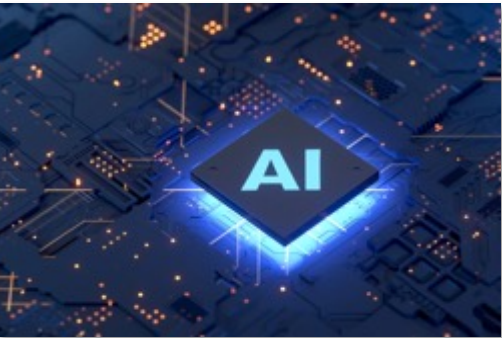
The compute network is **Non-blocking**

Source: Meta

# Key Challenges in Photonics

Incumbent technologies are not scalable for applications needing 100's of millions and billions of units per year

Millions/Year



100s of Millions/Year



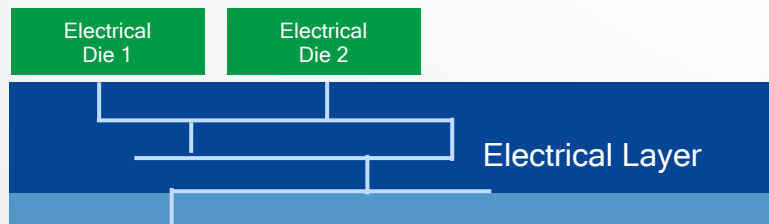
Billions/Year

VECTOR	INCUMBENT TECHNOLOGIES	POET	REASON
Unit Volume	X	✓	Manufacturing, test and packaging is <u>fully</u> automated
Size	X	✓	Components are integrated into a <u>single chip</u>
Cost	X	✓	Everything is done at <u>wafer-scale</u> with semiconductor technology
Power Consumption	X	✓	Components are <u>fully integrated</u> electrically and optically

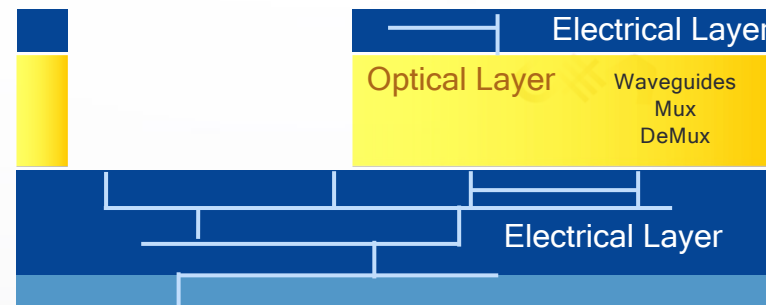
# Proprietary Technology Solution - Optical Interposers

## Extending Semiconductor Wafer Level Chip Scale Packaging (WLCSP) to Photonics

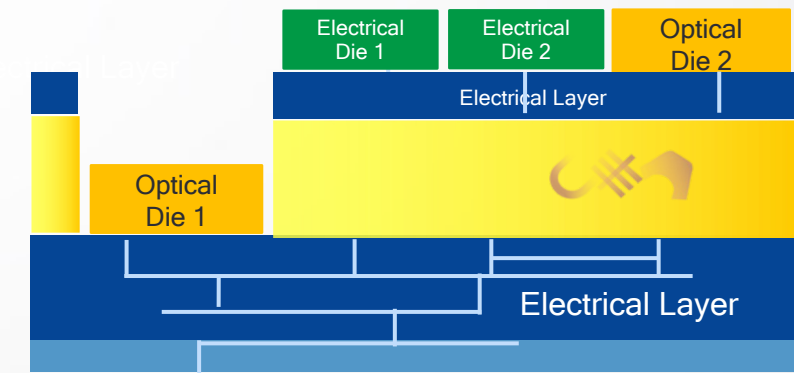
An Electrical Interposer



POET Optical Interposer



POET Optical Engine



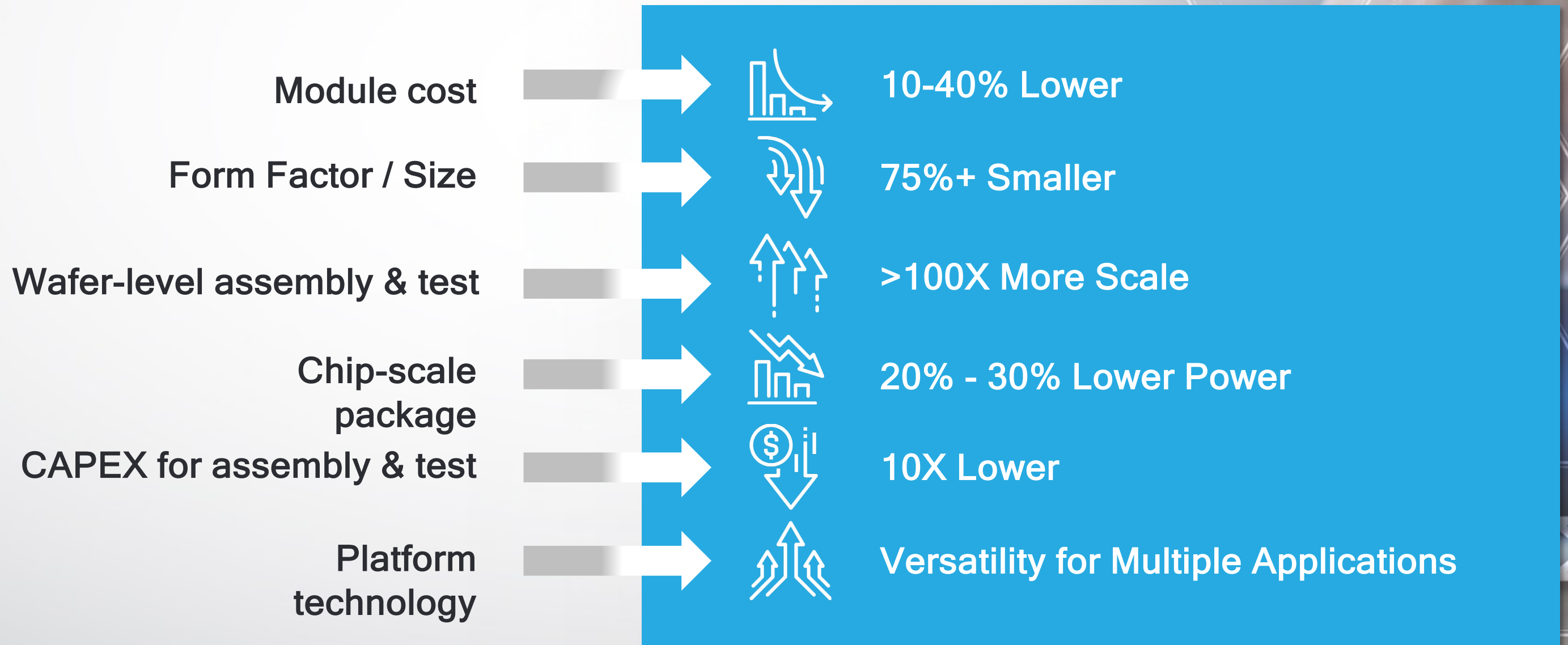
- Wafer-Level: All assembly and test processes can be done on full wafers, employing wafer level chip scale techniques
- Chip-Scale: Integrated into a single chip on a standard silicon wafer
- Hybrid: Use “known-good” and “best-of-breed” components made from different materials

✓ *NO Active Alignment of Components*

✓ *ALL done with automated semiconductor equipment at wafer-level*

✓ *FULL integration of components*

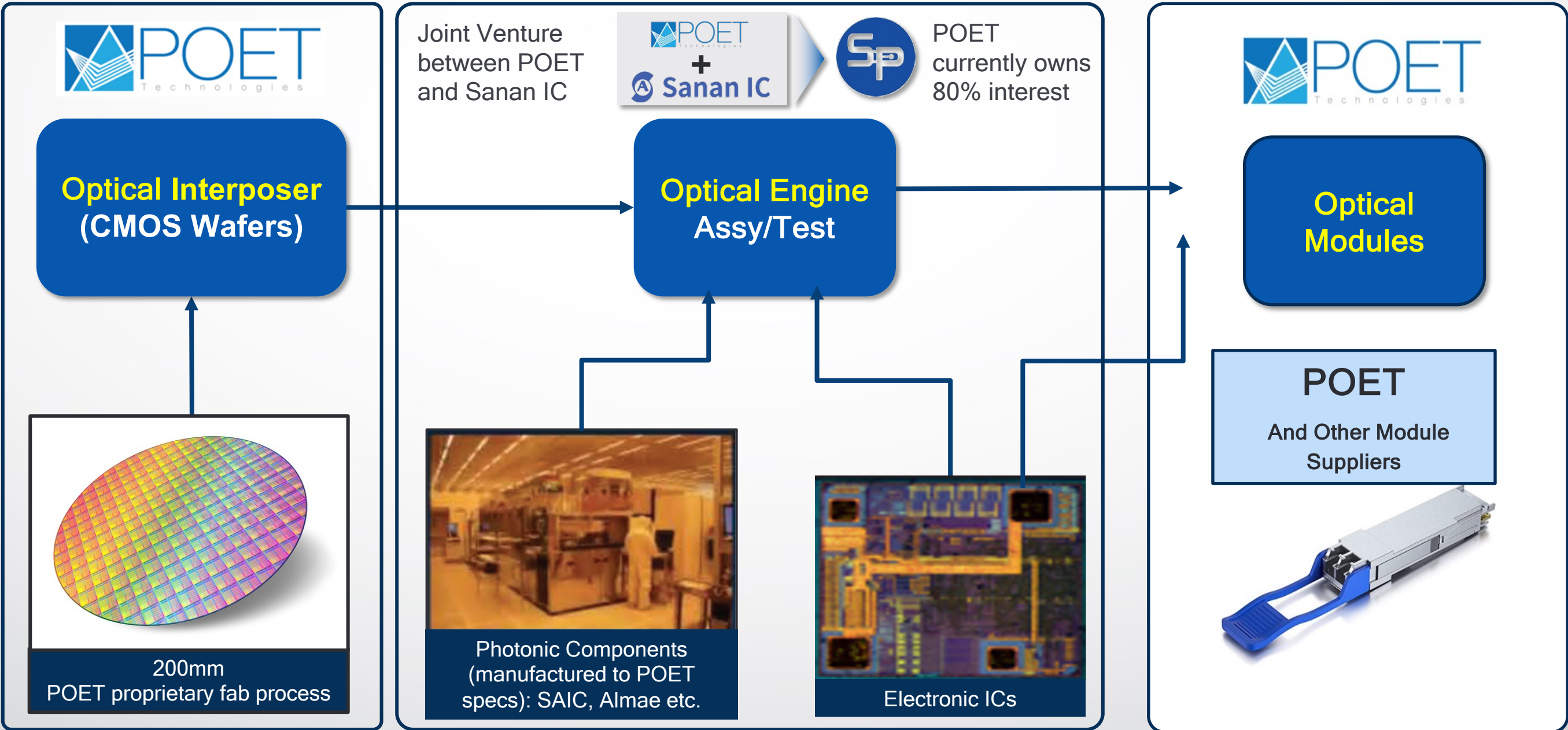
# Why POET Wins | Benefits to Customers\*



\*Based on Internal Estimates and Projections.



# Manufacturing: From **Wafers** to **Optical Engines** to **Modules**





# Super Photonics Xiamen



SPX Operations Center and Clean Room Entrance



Die Bond and Test Stations for producing POET-designed Optical Engines



Burn-in Station and Team Delivering First Optical Engine Order

## Super Photonics Xiamen (SPX)

- Joint Venture between POET and Sanan IC
- Assembles, tests, packages and sells **Optical Engines** based on POET's Optical Interposer technology

## Value Creation

- Formed in 2019 as a Chinese company
- Independently valued at US\$50 million\* at formation
- Enables POET "fab-lite" manufacturing model with no cash investment by POET
- 38 employees as of June 2023
- Expect to ship product for revenue in Q4'23

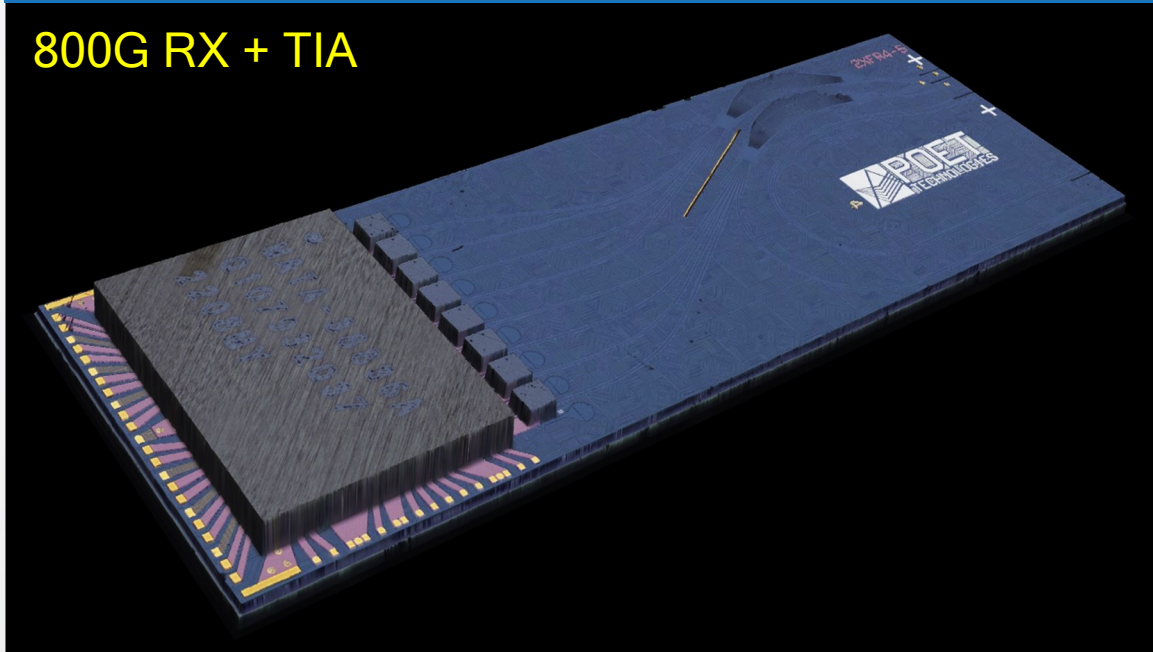
## Value Capture

- Goal is IPO in China in 2026 / 2027
- POET currently owns 80% equity stake
- Strong interest from China-based PE firms in owning a piece of SPX
- Valuations in photonics in China 5X other public capital markets

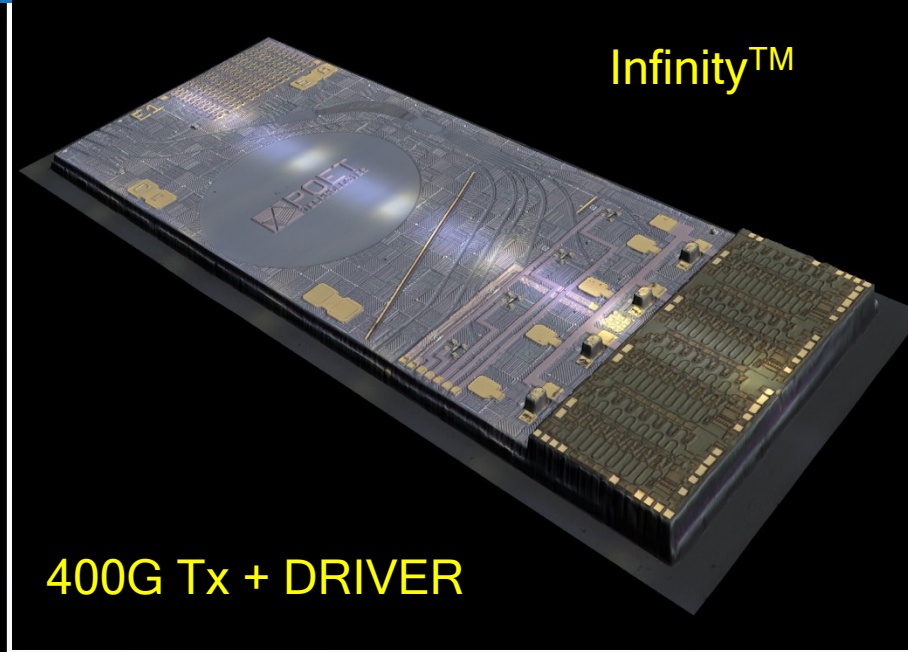
# POET's Optical Engine Product Lines

POET *Legacy™*, POET *One™*, POET *Infinity™* and POET *Starlight™* Products

800G RX + TIA

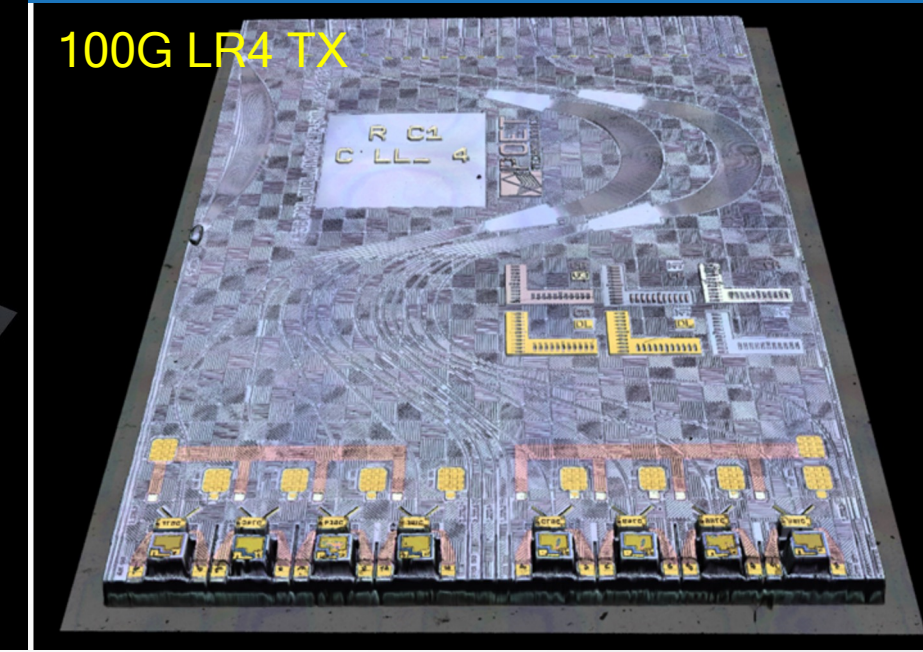


Infinity™



400G Tx + DRIVER

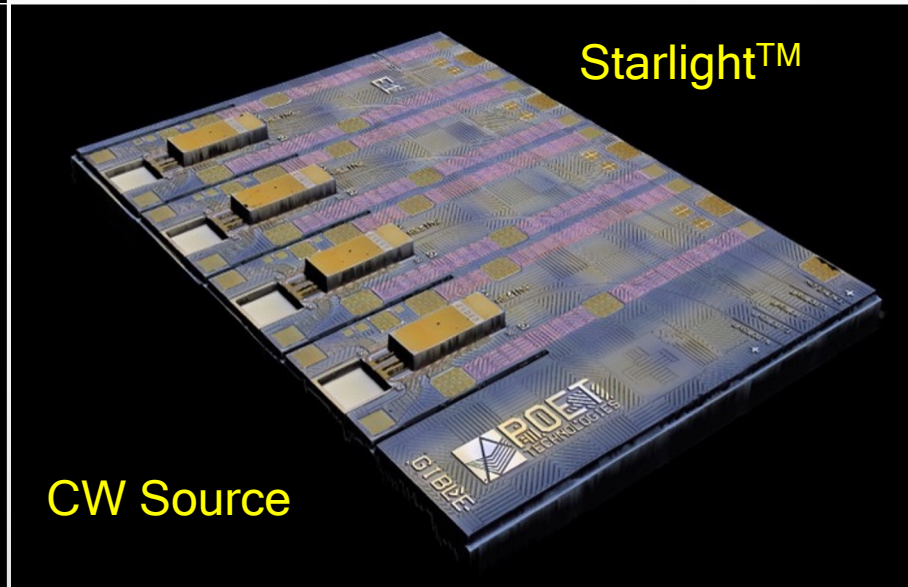
100G LR4 TX



400G RX + TIA

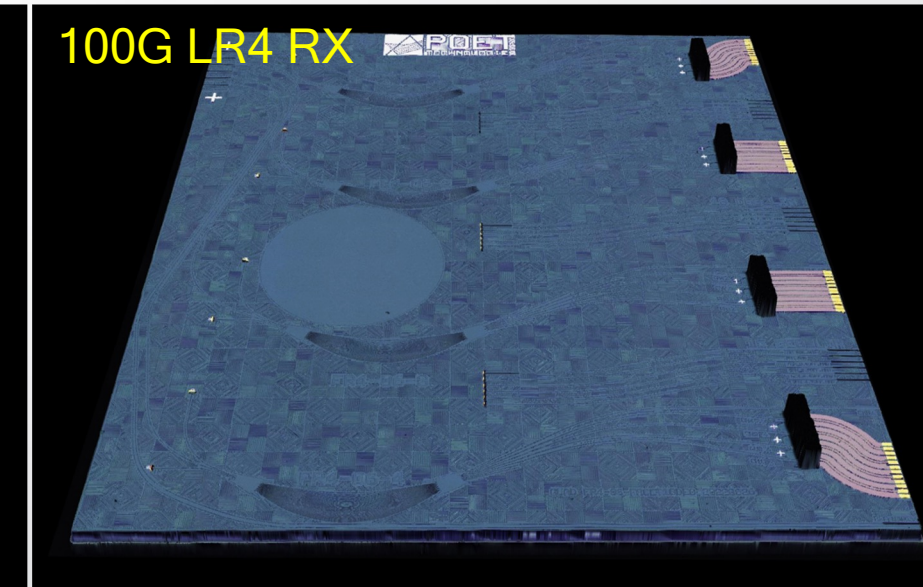


Starlight™



CW Source

100G LR4 RX



# Product Release Plans 2023 - 2024

## Data Communications

Engines	100G	CWDM4 Tx and Rx	Released
		POET <i>One</i> <sup>TM</sup> (TxRx)	Q3 2023
		LR4 Tx and Rx	Q3 2023
		LR4 Quad Tx and Rx	Q4 2023
200G	FR4 Tx	Q3 2023	
	FR4 Rx	Released	
400G	FR4 Tx	Q4 2023	
	FR4 Rx	Released	
800G	FR4 Tx	Q4 2023	
	FR4 Rx	Q3 2023	
Modules	800G	FR4 Modules	Q4 2024
		Custom Modules	TBD

## Artificial Intelligence

C-Band Modules	<i>Starlight</i> <sup>TM</sup>	Quad	Complete
		Octal	Q4 2023
O-Band Modules	<i>LightBar</i> <sup>TM</sup>	Custom	Sampling
		CW WDM	Q2 2024
Hybrid Lasers	All	Custom	Q4 2024

# Major Announcements YTD 2023



## POET Technologies Announces First Volume Purchase Order for Its Optical Engines

Toronto, Ontario, May 11, 2023 – POET Technologies Inc. (“POET” or the “Company”) (NASDAQ: POET | TSXV: PTK), the designer and developer of the POET Optical Interposer™ and Photonic Integrated Circuits (PICs) and light sources for the data center, tele-communication and artificial intelligence markets, today announced the first volume production order for its optical engines placed with the Company’s 80%-owned joint-venture company, Super Photonics Xiamen (“SPX”). Valued at



## POET Technologies Introduces “POET Starlight” for the Artificial Intelligence Market and Receives Advanced Purchase Order from Celestial AI

Toronto, Ontario, April 25, 2023 – POET Technologies Inc. (“POET” or the “Company”) (TSX Venture: PTK; NASDAQ: POET), the designer and developer of the POET Optical Interposer™ and Photonic Integrated Circuits (PICs) for the data center, telecommunication and artificial intelligence markets, today announced “POET Starlight™”, a packaged light source solution



## POET Technologies Introduces “POET Infinity” – a Chiplet-based Transmitter Platform for 400G, 800G and 1.6T Data Center Solutions

Toronto, Ontario, March 2, 2023 – POET Technologies Inc. (“POET” or the “Company”) (TSX Venture: PTK; NASDAQ: POET), the designer and developer of the POET Optical Interposer™ and Photonic Integrated Circuits (PICs) for the data center, telecommunication and artificial intelligence markets, today announced “POET Infinity™”, a chiplet-based transmitter platform for 400G, 800G and 1.6T pluggable transceivers and co-packaged optics solutions. POET will showcase a live demonstration of early samples at the 2023 Optical Fiber Communication Conference and Exhibition (OFC) in San Diego from March 7-9 in



## POET Technologies and Beijing FeiYunYi Technology Reach Agreement on Purchase of Custom Optical Engines for Telecom Industry

Toronto, Ontario, February 22, 2023 – POET Technologies Inc. (“POET” or the “Company”) (TSX Venture: PTK; NASDAQ: POET), the designer and developer of the POET Optical Interposer™ and Photonic Integrated Circuits (PICs) and light sources for the data center, tele-communication and artificial intelligence markets, today announced an agreement with Beijing FeiYunYi Technology Ltd. (“BFYY”) to design optical engines for deployment in optical modules in the telecom market globally, beginning in China. The agreement, valued at up to \$1 million over a two-year period, includes NRE for POET and an initial purchase order for 10,000 units that will be used to sample customers...



## POET Technologies to Demonstrate 800G Optical Engines and Light Source Products at OFC 2023

Toronto, Ontario, February 14, 2023 – POET Technologies Inc. (“POET” or the “Company”) (TSX Venture: PTK; NASDAQ: POET), the designer and developer of the POET Optical Interposer™ and Photonic Integrated Circuits (PICs) for the data center, telecommunication and artificial intelligence markets, today announced that it will be hosting live demonstrations of its advanced optical engine and light source products at the 2023 Optical Fiber Communication Conference and Exhibition



## POET Technologies Partners with LuxshareTech and Announces Availability of 400G and 800G Receive Optical Engines

Toronto, Ontario, February 2, 2023 – POET Technologies Inc. (“POET” or the “Company”) (TSX Venture: PTK; NASDAQ: POET), the designer and developer of the POET Optical Interposer™ and Photonic Integrated Circuits (PICs) for the data center, telecommunication and artificial intelligence markets, today announced that it has started sampling 400G FR4 and 800G 2xFR4 receive optical engines (RXOEs). POET will partner with Luxshare Technology Co., Ltd. (“LuxshareTech”), a global technology provider for data-communication facilities and enterprise-level products to enable the sale of power-efficient and



## POET Technologies Announces a Strategic Collaboration with ADVA for Highly Integrated 4x100G Solutions

Toronto, Ontario, January 18, 2023 – POET Technologies Inc. (“POET” or the “Company”) (TSX Venture: PTK; NASDAQ: POET), the designer and developer of the POET Optical Interposer™ and Photonic Integrated Circuits (PICs) for the data center, telecommunication and artificial intelligence markets, today announced that it has developed multi-engine 100G CWDM4 and 100G LR4 chip-on-board solutions for its lead customer, ADVA Optical Networking SE. ADVA will use POET’s multi-engine transmit and receive chips in an innovative pluggable solution that packs the functionality of four independent 100Gbit/s interfaces into a single QSFP-DD housing...



## POET Technologies Announces Production Release of Optical Engines for 100G, 200G and 400G for Telecom and Data Center Market

Toronto, Ontario, January 10, 2023 – POET Technologies Inc. (“POET” or the “Company”) (TSX Venture: PTK; NASDAQ: POET), the designer and developer of the POET Optical Interposer™ and Photonic Integrated Circuits (PICs) for the data center, tele-communication and artificial intelligence markets, today announced that it has released to production four optical engines, an achievement that advances the Company’s commercialization goals. The small form factor optical engines with integrated directly modulated lasers (DMLs), optical multiplexer, high-speed photodiodes and optical demultiplexer enable low power, cost-efficient and highly scalable 100G CWDM4, 200G FR4 and 400G FR4 pluggable transceivers for telecom and data center markets...



# 11 Current Projects with 7 Key Customers

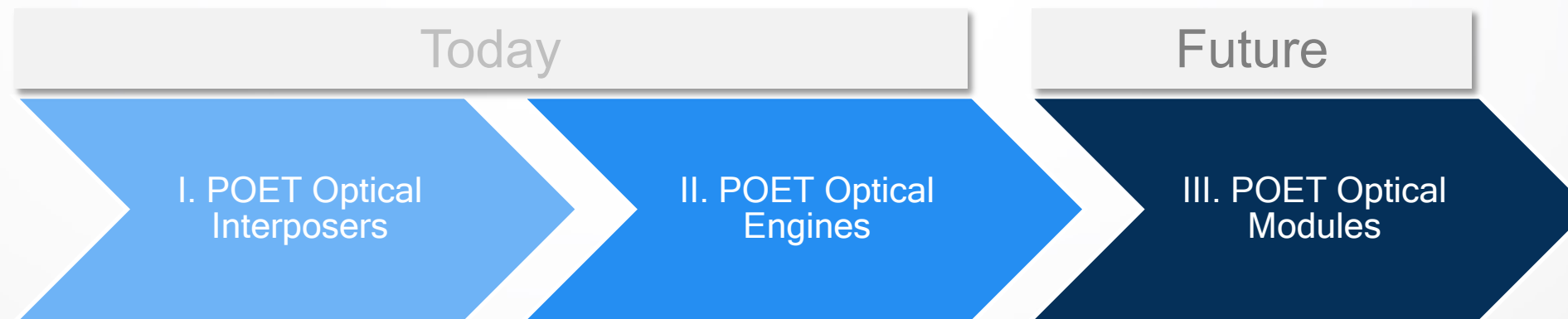
## Combined \$150M 3-year Revenue Potential\*

Customer	Project	Targeted contract	Project Timeline	Status
Celestial AI	1. Phase II: POET <i>Starlight</i>	Complete	Mar'23 to Dec'23	- Phase II SOW signed and design activity started
ADVA	2. 4x100G LR4 3. 4x100G CWDM4	Complete	June'22 to Dec'23	- 4x100G LR4 Beta phase - 4x100G CWDM4 Alpha phase
BFYY	4. 100G CWDM4 Module with POET <i>One</i>	Complete	Jan'23 to Dec'23	- Agreement complete - SPX delivered samples in May'23
2nd Tier Module Co.	5. 100G CWDM4 6. 100G LR4	Committed design	June'22 to Sep'23	- 100G CWDM4 Beta phase - 100G LR4 - new engagement
Luxshare	7. 800G 2xFR4 Rx with TIA 8. 400G FR4 Rx with TIA	Committed design	Mar'23 to Dec'23	- Started board design with POET OE - Planning on Module demo to Meta at OCP in Oct'23
1st Tier Module Co.	9. Custom: 800G Rx Optical Engine 10. 100G LR4	Q3'23	Sept'23 to June'24	- Proposal submitted. Active technical discussions on-going
2nd Tier Module Co.	11. 100G CWDM4	Committed design	June'22 to Sep'23	- 100G CWDM4 Beta phase

\*Internal estimates based on order projections provided by customers.

# Technology and Business Strategy

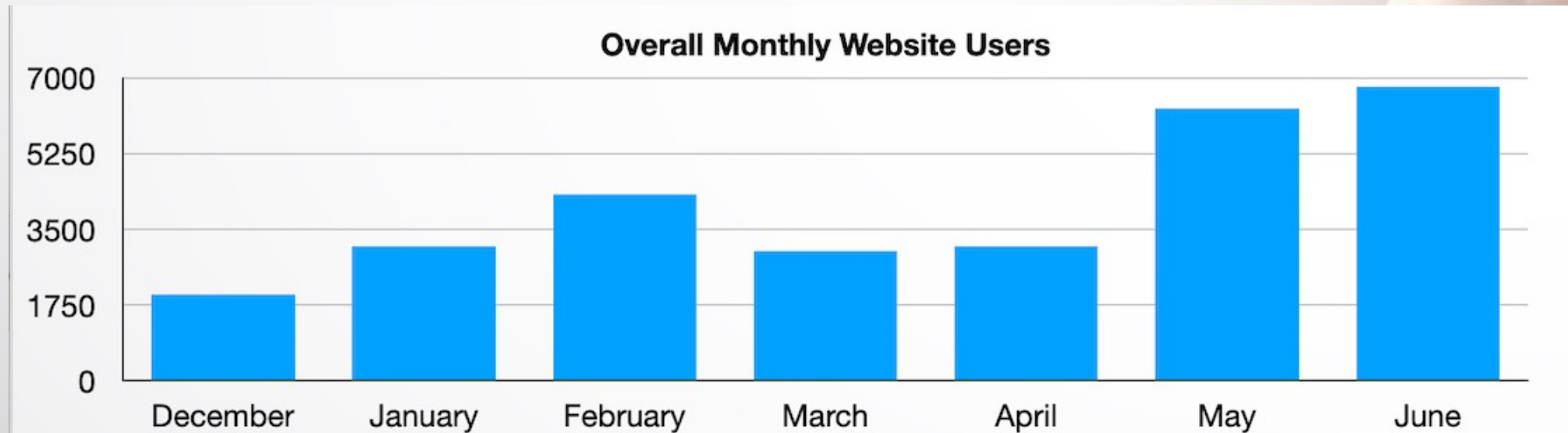
Building on Interposer and Optical Engine Expertise to offer Finished Modules to End Users for Data Centers and AI



- Plan to add a third set of capabilities for design and development of POET Optical Modules
- Enables sale of leading-edge products directly to hyperscale data centers, network equipment manufacturers and makers of AI-ML GPUs
- Reduces time to market by eliminating an additional qualification cycle
- “China Plus One” Strategy to produce Optical Engines and Modules outside of China
- Actively seeking additional JV partner for independent financing

# Investor Outreach Campaign

- **GOAL:** To increase awareness of POET to audiences likely to invest, with a focus on the U.S
- **RESULTS:**
  - ✓ 300% - growth in monthly websites visits from Dec'22 to June'23
  - ✓ 100% - month-over-month visits (May '23)
  - ✓ 3 to 1 - U.S. visitors to Canadian visitors
  - ✓ 2,300 - visitors delivered in May'23 by Google Ads
  - ✓ **NASDAQ Volume** - higher than TSXV and up since Dec'22





# SUMMARY

- ❑ Innovative, patented optoelectronic integration platform and technology
- ❑ Only known technology that can meet volume, size, cost and energy requirements for future photonics products in large, high-growth markets, including Datacom/Telecom and Artificial Intelligence hardware
- ❑ Partnered with leading companies in the optical communications supply chain
- ❑ Engaged with several key customers now demonstrating technical and market acceptance of optical engine products
- ❑ 3-year estimated revenue pipeline of \$150M on customer engagements
- ❑ Revenue from product sales anticipate to begin this year with volume ramp in 2024
- ❑ Potential for significant asset appreciation of our Super Photonics JV as it ramps up revenue



PROET  
Technologies