#### **Integrated Photonics**

The Next Wave in Photonics Growth



Dr. Suresh Venkatesan, CEO POET Technologies OCTOBER 2016



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- POET Technologies Inc. (the Company) has filed a final base shelf prospectus containing important
  information relating to the securities described in this presentation with the securities regulatory
  authorities in each of the provinces of Canada (other than Quebec). A copy of the final base shelf
  prospectus, any amendment to the final base shelf prospectus and any applicable shelf prospectus
  supplement that has been filed, is required to be delivered with this document. The Company has
  also filed a registration statement on Form F-10, which includes the final base shelf prospectus (the
  U.S. Registration Statement), with the United States Securities and Exchange Commission (the SEC)
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- This presentation does not provide full disclosure of all material facts relating to the securities offered. Investors should read the final base shelf prospectus, any amendment and any applicable shelf prospectus supplement, in each case along with the documents incorporated by reference therein, for disclosure of those facts, including risk factors relating to the securities offered, before making an investment decision. Before you invest, you should also read the Company's filings with the SEC for more complete information about the Company and this offering. You may obtain the U.S. Registration Statement and the Company's other filings with the SEC for free by visiting EDGAR on the SEC's website at www.sec.gov or on the Company's website at www.poet-technologies.com. Alternatively, the Company, any underwriter or any dealer participating in the offering will arrange to send you the final base shelf prospectus, any amendment and any applicable shelf prospectus supplement if you request them by email at placements@hcwco.com (for investors in the United States) or ssmoroz@cormark.com (for investors in Canada).

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### **Offering Summary**

Expected Pricing	Late October / Early November 2016	
Settlement	T+3 ; Shares will be fully registered in both Canada and US	
Listing / Ticker	TSX Venture (Canada) – PTK , OTC QX - POETF	
Offering	Contemplated Offering will consist of Common & Warrants	
Use of Proceeds	Capital expansion, product and sales development & general corporate purposes	
Bookrunners	Rodman & Renshaw (a unit of H.C. Wainwright & Co., LLC)	
Co-Managers	Cormark Securities (Lead Manager), IBK Capital Corp.	

Rodman & Renshaw (a unit of H.C. Wainwright & Co., LLC) are underwriters in the United States only.



#### We Enable Opto-Electronic Integration



Improves cost, space, power, reliability

Makes opto-electronics economical



### **Company Overview**



**POE** Technologies

- Developing highly disruptive semiconductor technology:
  - Industry's first monolithic integration of high speed electronics and photonics
  - Applications across multiple market verticals
- Transitioning from Technology Development to Commercialization
- \$100M invested resulting in **defensible and comprehensive** patent portfolio
  - Device structure and process IP and know how [58 patents granted/filed]
- Publicly Traded: TSX Venture (Canada) PTK ; OTCQX (US) POETF (SEC Reporting)
- Global Offices:
  - Operations and lab facilities Silicon Valley, California
  - Administrative Toronto, Canada
  - Fabrication, design and testing facilities Changi, Singapore



### **Experienced Management Team**



#### Dr. Suresh Venkatesan, CEO

- 25 years semiconductor industry experience Motorola, Freescale & GLOBALFOUNDRIES
- Technology Development & Commercialization



### William "Bill" Ring, Product Development

- 20 years semiconductor industry experience – HP, Tyco, BB Photonics
- Optical technology, product and business development



#### Dr. Subhash Deshmukh, COO

- 25 years semiconductor industry experience

   Applied Materials, Varian, Lam Research, AMI Semiconductors
- General Management and Business Development



#### **Gerald Rodrigues,** President, DenseLight Semiconductors

- 40 years electronics industry experience Texas Instruments, ITT Electronics, Data General Corp,
- Mergers & acquisitions, corporate restructuring



#### Kevin Barnes, CFO

- 15 years management reporting on public companies
- Financial reporting and Controller



#### Dr. Yee-Loy Lam, CTO

- Co-founder of DenseLight Semiconductors
- Professor Nanyang Technological University
- Specialist in optoelectronics, fiber-optics sensors and photonics systems applications



#### **Seasoned Board of Directors**



#### Ajit Manocha, Exec. Chairman

- Most recently CEO of GLOBALFOUNDRIES
- 35 years of semiconductor experience with deep knowledge of the technology and operations



#### Todd A. DeBonis, Director

- CEO of Pixelworks (NASDAQ: PXLW)
- Semiconductor veteran with over 27 years of expertise in sales, marketing and corporate development



#### John F. O'Donnell, Director

- Counsel to Stikeman Keeley Spiegel Pasternack LLP
- Canadian attorney with 43 years of experience specializing in corporate and securities law



#### David E. Lazovsky, Director

- Founder, CEO and Director of Intermolecular (NASDAQ: IMI)
- 20 years of semiconductor industry experience including IMI and Applied Materials



#### Chris Tsiofas, Director

- Partner at Toronto Chartered Professional Accountancy firm Myers Tsiofas Norheim LLP
- 25 years of experience on both financial and operational issues



#### Mohandas Warrior, Director

• President & CEO of Alfalight since 2004

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• 15 years at Motorola Semiconductors (Freescale) leading test and assembly operations

### **Investment Highlights**

- Poised to disrupt the market with Integrated Photonic solutions
- Acceleration of revenue and time to market expected with acquisitions
- High customer demand for Integrated Photonics solutions
  - Relieves current cost and power pain points in data communications
- High capital efficiency with a fully equipped photonics manufacturing facility
- Positioned for strong revenue growth, margin expansion and profitability
- Sustainable competitive differentiation



### **Targeting a Large and Growing Photonics Market**



Market size numbers represent projections / forecasts / estimates

Source: MarketsandMarkets, LaserFocusWorld, Allied Market Research, Photonics Industry Report by Photonics.org, Light Counting 2016 Reports (FTTX, Data Centers)

# **Photonic Sensing** Test and Measurement • Medical and Health Care 2 **Data Communications** Optical Communications



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### **Data Communications: Cloud Growth Driving Hyper Network Expansion**



- Mary Meeker "Internet Trends 2014 Code Conference," May 2014. (3)
- (4) Osco VNI "The Zettabyte Era," June 2014.

Market size numbers represent projections / forecasts / estimates

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# POET's Proprietary Platform for Opto-Electronic Integration

- POET (Planar Opto-Electronic Technology) Platform is a novel Gallium Arsenide (GaAs) III-V compound semiconductor process technology
  - Moore's Law like functional integration to the field of optics
- First GaAs process technology to support integration of complementary HFETs and vertical and horizontal Lasers, Detectors and Photonic elements
- Novel and disruptive embedded dielectric waveguide technology



#### **Creating Value Through Photonic Integration**

- Only technology to integrate\* photonics and electronics, including light sources
- Platform to accelerate growth
- World-class technical team
- First mover advantage
- 58 patents granted or filed
- Integration: move up the value chain from components to modules to sub-systems



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\*Monolithic integration of electronics and photonics

#### Integration Drives Value

### **POET: Developing A Disruptive Integrated Solution**



## Comprised of 4-5 different chips packaged together:

- 1) Lasers or Laser Arrays
- 2) Detectors or Detector Arrays
- 3) Laser / Modulator Drivers
- 4) Trans Impedance Amplifiers (TIA's)
- 5) Multiplexers / De-Multiplexers

#### Complex, Expensive

#### POET Integrated Optical Engine



- Single Chip Solution Monolithic Integration of Laser Driver, Lasers and Detectors
- Unique Detector architecture eliminates TIA

Simple, Low-Cost

#### Lower Cost

- Lower Power
- Higher Reliability (fewer components)

**Advantages** 

- Smaller Form Factor (higher density of optical ports)
- Cost Scales sub-linearly with # of channels





#### **Broad Patent Portfolio**





#### 58 Patents Granted/Filed



### **Recent Acquisitions: Expanded Capabilities**



Market size numbers represent projections / forecasts / estimates



#### Data Communications – Expanded Reach Long, Medium & Short Applications





### **Strong and Growing Customer Base**



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### The Opportunity & Go-to-Market Strategy

Established Foundation for Success



#### Growth of Integrated Photonic Solutions in Data Communications Discrete and Integrated Solutions

#### The need for INTEGRATION

Data Centers are primarily about \$/Gbit for moving data from point A to point B:

- Low Power Dissipation
- Ability to deliver high volume solutions
- New solutions need to provide COST differentiation
- Packaging cost and other costs drive total cost



#### Integrated Solutions... Essential to Meet Size, Weight, Power, Performance, & Cost Requirements of Next-Generation Data

Market size numbers represent projections / forecasts / estimates



#### Recent Acquisitions: Expanded Market in Data Communications





### A Platform for Broader Market in Adjacent Verticals



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# **Overview of Addressable Markets**

- Diverse Market Verticals



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# **Overview of Addressable Markets**

- Diverse Market Verticals





#### **Photonic Sensing –** Products Driving Current Revenue



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#### **Overview of Addressable Markets** - Diverse Market Verticals



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#### InP Lasing and Receiving Solutions - Fiber to "X" (FTTX) and Data Centers

#### InP lasers power InP and Silicon Photonics platforms

POET enables differentiated lasing solutions:

- CWDM and WDM integrated gain chips
  - Single chip solutions; lower cost
- Athermal gratings and waveguides
  - Reduced or no need to cool i.e., less power



Market size numbers represent projections / forecasts / estimates



Source : Light Counting, "Integrated Opto Electronics", May 2016



#### **Overview of Addressable Markets** - Diverse Market Verticals



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### Commercialization of POET Optical Engine Expected in 2018 - First Target Market: Active Optical Cables

- Market continuously seeking to cost effectively replace traditional copperbased links with optical interconnects at increasingly shorter transmission distances
- Enables disruptive reductions: component cost, module cost, form factor
- Initial focus on 10G/40G solutions within Short Reach (< 100m)</li>

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#### System Interconnect Value Proposition - Active Optical Cables (AOCs)

	Direct Attach Copper	Conventional Optical Engine	POET Optical Engine
Power	3W	0.5W	<0.5W
Cost	Х	3X	1.5X
Form Factor	_	~25mm <sup>2</sup>	~5mm <sup>2</sup>
Weight, Flexibility	No	Yes	Yes
Medium	Copper	MMF	MMF/SMF
Bill of Material	_	4 chips	Single Chip

- Lower Power per link (vs. copper)
- ✓ Smaller Size
- ✓ Lower Cost

Projections and Estimates of conventional solutions and future product capability

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### **Creating and Capturing Value Through Integration**





## **Financial Overview**

#### Established Foundation for Success



### **Monetization Strategy - Multiple Potential Sources** of Revenue

Current	Product Sales	Direct Sales of Transceiver Chipsets for Data Center and Consumer (Direct Attach Cables) applications	
	NRE Revenue	<ul> <li>Initial end customer NRE and/or foundry NRE</li> <li>Advanced stage discussions for NRE; expect first NRE revenue in 2017</li> </ul>	
	Foundry Licensing	Transfer and enable foundry with POET process – applications in market adjacencies outside of short wavelength Data Communications	
	Product Licensing	Enable second source licensing for high volume applications/customers	
Future	Chipset Royalties	On future chipset sales by foundry or licensees	

Future



### Forecasted Growth of Initially Targeted Markets

- Photonic Sensing and Data Communications only



Source : Light Counting

Market size numbers represent projections / forecasts / estimates

Represents future market potential; actual results may differ materially

See cautionary statement regarding forward-looking statements on Slide 3 of this presentation





### Summary & Investment Highlights

- Product sales established in large and high growth photonic market segments with recent acquisitions
  - Revenue expected to exceed \$2M in 2H'16 driven by sale of sensing products
  - Expected 2017 revenue growth year/year to be driven by component sales
  - DenseLight business unit expected to reach positive operating cash flow in 1H2017
- POET Technology poised to disrupt multiple adjacent markets
  - Anticipated high customer demand for Integrated Photonics solutions
  - Relieves current cost and power pain points in data communications
- Creating and capturing significant value through Photonic Integration
  - High capital efficiency with a fully equipped photonics manufacturing facility
  - Proprietary and patented innovation platform 58 patents granted or filed
  - Sustainable competitive differentiation
- Positioned for strong revenue growth, margin expansion and profitability





#### www.poet-technologies.com



### We Enable Photonic Integration



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### **Company Background and Milestones**



### **Balance Sheet and Capitalization**

In '000s of USD

As at August 31, 2016	ln \$USD
Cash	10,900
Other current assets	1,400
Total assets	30,250
Current liabilities	1,500
Other non-cash liabilities	1,800
Share capital	100,400

#### Capitalization Summary [as of August 31, 2016]

Security	Number outstanding	Price in \$CDN*
Common shares	224,338,852	
Exercisable stock options	11,816,642	\$1.04
Un-vested stock options	11,408,858	\$1.28

\* Prices of Exercisable and Un-vested stock options represent the respective weighted average exercise prices in \$CDN

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