

## **OPEL Technologies Inc.**

Head Office: Suite 501, 121 Richmond St. W Toronto, ON, M5H 2K1 Phone: (416) 368-9411

Fax: (416) 861-0749

Operations Office: P.O. Box 555 Storrs-Mansfield, CT 06268

Phone: (203) 612-2366 Fax: (203) 944-0800

## **NEWS RELEASE**

# OPEL Technologies Inc. Announces New Laser by ODIS Subsidiary as Key Achievement in POET Monolithic Optoelectronic Platform

**Toronto, ON and Storrs, CT, December 4, 2012** - OPEL Technologies Inc. (TSX-V: OPL and OTCQX: OPELF) ("OPEL" or "the Company") today announced that its U.S. affiliate, ODIS Inc. has successfully produced an integrated laser device, thereby achieving a key milestone in its Planar Optoelectronic Technology ("POET") process, that enables high-performance devices fusing optical and electronic devices together on a single chip.

By allowing the production of components with increased speed, density, reliability, and lower costs, POET offers the semiconductor industry the ability to push Moore's Law to the next cadence level, overcoming current silicon-based bottlenecks, and potentially changing the roadmap for a broad range of applications, such as smartphones, tablet and wearable computers.

After years of increasingly successful development, the fabrication of the first Vertical Cavity Laser, (VCL) utilizing ODIS's patented POET GaAs III-V technology is a significant success. Incremental progress over the years has led to what many consider to be the next phase of semiconductor development which is to surpass the capabilities of complementary metal oxide semiconductor (CMOS) technology for the next generation of high speed low power applications. It is now widely believed that CMOS technology advances have reached a saturation point.

The new laser serves as the basis for chip-to-chip interconnection, and complements numerous other optoelectronic devices already demonstrated by ODIS – including heterostructure field effect transistors (HFETs), optical thyristors, pulsed lasers, and super-radiant light emitting devices – all able to be monolithically fabricated via the POET process.

"Rarely can one be part of a development that truly has the potential to change the way the things work on so many different levels and platforms. We believe that this is 'the key milestone' and indeed this is one of those moments. Dr. Taylor and the ODIS team have chosen to achieve the most difficult laser first and have done so under extreme duress. This is not just an endorsement of the ODIS Team but also of the POET process itself," summarized Peter Copetti, Executive Director of the Board of OPEL.

Copetti further added, "The reset of our milestone timelines by approximately 8 weeks because of equipment repair caused by Hurricane Sandy is obviously a disappointment to everyone involved, but we believe it is merely a bump in the road. In the long run, it should have no material impact on monetizing POET and continuing to deliver shareholder value."

Led by Chief Scientist Dr. Geoffrey Taylor, the team of scientists and technologists at ODIS see the latest achievement as one of the most significant milestones of a decades-long effort.

Dr. Taylor noted, "I'm extremely proud of the team who overcame equipment setbacks triggered by Hurricane Sandy that reset our timelines. I'm confident POET remains on track with its vision of full monolithic integration and its applications in microprocessing."

The essence of the POET advantage is the merging of optical devices into the growth and fabrication that supports complementary HFET analog and digital functions. The n-channel and p-channel FETs take

advantage of the high mobilities inherent to strained quantum wells. Simultaneously, the quantum wells provide the active emitter for lasers and amplifiers and the active absorber for detectors and modulators.

The intimate connections between diverse device types enables novel gate designs which dramatically reduce the power consumed in the opto-electronic (OE) and electro-optic (EO) conversions. The VCL has the small footprint required for dense circuit layout and enables vertical connections from anywhere in the circuit plane to fiber or to other stacked chips. Further, the same VCL structure enables in-plane and edge emitting operation based upon proprietary OE designs. The availability of the integrated VCL will change the architecture and design for future complementary integrated circuits.

Going forward, technology development will lower the threshold current, increase the output power and optimize the in-plane version of the VCL. In addition, the complementary transistor circuit capability will be enhanced by reducing the feature size to the 100-nm scale incorporating ODIS' new self-aligned contact technology. With transistor cutoff frequencies around 38-GHz for a 0.7-um gate, the scaling is expected to produce 260-GHz transistors with commensurate improvements in circuit speed.

POET's short-term industry solution is expected to include an optical interface as a single chip to connect existing CMOS processors. The optical interface chip integrates the laser, modulator, modulator driver, detector, receiver amplifiers, serializer/deserializer, clock and data recovery, and phase-locked-loop circuits monolithically.

The longer-term solution would look to replacing CMOS gates with POET complementary HFET gates. POET processors would provide their own optical output and also perform the optical receive function and therefore the need for a separate interface chip would no longer be required.

"This is a key milestone in our acceleration of POET for commercial application," noted Leon M. Pierhal, CEO of OPEL. "OPEL now has all components in place for on-chip integration of photonic circuits in the same semiconductor framework as electronic circuits."

Pierhal continued: "Hurricane Sandy's effect was felt at ODIS's R&D facility at the University of Connecticut. Sandy's devastation affected all members of the ODIS staff and the ODIS facility itself. Equipment damage within the facility caused by Sandy made the recovery from the storm and the completion of the VCL extremely difficult. It took a herculean effort to complete the VCL."

He further stated, "The damage inflicted on the delicate equipment must now be effectively and permanently addressed in order to continue with POET's milestone achievements. A rebuild and retrofitting period of six to eight week is being planned for December and January which will delay the rollout planning process."

The POET platform is currently the basis for a number of key ODIS commercial and military projects, including optical code division multiple access (OCDMA) devices for avionics systems, combined RF/optical phased arrays, optoelectronic directional couplers, and ultra-low-power random access memory (RAM).

###

#### About OPEL Technologies Inc. and ODIS Inc.

With head office in Toronto, Ontario, Canada, and operations in Storrs, CT, the Company, through ODIS Inc., a U.S. company, designs III-V semiconductor devices for military, industrial and commercial applications, including infrared sensor arrays and ultra-low-power random access memory; and through OPEL Solar, Inc., provided systems for energy applications. The Company has 35 patents issued and 9 patents pending, primarily for its semiconductor POET process, which enables the monolithic fabrication of integrated circuits containing both electronic and optical elements, with potential high-speed and

power-efficient applications in devices such as servers, tablet computers and smartphones. OPEL's common shares trade on the TSX Venture Exchange under the symbol "OPL". For more information please visit our websites at www.opeltechinc.com and for ODIS at www.odisinc.com.

ON BEHALF OF THE BOARD OF DIRECTORS

Michel Lafrance, Secretary

### For further information:

Patricia Venneri Agudow Vice President, Public Relations Tel: +1 (203) 612-2366 Ext. 2612 p.agudow@opelinc.com

Neither TSX Venture Exchange nor its Regulation Services Provider (as that term is defined in the policies of the TSX Venture Exchange) accepts responsibility for the adequacy or accuracy of this release.

This news release contains "forward-looking information" (within the meaning of applicable Canadian securities laws) and "forward -looking statements" (within the meaning of the U.S. Private Securities Litigation Reform Act of 1995). Such statements or information are identified with words such as "anticipate", "believe", "expect", "plan", "intend", "potential", "estimate", "propose", "project", "outlook", "foresee" or similar words suggesting future outcomes or statements regarding an outlook. Such statements include, among others, those concerning OPEL's anticipated operational plans and activities. Specifically, they include OPEL's statement that "POET's short-term industry solution is expected to include an optical interface as a single chip to connect existing complementary metal-oxide semiconductor (CMOS) processors; the longer-term solution would look to replacing CMOS gates with POET complementary HFET gates; POET processors would provide their own optical output and also perform the optical receive function therefore a separate interface chip would no longer be required"

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 future growth, availability of capital, 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 OPEL's anticipated projects, risks affecting OPEL's ability to sell its solar division, the ability to attract key personnel, and the inability to raise additional capital. Additional assumptions and risks are set out in detail in OPEL's Management's Discussion and Analysis, available on SEDAR at www.sedar.com.

Although OPEL believes that the expectations reflected in the forward-looking information or statements are reasonable, prospective investors in OPEL's securities should not place undue reliance on forward-looking statements because OPEL can provide no assurance that such expectations will prove to be correct. Forward-looking information and statements contained in this news release are as of the date of this news release and OPEL assumes no obligation to update or revise this forward-looking information and statements except as required by law.