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Ideal Power Announces Strategic Focus on B-TRAN™ Solid State Switch Commercialization

AUSTIN, Texas, Jan. 08, 2019 (GLOBE NEWSWIRE) -- [Ideal Power Inc.](#) (NASDAQ: IPWR), a semiconductor and power conversion technology company, has announced a strategic shift to focus on the commercialization of its proprietary and broadly patented B-TRAN™ technology for the \$12 billion global semiconductor power switch market.

The company will concentrate its near-term activities and resources to:

- Advance the development of its Bi-directional bi-polar junction TRANSistor (B-TRAN) solid state switch technology;
- Fabricate second generation dies at a commercial domestic foundry;
- Provide packaged engineering samples for potential customers and partners;
- Secure government funding for device development and specific B-TRAN-based demonstration projects; and
- Pursue strategic customer and partner relationships to support technology development and demonstration, market segment access and accelerated commercialization.

“Ideal Power has been transformed into an asset light operating company focused on our B-TRAN power switch,” said Dr. Lon Bell, Chief Executive Officer of Ideal Power. “Our business model leverages capabilities at existing semiconductor fabrication facilities, collaborations with major universities and our relationships with semiconductor experts to complement our company’s modeling, power switch development and characterization capabilities. We believe this will allow us to efficiently use our capital to pursue commercializing B-TRAN for the \$12 billion power switch market,” explained Dr. Bell.

B-TRAN is a new, widely patented, architecture that has the potential to extend the performance level of silicon-based power semiconductor switches. The unique performance characteristics of B-TRAN compared to conventional silicon devices such as insulated gate bipolar transistors are: 1) its high efficiency - offering a 50-90% reduction in switching and conduction losses; 2) it is bi-directional enabling the control of power in both directions; and 3) its switching speed is potentially 2.4 times as fast. B-TRAN’s performance improvement is potentially an enabling technology with wide applicability in several fast-growing markets

such as electric and hybrid vehicles electronic controls, industrial motor drives, direct current-based distribution and transmission system switches and controls, and renewable energy and energy storage system power converters.

Potential commercial B-TRAN applications can be attractive:

- According to a recent Toyota Motors technical publication, power semiconductors account for approximately 20% of the electrical losses in a hybrid vehicle. The high efficiency and switching speed of B-TRAN could enable 7.5% - 13.5% better fuel efficiency for such hybrid and electric vehicles enabling longer driving range or alternatively, smaller, lower cost batteries.
- Commercial and industrial electric motors consume 25% of the world's electrical energy. B-TRAN's bi-directionality and efficiency could enable the broad adoption of matrix converters for variable frequency drives. In these applications, B-TRAN enables design simplification, part count reduction and lower cost. Its efficiency improvement leads to lower operating cost. By using B-TRAN, the size and energy loss associated with matrix converter motor drives could reduce systems losses by 30% to 50%.
- Solar and wind energy are direct current (DC) based technologies driving the adoption of lower cost HVDC/MVDC distribution and transmission systems. This market is estimated to grow to \$7 billion by 2024. The enabling technology for DC based distribution and transmission systems is the creation of a low loss, fast acting HVDC/MVDC breaker. B-TRAN's high efficiency and fast switching speed could be ideally suited for an HVDC/MVDC breaker.
- The power conversion efficiency of renewable energy and energy storage is limited by the switching and conduction losses of conventional power semiconductor switches. B-TRAN's high efficiency can reduce these losses by 50-90% thereby reducing the cost of electricity produced by renewable energy systems.

To facilitate this strategic shift and reduce the company's cash burn rate, Ideal Power reduced its Power Conversion Systems (PCS) division workforce and suspended further power converter system development and sales, which the company estimates will reduce annualized cash expenditures by approximately \$2.5 million to \$3 million. As a result of the workforce reduction, Ideal Power estimates it will incur one-time cash charges of approximately \$200,000 to \$250,000 in connection with employee severance costs and termination benefits and costs related to exiting production of its power converter products.

"While we believe the long-term market opportunity for commercial & industrial energy storage is substantial, it has been slow to mature. It has not produced sufficient order flow to substantiate the recent level of investment in the Power Conversion Systems business division. We thank our valued former employees for their dedicated service and regret the circumstances that have led to this work force reduction," continued Dr. Bell.

"Due to the benefits that our PPSA™ technology brings to storage-related markets, the company is engaged in developing and pursuing discussions with potential licensees and acquirers of the PCS division," concluded Dr. Bell.

About Ideal Power Inc.

Ideal Power (NASDAQ: IPWR) is a semiconductor and power conversion technology company focused on its patented Bi-directional, Bi-polar Junction Transistor (B-TRAN) semiconductor technology. B-TRAN is a unique double-sided bi-directional AC switch expected to deliver substantial performance improvements over today's conventional power semiconductors. B-TRANs offer the potential to improve efficiency and system economics of a wide variety of power converter applications including electrified vehicle traction drives, energy storage applications, photovoltaic (PV) inverters and wind converters, variable frequency (VFD) motor drives, and AC and DC power control applications. For more information, visit www.IdealPower.com.

Safe Harbor Statement

All statements in this release that are not based on historical fact are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995 and the provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. While management has based any forward-looking statements included in this release on its current expectations, the information on which such expectations were based may change. These forward-looking statements rely on a number of assumptions concerning future events and are subject to a number of risks, uncertainties and other factors, many of which are outside of our control that could cause actual results to materially differ from such statements. Such risks, uncertainties, and other factors include, but are not limited to, the success of potential PPSA strategic alternatives, the success of our B-TRAN technology, the success of our strategic shift and change in corporate focus, whether the patents for our technology provide adequate protection and whether we can be successful in maintaining, enforcing and defending our patents, our inability to predict with precision or certainty the pace of development and commercialization of our B-TRAN technology, whether we can continue as a going concern and uncertainties set forth in our quarterly and annual reports filed with the Securities and Exchange Commission. Furthermore, we operate in a highly competitive and rapidly changing environment where new and unanticipated risks may arise. Accordingly, investors should not place any reliance on forward-looking statements as a prediction of actual results. We disclaim any intention to, and undertake no obligation to, update or revise forward-looking statements.

Ideal Power Investor Relations Contact:

MZ North America
Chris Tyson
949-491-8235
IPWR@mzgroup.us
www.mzgroup.us



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