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Ideal Power and Diversified Technologies, Inc. to Collaborate on B-TRAN™ Based AC Circuit Breaker Under New Department of Energy SBIR Award

AUSTIN, Texas, June 16, 2021 (GLOBE NEWSWIRE) -- Ideal Power Inc. (Nasdaq: IPWR), pioneering the development and commercialization of highly efficient and broadly patented B-TRAN™ bi-directional power switches, is partnering with Diversified Technologies, Inc. (DTI), under a Phase I Small Business Innovation Research (SBIR) grant from the Department of Energy (DOE), to develop a B-TRAN™-driven low-loss 13.8 kV alternating current (AC) Solid State Circuit Breaker (SSCB). The SSCB is intended to be used in medium voltage power distribution and renewable energy / microgrid connection to the United States main power grid.

In the Phase I project, DTI and Ideal Power will: design a 50 MW, 13.8 kV-class SSCB; build and demonstrate B-TRAN™ switch modules to interrupt AC power; and confirm the efficiency and speed of the B-TRAN™ devices in AC operation. The B-TRAN™ based SSCB is expected to limit fault energy by orders of magnitude compared to conventional mechanical circuit breakers. If successful and awarded a Phase II grant, DTI and Ideal Power will build and test a full 50 MW SSCB.

“We believe this project is a significant strategic opportunity to demonstrate B-TRAN™’s capabilities in an arena that is incremental to our current efforts with the U.S. Navy and one that is critical to electric grid development,” stated Dan Brdar, President and Chief Executive Officer of Ideal Power. “Complementing our work to develop a direct current SSCB for the U.S. Navy, we believe this alternating current SSCB directly addresses today’s large existing utility distribution and transmission market that relies primarily on mechanical breakers, which, while reliable, are slow acting, allow large fault currents and suffer high wear and maintenance needs. While solid state breakers are faster acting and do not experience these wear issues, they have not yet been embraced in critical power applications because of their high cost and conduction losses, which we believe can be solved with B-TRAN™ SSCBs.”

SSCBs prevent damage to downstream loads, upstream generators, and the grid itself by utilizing microsecond current interruption times. B-TRAN™s are expected to make SSCBs more efficient, smaller, and less expensive through:

- Elimination of the need for external cooling systems using instead passive cooling similar to a pad-mounted utility transformer;

- 50% lower conduction losses compared to conventional power semiconductor switches; and
- Reduced component/switch count and smaller footprint due to the unique bi-directional capability of B-TRAN™.

“Solid state circuit breakers have many advantages over legacy mechanical breakers, including increased safety, speed, reliability and control-ability, and B-TRAN™ can provide substantial additional improvements over uni-directional SSCBs, solving the challenges they pose today. The global market for all circuit breakers, including SSCBs, is projected by Fortune Business Insights in a recent market research report to grow at a CAGR of over 6% to $25.85 billion by 2027 – this represents tremendous opportunity for SSCBs to gain incremental share across numerous medium voltage applications in the utility, distributed generation, and transmission/distribution markets, and in additional commercial and industrial power switching applications such as hybrid and electric vehicle power train and charging. We look forward to this additional collaboration with DTI and a successful demonstration for the DOE. ” stated Mr. Brdar.

About Diversified Technologies, Inc. (DTI)
Diversified Technologies, Inc. designs, manufactures, and markets the patented PowerMod™ line of high-voltage, solid-state, pulsed power modulators and switching power supplies. DTI's PowerMod technology is the recipient of prestigious local and national awards and is recognized as a true breakthrough in high-voltage electronic design. The company has shipped hundreds of systems to customers in the U.S. Departments of Energy and Defense, leading universities, and private sector companies for a range of applications including semiconductor fabrication, food processing, high energy physics research, medical electronics, and radar. For more information on DTI, please click here.

About Ideal Power Inc.
Ideal Power (NASDAQ: IPWR) is pioneering the development of its broadly patented bi-directional power switches, creating highly efficient and ecofriendly energy control solutions for electric vehicle, electric vehicle charging, renewable energy, energy storage, UPS / data center and other industrial and military applications. The Company is 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 able to deliver substantial performance improvements over today's conventional power semiconductors. Ideal Power believes B-TRAN™ modules will reduce conduction and switching losses, complexity of thermal management and operating cost in medium voltage AC power switching and control circuitry. For more information, visit www.IdealPower.com.

Forward-Looking Statements
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 Ideal Power’s 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 Ideal Power’s 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 risks and uncertainties associated with market conditions, as well as risks and uncertainties set forth in Ideal Power's quarterly, annual and other reports filed with the SEC. Furthermore, Ideal Power operates 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. Ideal Power disclaims any intention to, and undertake no obligation to, update or revise forward-looking statements.

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