



For more information, contact:  
Jeff Shepard, President  
jshepard@darnell.com  
(951) 279-6684  
<http://www.darnell.com>

# Darnell Group

# NEWS

## Smart Grid Will Drive AC-DC Power Supply Market

Corona, California, July 19, 2011 – The embedded ac-dc power supply market is facing an unprecedented number of opportunities that have not been typical for this industry in the past. Driven by new applications such as the Smart Grid and Solid-State Lighting, ac-dc power supplies are undergoing a significant shift in demand characteristics that will result in new product designs and sales opportunities. These are discussed in detail in Darnell Group’s tenth edition report, *AC-DC Power Supplies: Economic Factors, Application Drivers, Architecture/Packaging Trends, Technology and Regulatory Developments*.

The smart grid is expected to change the design of all types of electronic equipment. Although the power electronics used in the smart grid are still being defined, Darnell Group has identified several segments that are showing the greatest potential for power supply manufacturers: smart meters for monitoring residential electricity, water and gas; electric vehicle chargers; and “smart appliances” that rely on demand response to adjust energy usage. A promising direction is the ability to remotely monitor and “dispatch” energy as needed in a building, such as lighting control systems.

Smart meters are often thought of as the “first step” toward smart grids. Smart electricity meters may enable greater consumer control over consumption and are being deployed at an increasing pace. These new meters will communicate information on household use back to the utility company directly, to better monitor power usage and help utilities manage power distribution. In addition to smart meters, “smart” appliances and EV chargers will present significant opportunities for ac-dc power.

Darnell has also identified certain applications that, although not new, are undergoing important changes. Building Automation Systems (BASs) are a traditional industrial application that is slowly evolving as energy efficiency regulations and the smart grid take hold. Heating, ventilation and air conditioning (HVAC) systems and lighting control have traditionally been separate systems, but next-generation BASs are looking at merging the two into more efficient (and less costly) designs. This will affect both the design and sales of embedded ac-dc power supplies.

Another growth area is light-emitting diodes (LEDs), which are expected to be at the forefront of solid-state lighting solutions. Power supplies used in LED-based lighting solutions are inherently different from the power supplies used in standard electronic systems. The emergence of ac-dc power supplies for LEDs will require power supply makers to focus on designs that are industrial-grade, rugged and can be used outdoors. Furthermore, they must be able to regulate output current, and they need to be sealed against the elements and thermally protected.

Digital power management and control continue to make significant strides in ac-dc power supplies, with particular application in energy management systems. Since power conversion is an essential element of smart grid implementations, digital power will help enable the monitoring, communication and control of devices. Measuring energy consumption (and making it meaningful) is critical, since you can’t manage what you can’t measure. And even though energy management systems are necessary for building automation, it doesn’t mean customers will pay a premium for them. Ac-dc power supply companies will need to develop new products for these new technologies, but it is possible that existing methods simply need to be re-examined and re-designed.

These trends make it clear that embedded ac-dc power supplies are on the cusp of some potentially game-changing scenarios. Power supply makers have reason to be optimistic, since even potential threats can point the way to alternative opportunities. This makes the long-term outlook for ac-dc power supplies very bright.

Darnell Group is the leading source for worldwide strategic information covering the full spectrum of power electronics, energy storage and generation. The company specializes in the economic/business analysis of emerging power markets and technologies. Details for the Tenth Edition of *AC-DC Power Supplies: Economic Factors, Application Drivers, Architecture/Packaging Trends, Technology and Regulatory Developments* is available at: [http://www.darnell.com/market/product\\_info.php?cPath=2\\_24\\_31&products\\_id=231](http://www.darnell.com/market/product_info.php?cPath=2_24_31&products_id=231)

**The World’s Power Electronics Specialist**

