



Semiconductor Manufacturing Innovation Institute

Who we are

PowerAmerica, a public-private partnership between industry, the U.S. Department of Energy, national labs, and academia, seeks to save energy and create U.S. manufacturing jobs by accelerating the development and large-scale adoption of wide bandgap semiconductor technology. The Institute was founded in 2015 with funding for the DOE, the state of North Carolina, N.C. State University and industry partners. Headquartered at N.C. State University in Raleigh, PowerAmerica is a member of the Manufacturing USA network.

What is a wide bandgap semiconductor?

Wide bandgap semiconductors operate at much higher voltages, frequencies and temperatures than conventional semiconductors. They are also smaller and more energy efficient than the power electronics widely available today. These new semiconductors take advantage of the inherent properties of silicon carbide (SiC) and gallium nitride (GaN) materials to provide performance superior to conventional silicon semiconductors.

Uses for wide bandgap semiconductors include...

- ▶ Compact power adapters for consumer electronics that are half the size of current technology
- ▶ More efficient electric vehicle charging systems that reduce energy losses by 50%
- ▶ More efficient industrial motors that can reduce energy consumption and maintenance costs
- ▶ Greater efficiency of energy conversion and distribution for both conventional and renewable energy systems
- ▶ More efficient power supply for data centers, reducing the space, cost and energy consumption of power equipment

How we're working to accelerate the adoption of this technology:



More than 30 industry and university partners and currently benefitting from joining the Institute

For information about becoming a member of PowerAmerica,
visit www.poweramericainstitute.org.