

# Advanced Energy Announces Dynamic Reverse Pulsing That Dramatically Enhances Power System Performance

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## Data Reveals Improvements through Use of AE's DRP Power Configuration Technology, Translating into Significant Cost Savings

FORT COLLINS, Colo.--(BUSINESS WIRE)-- [Advanced Energy Industries, Inc.](#) (Nasdaq: AEIS), a global leader in precision power conversion, today announced Dynamic Reverse Pulsing™ (DRP), a power configuration technology that is marked by providing a higher deposition rate, lower substrate heating and higher power output on magnetrons. DRP's unique capabilities transform the paradigm in reactive sputtering and allow users to enable new processes and reap substantial cost savings.

Thin film coating professionals struggle with a variety of issues in reactive sputtering. These include the need to reduce process temperature for heat sensitive substrates; power level limitations due to heat, material and current; and anodes that “disappear” in high deposition rate configurations (DC). DRP eliminates those pain points by lowering the heat and increasing the deposition rate, requiring fewer chambers, and increasing throughput of existing coaters without the expensive addition of cathodes, lids and zones.

“Advanced Energy's patented DRP technology offers customers an entirely new approach to delivering power in a sputtering coater,” said Bruce Fries, general manager, AC/DC Products.

“Innovation comes in the form of utilizing Ascent® DMS power supplies and a floating anode to deliver more net power to the cathodes with less heat on the substrate. This technology presents an unconventional power system configuration offering new economic benefits to our customers.”

Recent data gathered from an Advanced Energy customer fully outlines the strong value in DRP. With an initial power system configuration of 40 kHz AC, the customer reported a 4 kW of total power, a deposition thickness of 230 A and a heat load of 310C / 583K. However, when the power system was reconfigured to 40 kHz DRP, the customer reported 4 kW of total power per DMS, a deposition thickness of 380A and a heat load of 230C / 503K. The new configuration translates into a 65 percent higher deposition rate and a 14 percent reduction in heat, resulting in a powerful improvement to processes and economic benefits.

This use case is just one of multiple that outlines benefits in using a DRP configured power system: one customer secured two times the deposition rate, and another customer secured a higher deposition rate at a lower heat load. Additionally, in high volume consumer device coating, utilization of DRP-configured coaters can offer significant savings in capital investment, reducing the overall number of coaters needed for high volume production.

At [SVC TechCon 2018](#), Dave McAninch and Doug Pellemounter will present “Increasing Dual Magnetron Sputtering Deposition Rates with Reduced Thermal Loads.” The [presentation](#) will take place Wednesday, May 9, 2018, at 1:30 p.m.

**About Advanced Energy**

Advanced Energy (Nasdaq: AEIS) is a global leader in innovative power and control technologies for high-growth, precision power solutions for thin films processes and industrial applications. Advanced Energy is headquartered in Fort Collins, Colorado, with dedicated support and service locations around the world. For more information, go to [www.advanced-energy.com](http://www.advanced-energy.com).



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