

AI Energy's Next Breakthrough Is in the Lab

Purdue and GlobalFoundries unlock chip-level advances for smarter grids.

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Master Research Agreement (MRA)

Formalized R&D Framework

Purdue University and GlobalFoundries have established a unified, streamlined framework for semiconductor innovation.

This MRA enables rapid deployment of joint research initiatives in AI hardware, silicon photonics, and chip security—key enablers for next-generation energy systems. By removing bureaucratic friction, the agreement accelerates the translation of theoretical AI models into physical, power-efficient semiconductor designs critical for grid-scale computing and renewable integration.

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<https://www.purdue.edu/newsroom/2026/Q4/purdue-globalfoundries-expand-partnership-with-master-research-agreement/>



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AI Chips Are the New Grid Infrastructure

The partnership's focus on AI hardware and silicon photonics directly targets the energy efficiency bottleneck in data centers and distributed energy networks. As AI models grow in complexity, their computational demands strain power grids. By co-designing chips optimized for AI inference and energy conservation, this collaboration reduces the carbon footprint of AI deployments while increasing resilience in real-time energy routing systems.





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Talent Pipeline = Energy Innovation Engine

The MRA integrates undergraduate and graduate students into real-world semiconductor R&D through multi-project wafer runs and on-site training at GlobalFoundries facilities. This hands-on experience in chip manufacturing and packaging translates directly into the ability to design energy-efficient AI accelerators. The result is a self-sustaining innovation loop: students build, test, and deploy chips that power smarter energy systems, then return to the ecosystem as engineers, researchers, or entrepreneurs.

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