

Grid of Tomorrow Consortium

CUTTING-EDGE RESEARCH AND STRATEGIC PARTNERSHIPS CONVERGE TO LEAD THE ENERGY TRANSITION

OUR MISSION

Purdue's *Grid of Tomorrow* consortium will catalyze research and bolster workforce development to address the challenges from a rapidly changing landscape. It will also serve as a forum for the electric grid ecosystem—including utilities, large industrial customers and data centers, consumers, system operators, and technology providers—to:

- Share technical challenges with other members and Purdue University researchers.
- Collaborate on joint or externally funded projects that drive innovation while delivering measurable improvements in reliability and affordability.
- Recruit top talent and shape engineering education.

CHALLENGES AND OPPORTUNITIES

- Decarbonization, load growth from data centers, electrification, distributed energy resources, and extreme weather events are major drivers of change.
- Existing options for industry-academia collaboration are limited or cumbersome to establish.
- Academic research can be disconnected from real-world problems.
- Rapidly evolving technologies require flexible lifelong training and up-to-date curricula.
- The Grid of Tomorrow consortium is a new paradigm for industry-academia collaboration with targeted high-impact problem solving. Train the next cadre of grid professionals with dual competencies in power systems engineering and AI.



Electrification and Load Growth

Managing the needs and impact of EVs and mega-loads from AI data centers



ML/AI at the Grid Edge

New technologies to support the transition to a decentralized grid



Integrated T&D Decision-Making

Computational tools for integrated system planning and analysis

CONSORTIUM BENEFITS

INDUSTRY-DRIVEN COLLABORATIVE RESEARCH:

Joint research projects among consortium members and Purdue faculty with 3-month inception-to-start timeline.

HUMAN RESOURCES:

Access to top talent (BS, MS, PhD) trained in a comprehensive engineering curriculum. *Grid of Tomorrow Fellows* will intern with consortium members.

COMMERCIALIZATION AND INTELLECTUAL PROPERTY:

Commercialization of research outputs with IP licensing rights to consortium members.

NETWORKING AND GROWTH:

Networking and outreach events, member-focused consortium roadmap and strategic planning for future growth.

OUR CORE RESEARCH STRENGTHS

- Data center modeling and control
- Data analytics & AI/ML solutions
- Emerging technologies at the grid edge
- Energy markets
- Grid optimization and DERs
- Dynamics with inverter-based resources
- Flexibility from large commercial customers
- Grid situational awareness

WHY PURDUE? WHY NOW?

Purdue University aspires to be at the forefront of decarbonization and is primed to address the challenges of the *Grid of Tomorrow*. We are proud to be:

- The largest producer of engineers in the nation.
- Home to highly ranked and historic engineering programs with comprehensive curricula offered both in-person and online.
- Home to world-class faculty with access to cutting-edge research facilities and lab space.

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OUR VALUE PROPOSITION

- Address urgent grid challenges through industry-driven research tailored to members' needs
- Reduce risk and cost through shared projects with faster turnaround than traditional R&D cycles
- Recruit top talent, shape engineering education, and build a future-ready workforce

FEATURED PROJECTS

1. ACCELERATING GRID INTERCONNECTION

AI-driven tools to speed up interconnection studies, from data validation to advanced simulations.

2. FLEXIBLE CONNECTION AT SCALE

Dynamic hosting capacity analysis and edge-computing solutions to integrate large loads and DERs fast and reliably in real time.

3. DATA-DRIVEN DER ORCHESTRATION

Smart data selection and privacy-preserving learning to forecast, coordinate, and optimize DERs across the grid.

4. DYNAMIC MODELING OF DATA CENTERS

Multi-timescale models to capture data centers' unique grid impacts

CONSORTIUM MEMBERSHIP FEES AND BENEFITS

	STRATEGIC PARTNER	FULL MEMBER	ASSOCIATE MEMBER
FEE (\$K/YR)	100	50	10
ADVISORY COUNCIL VOTES	Two seats on advisory council	One seat on advisory council	Invitations to consortium networking events
IP RIGHTS	Option for royalty-free, exclusive or non-exclusive, commercial use with one-time patent fee per country	Nonexclusive licensing for noncommercial use	No IP access
DIRECT-TO-TALENT CHANNELS	CURATED ACCESS Directly target talents through multiple channels	PRIORITY ACCESS Fast track to key programs or student groups	GENERAL ACCESS Through Purdue programs

CONTACT US

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