

# GRID INNOVATION HUB

## Introducing the Grid Innovation Hub: Shaping Australia's Energy Future

Join us at the forefront of Australia's energy transition with the Grid Innovation Hub, an industry initiative convened by the Monash Energy Institute. Together, we're tackling the complex challenges facing our energy system and driving real-world impact through collaborative research and innovation.



### Why Join the Monash Grid Innovation Hub?

- **Make an Impact:** Contribute to advancing your organisation and the energy sector as a whole, while serving the needs of energy consumers.
- **Thought Leadership:** Collaborate with like-minded industry leaders and world-class academic minds to shape cutting-edge research and innovation in Australia's energy transition.
- **Access Resources:** Utilise state-of-the-art facilities and dedicated resources for Grid Innovation Hub projects. Benefit from professional development opportunities emerging from innovative projects and access highly skilled talent through PhD collaborations.
- **Proven Track Record:** Join a trusted initiative with a successful history of leveraging industry investment and academic expertise to address industry challenges.

### Membership Benefits:

- **Financial Contribution:** Become a Hub Partner with an annual contribution of \$50k for three years.
- **Governance:** Participate in the program board alongside Monash University and other Hub partners to govern the initiative.
- **Funding Leverage:** Monash University administers Hub funds, optimising opportunities to secure further grants and funding to maximise impact.

### Contact Us

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Together, let's drive meaningful change and lead Australia's energy transition into a sustainable future with the Grid Innovation Hub.

### Expression of Interest:

We invite expressions of interest from industry partners to join our dynamic community of innovators and thought leaders. Contact us today to explore collaboration opportunities and help shape the future of energy in Australia.

### Timeline

EOI opens: end March  
EOI closes: end May  
Workshop with industry and academic leaders: Date TBD, May  
Submit next-gen project proposals to ARENA for leveraged funding: Date TBD  
Commence work on projects: Date TBD

Scan to learn more about GIH



Or visit: [monash.edu/energy-institute/grid-innovation-hub](https://monash.edu/energy-institute/grid-innovation-hub)

# RESEARCH CAPABILITIES AND THEMES



## Distribution Networks

### Integration of Distributed and Consumer Energy Resources (DCERs) and Consumer Behaviours:

- Research and analysis on the efficient integration of DCERs, including solar panels, wind turbines, and energy storage systems.
- Investigating consumer decision-making, incentives, and the impact of energy-efficient infrastructure on sustainable energy solutions.

### Microgrid Design, Operation, and Energy Efficient Infrastructure

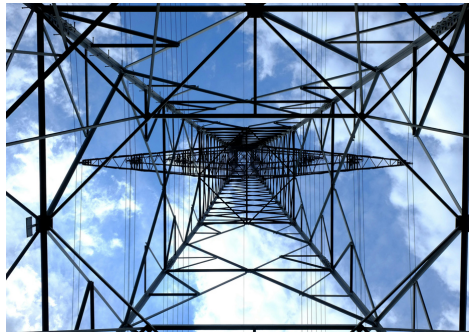
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### Smart Grid Technologies and Data Sharing:

- Exploring advanced metering infrastructure, IoT devices for energy management, and demand response technologies.
- Addressing concerns related to data sharing and privacy within smart grid systems.

### Electric Vehicle (EV) Charging Infrastructure and Social Equity:

- Assessing the impact of EVs on the distribution network and developing smart charging strategies.
- Evaluating the implications of EV charging infrastructure on social equity.



## Transmission Networks

### Grid Integration of Solar and Wind Farms:

- Advanced control strategies for inverter-based renewable energy sources and the impact analysis of their high penetration.
- Hybrid energy systems combining solar, wind, and energy storage for improved reliability.

### Energy Storage Integration into the Electricity and Market Regulation:

- Grid-scale energy storage solutions and their role in providing ancillary services.
- Market design for energy storage

### Grid-Forming Inverters and Network Optimisation:

- Development and stability of grid-forming inverter technologies and their integration with renewable energy systems.
- Network optimisation techniques, including technical frameworks and the application of blockchain technology for enhanced grid security and reliability.

### Cybersecurity, Environment, and Policy Frameworks:

- Cybersecurity measures for protecting inverter-based grid infrastructure and ensuring reliable operation.
- Regulatory and policy frameworks impacting the deployment of new energy technologies, with a focus on carbon and renewable policy and governance.



## Cross-Cutting Themes

### Renewable Electricity Market (with storage)

- Competition Policy
- Market Design
- Financing the Energy Transition

### Social Response to New Energy Technologies

- Understanding the interplay between people, new energy technologies, and sustainable energy solutions.

### Network Optimisation and Security:

- Emphasising grid security, the development of technical frameworks, and the innovative use of blockchain and cybersecurity technologies.

### Future Control Rooms:

- Investigating new technologies, approaches and methods for enhanced operations, including real-time visibility, explainable AI, data visualisation, uncertainty communication, cognitive load and critical decision making.