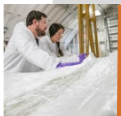


# Wind Energy Research Core Capabilities



## Advanced Manufacturing and Materials

Lead: [Derek Berry](#)

- Materials Research and Applications
- Manufacturing Processes at Scale
- Manufacturing Optimization, Onsite and Modular Manufacturing
- Recycling and Reuse



## Economic Analysis and Data Analytics

Lead: [Eric Lantz](#)

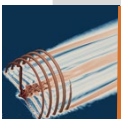
- Technoeconomic Analysis
- Digitalization, Artificial Intelligence, and Machine Learning
- Wind Energy and the Future Power Grid
- Land-Use and Spatial Analysis
- Jobs and Economic Development Impacts (JEDI) Models



## Flatirons Campus Laboratories and Research Facilities

Lead: [Jeroen van Dam](#)

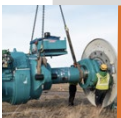
- Structural Research Facilities
- Field and Technology Research Validation Sites
- Dynamometer Research Facilities
- Composites Manufacturing Education and Technology (COMET)
- Controllable Grid Interface



## Modeling and Validation

Lead: [Mike Sprague](#)

- High-Fidelity Modeling and Validation
- Engineering Modeling and Validation
- Systems Engineering and Optimization



## Technology Innovation

Lead: [Paul Veers](#)

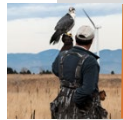
- Next-Gen Wind Turbines
- Floating Offshore Wind Systems
- Plant Level Control
- Drivetrain Technology, Operations, and Maintenance



## Atmospheric Science

Lead: [Caroline Draxl](#)

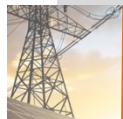
- Resource, Site Characterization, and Forecasting
- Oceanographic and Meteorological Processes
- Global Weather, Mesoscale and Plant-level Effects
- Maps and Visualizations



## Environmental Science

Lead: [Cris Hein](#)

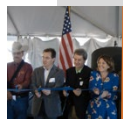
- Environmental Processes and Impact Assessment
- Species-Specific Scientific Investigations
- Cost-Effective Mitigation



## Grid Integration

Lead: [Dave Corbus](#)

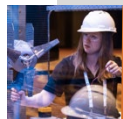
- Optimal Grid Planning and Operation
- Wind Plant Controls and Grid Stability Research
- Integrated Energy Systems
- Cybersecurity and Resilience
- Hybrid Power Systems



## Stakeholder Engagement and Social Science

Lead: [Chloe Constant](#)

- Information, Tools and Resources
- Outreach and Engagement for Community Impact Issues
- Social Science Research of Wind Energy Acceptance



## Workforce Development

Lead: [Chloe Constant](#)

- Workforce Analysis
- Workforce Pathway Development
- Workforce and Educational Program Development