



**UT Energy Bulletin | January 2026**

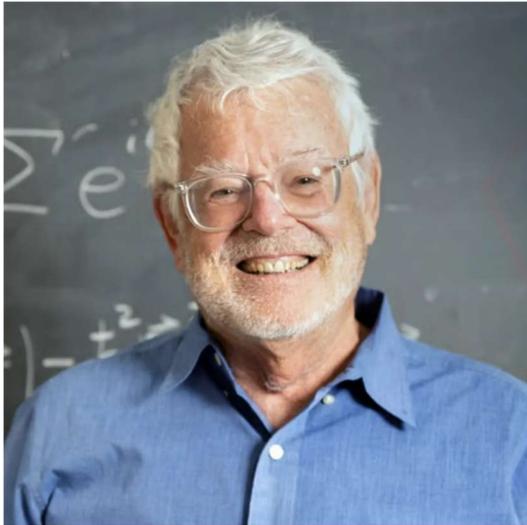
## Energy@UT News



### **Discovery to Impact's 2025 Annual Report Highlights Breakout Year for UT Research Commercialization**

The 2025 Discovery to Impact annual report highlights a robust pipeline of startup formation and industry collaboration through which the university transforms breakthrough technologies into products that benefit society and stimulate economic growth. UT ranks second among public universities for startup creation and has seen a fifteen percent increase in invention disclosures over the past fiscal year, demonstrating the real-world impact of UT's world class research across energy and technology.

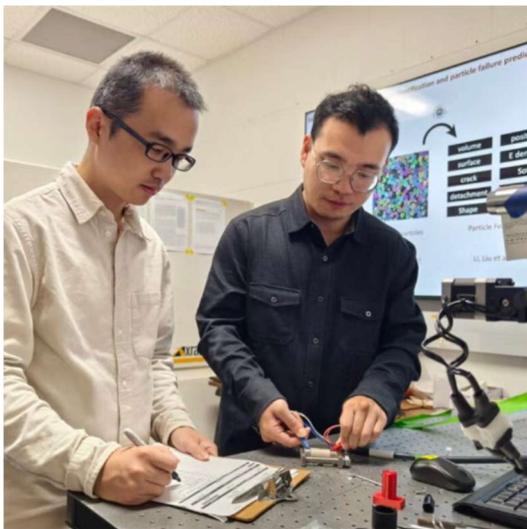
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### Allan MacDonald Wins Frontiers of Knowledge Award

Allan MacDonald has been honored with the Frontiers of Knowledge Award for his groundbreaking discovery of the "magic angle" in twisted bilayer graphene. This breakthrough birthed the field of twistrionics, revealing how rotating layers of carbon can trigger superconductivity. MacDonald's research is now being applied to the development of quantum supercapacitors, a new class of low-carbon energy storage that could revolutionize the power grid and lead to ultraefficient electronics that consume significantly less energy than today's devices.

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### Batteries Lose Charge When They 'Breathe'

Researchers from The University of Texas at Austin are part of a team that has identified a major culprit behind battery deterioration: a "breathing" effect that causes components to warp during every charge and discharge cycle. The team used advanced 3D X-ray imaging to discover that particles within battery electrodes expand and contract unevenly, creating "strain cascades" that lead to cracks and eventual failure. These findings suggest that the lifespans of devices from smartphones to electric vehicles could be extended by applying controlled pressure to their batteries.

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### **UT Austin to Build Quantum Enhanced Semiconductor Metrology Facility**

The University of Texas at Austin has received a \$4.8 million Texas Semiconductor Innovation Fund grant to establish QLab, a quantum-enhanced semiconductor metrology facility, at the Texas Quantum Institute. The facility will advance atom-scale measurement technologies critical to semiconductor manufacturing, while supporting Texas' growing semiconductor and quantum industries, and will be managed in collaboration with the Microelectronic Research Center (MRC), Texas Institute for Electronics (TIE), and Texas Materials Institute (TMI).

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### **New Analysis from LBJ School Professor Joshua Busby**

Joshua Busby, UT professor and senior nonresident fellow with the Chicago Council on Global Affairs, provides a critical analysis of the U.S. posture toward the global shift to electrification. Busby argues the "electrification revolution" will proceed regardless of U.S. participation and warns that if the U.S. fails to embrace this transition, it risks being left behind by competitors like China.

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### **New Podcast Explores the Latest in Rare Earth Elements**

Bureau of Economic Geology Research Professor Bridget Scanlon has launched a new podcast in partnership with the U.S. Department of Energy. The podcast features interviews with scientists and business leaders working with the Bureau to advance rare earth element research and production.

Listen on [YouTube](#) or on the [Bureau's Website](#)



### **UT Taking Front Row Seat in Innovation in Critical Mineral Resources**

As the U.S. faces mounting pressure to reduce its dependence on foreign rare earth minerals, The University of Texas at Austin is leading the charge to rebuild a domestic supply chain. Through high-level educational forums and breakthrough research into environmentally friendly extraction methods, such as using artificial membrane channels to mimic natural cell processes, UT experts are tackling the economic and national security challenges of the critical mineral race.

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## Research Highlight

### Water Use Requirements for Data Centers in Texas: A White Paper on the Evolving Demands of Water Use in Data Center Infrastructure in Texas

*Prepared by: COMPASS Research Affiliates Program at The University of Texas at Austin*

While power availability dominates siting conversations for data centers, this white paper demonstrates that water availability increasingly determines whether projects can proceed on schedule, or at all. COMPASS researchers deep dived into the water use by data center discussion, positioning water not as a secondary input, but as a core engineering, environmental, and policy issue in the future of digital infrastructure. It evaluates how cooling technologies, grid composition, and regional hydrology interact to shape both direct water withdrawals and indirect water use.

[Read More](#)

## Featured Publication

### Natural Hydrogen Techno Economics and Valuation

Natural hydrogen, often called white or gold hydrogen, is emerging as a transformative low-carbon energy resource. In a new study titled *Natural Hydrogen Techno Economics and Valuation*, researchers provide a detailed economic analysis of this resource using a hybrid model based on real-world

data from the Bourakébougou field in Mali. The study reveals that, while initial costs are influenced by exploration risks and reservoir performance, scaled production combined with policy incentives could drive the cost of natural hydrogen down to competitive levels near \$1.00/kg. This research offers a vital roadmap for the commercial viability of natural hydrogen as a key player in global decarbonization.

[Read More](#)

## Context Re: U.S. and Venezuela

*Energy Institute Latin America expert [Jorge Piñon](#) has been an invaluable resource to journalists in the U.S. and internationally as they report on the unfolding situation in Venezuela and what it means for the U.S. energy industry, Cuba, and the broader region. Here are a few of the stories where his work has been cited in recent weeks.*

Piñon appeared on NPR's [Weekend Edition](#) to discuss potential economic and political ripple effects if the U.S. prevents Venezuelan oil from reaching Cuba.

Piñon also spoke to [AP News](#) about conclusions drawn from his work tracking oil shipments to Cuba amid a surge in U.S. tanker seizures, noting that the island remains heavily dependent on roughly 35,000 barrels of oil a day from Venezuela to sustain its fragile economy and crumbling power grid. AP also cited Piñon's comments on whether Mexico might increase its oil supply to Cuba in reporting [here](#) and [here](#).

Quoted in [Bloomberg](#) , [El Financiero \(en español\)](#), and [The Economist](#) , Piñon noted that Cuba's domestic oil production accounts for only 40% of the 100,000 barrels it needs daily, emphasizing that the collapse of the Venezuelan lifeline leaves the island's power grid and basic services dangerously vulnerable.

Piñon sat down with UT Energy Journalism Fellow [Brandon Mulder](#) to analyze the global and regional implications of a U.S. takeover of the Venezuelan oil industry. Watch the video [here](#).

Piñon joined [NBC News](#) to discuss the critical vulnerabilities of the Cuban power grid following the disruption of Venezuelan oil shipments.

Speaking with [The New York Times](#), Piñon discussed how a further drop in Venezuelan oil supplies to Cuba could trigger a severe economic collapse, disrupting food availability, transportation, and basic services across the country.

Piñon was also quoted in a column in [The New York Times](#) and a reported piece in [Reuters](#) about the "catastrophic" implications for Cuba's energy security of the collapse in oil imports from Venezuela and a sharp decline in Mexican shipments following U.S. diplomatic pressure.

Additionally, Piñon's analysis appeared in [The Wall Street Journal](#), [The Washington Post](#), [Tagesspiegel](#) (in German), and [The World](#) discussing the ways the crisis in Venezuela contributes to Cuba's increasingly dire straits.

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## News From Around Campus

### Oden Institute | KBH Energy Center

[Karen E. Willcox](#) and [Kay Bailey Hutchison](#) co-authored an [Austin American-Statesman](#) piece highlighting how the new Kay Bailey Hutchison Computational Energy Fellowship program is preparing the next generation of energy leaders to integrate artificial intelligence and computational science into safer, more efficient energy applications.

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### Bureau of Economic Geology

[Toti Larson](#) was featured in the [Houston Chronicle](#) discussing a major USGS discovery in the Woodford and Barnett shale formations, noting that while the potential for new oil and gas reserves is massive, the extreme depth and heat of these Permian Basin targets present significant technical and cost challenges for producers.

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### Webber Energy Group

[Joshua Rhodes](#) spoke to [CNBC](#) about whether the rapid surge of AI-driven data center proposals in Texas might be a market bubble, noting that requests to connect more than 220 gigawatts of new load to the state's power grid by 2030 far exceed current generation capacity and are physically unrealistic to build on that timeline.

Rhodes was also mentioned in [Canary Media](#), explaining that, while batteries have historically lowered grid service prices, new market rules could lead to higher costs and reduced reliability if battery participation is limited during extreme weather.

Speaking with [Fox 4 News](#), Rhodes said that the new Texas Instruments semiconductor facility in Sherman, TX, could help ease supply chain pressures by boosting domestic chip production.

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### School of Law

[David Spence](#) told [ABC News](#) that electricity demand is currently growing much faster than supply, noting that data centers are partly responsible for the surge in prices.

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### Cockrell School of Engineering | Walker Department of Mechanical Engineering

[Michael Webber](#) spoke to [KXAN News](#) about why gas prices are low and how that will likely lead to production cuts and higher prices at the pump in 2026.

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### Cockrell School of Engineering | Chandra Family Department of Electrical and Computer Engineering

[Deji Akinwande](#) was quoted in a [Nature Conferences](#) piece on low-dimensional semiconductors, highlighting that since nearly half of the energy supplied to electronic devices is lost at the contacts, improving these contacts in low-dimensional semiconductors would make future chips far more energy-efficient.

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## Upcoming Events



## **Planting the SEED Panel: Learn About Impact Entrepreneurship**

January 28, 2026, 5:45-7:15 p.m.  
Rowling Hall, RRH 3.310

[Register Now](#)

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## **Business Outlook Series 2026: Focus on the Future**

Thursday, Feb. 12, 7:30-9:30 a.m.

[Learn More and Register](#)

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## **LBJ Business Policy Forum "Unleashing America's Entrepreneurial Edge"**

February 17, 2026  
The University of Texas at Austin

[More Information & RSVP](#)

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## **2026 Power Matters Conference: Navigating Load Growth in an Evolving Energy Landscape**

February 19, 2026  
Austin Central Library

[Register Now](#)

Discount Code: LRLX279N

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**PLANET TEXAS 2050**  
Resilience Research at UT Austin

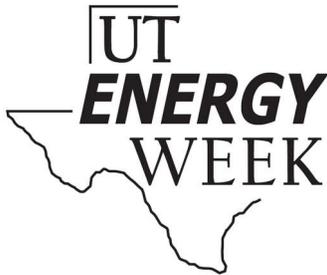
## Planet Texas 2050 Symposium

March 3 – 4, 2026

Glickman Conference Center, Patton Hall (RLP 1.300)

[More Information](#)

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## Register Now for Energy Week 2026

April 6–10, 2026

The University of Texas at Austin

[Register Now](#)

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