

EnergyTech UP



OTT

Office of
Technology
Transitions

AMERICAN
MADE
U.S. DEPARTMENT OF ENERGY



Informational Webinar

January 23, 2024

Presented by: National
Renewable Energy Lab

“I really like this program! So many other [similar competitions] are extremely labor and time intensive, and [EnergyTech UP] is a **great introduction to this sector**”

-Student Participant

Webinar Will Begin Shortly

My favorite part of EnergyTech UP was **learning how to frame my research** in the perspective of a business model.”

-Student Participant

“I enjoyed learning about other technologies and **ideas from other teams.**”

-Student Participant

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Housekeeping

- Two Options for Audio (select audio mode):
 1. Listen through your computer:
Click the 'up arrow' next to the "mute" button in the bottom left corner.
Under "Select a Speaker," click "Same as System."
 2. Listen by telephone:
Click the 'up arrow' next to the "mute" button in the bottom left corner.
Click "Switch to Phone Audio."
- Panelists – reminder to mute your audio device when not presenting.
- To Ask a Question:
 - Select the 'Chat' button at the bottom of your screen and type in your question.
- Having Trouble with the Webinar?
 - A video/audio recording of this webinar and the slide deck will be made available.

EnergyTech University Prize

Tasking student teams to craft and present a business plan using National Laboratory-developed or other high-potential energy technologies.

Tasking faculty to incorporate or expand energy technology commercialization and entrepreneurship topics into their institution's educational activities.



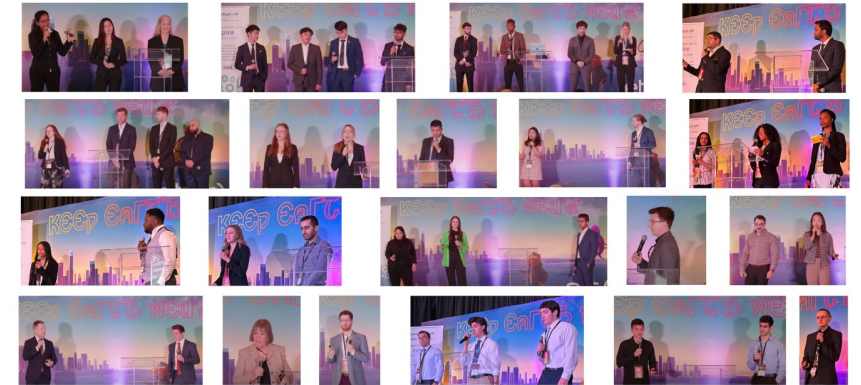
Goals of the Program

- Build engagement between colleges, universities, the Department of Energy, national labs, and industry.
- Inspire others on the possibilities for leveraging energy technologies.
- Increase commercialization of energy technologies and help to launch careers.
- Support and improve energy technology education at institutions across the U.S.



Designed So All Can Compete & Succeed

- Seeking ideas from any and all students, faculty, schools, and backgrounds. Winners are chosen based on the strength of the plan, not the resumes of the presenters.
- National focus, with 15 different regional conveners, enable multiple pathways to reach the National event and enable presentations to judges who understand regional challenges.
- Prioritized outreach to schools and individuals who, historically, have not had extensive relationships with the Department of Energy and the energy industry.
- Virtual explore events ensure all can present live to judges without a need for travel expenses.
- Presenters do not need to own or control the IP for the technology around which the business plan is developed and no ownership or IP transfer occurs in the competition.



Low Barrier to Entry

For Students:

- Students can register with just a 200-word summary.
- Students present virtually to judges about 4 weeks later.
- Students do not need to have an established startup.
- Students do not need to control the IP to present.
- Students are evaluated based on the quality of the plan.
- Student finalists win \$3,000 and are invited to the national competition, where more than \$400,000 in prizes are provided.

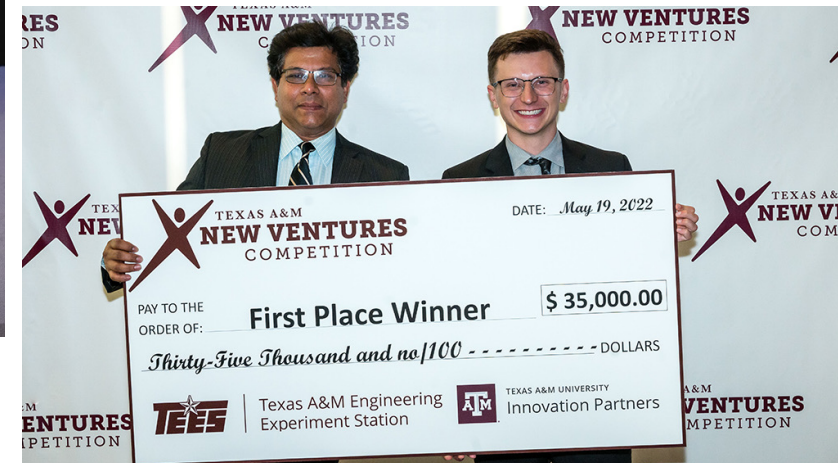
For Faculty:

- Any faculty can submit an implementation plan by April 5 to be eligible for a share of \$60,000 in funding.
- No travel and no live presentations are required.

**Students and faculty from any institution,
anywhere in the U.S., are welcome and
encouraged to compete.**

Success Stories from Alumni in the Competition

- Some past competitors found new jobs.
- Some raised more money.
- Some secured IP.
- Some incorporated as a new business.
- Some secured SBIR funding.
- Some were accepted as Fellows to high-profile accelerators.
- Some were accepted into national lab commercialization programs.
- Some won follow-on pitch competitions.
- Some pursued higher education programs.



Welcome!

Edward Rios

Commercialization Executive
U.S. Department of Energy's
Office of Technology Transitions



Office of Technology Transitions

The **Mission of the Office of Technology Transitions** (OTT) is to expand the public impact of the department's research, development, demonstration, and deployment (RDD&D) portfolio to advance the economic, energy and national security interests of the nation. OTT is the front door to U.S. Department of Energy's (DOE) products, facilities and expertise. The office integrates "market pull" into its planning to ensure the greatest return on investment from DOE's RDD&D activities to the taxpayer.



INNOVATION **X** LAB[®]

Technology Commercialization Internship |  | **OTT** Office of Technology Transitions

Technology Commercialization Fund |  | **OTT** Office of Technology Transitions

EnergyTech UP |  | **OTT** Office of Technology Transitions

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EPIC Round 3
Energy Program for Innovation Clusters

Powered by the Office of Technology Transitions

ENERGY **I-CORPS**



OTT Office of Technology Transitions

Adoption Readiness Levels (ARL): A
Complement to TRL

Practices to Accelerate the
Commercialization of Technologies
(PACT)

Office of Technology Transitions



Pathways To Commercial Liftoff



DOE Emerging
Tech Studio

powered by F E D T E C H

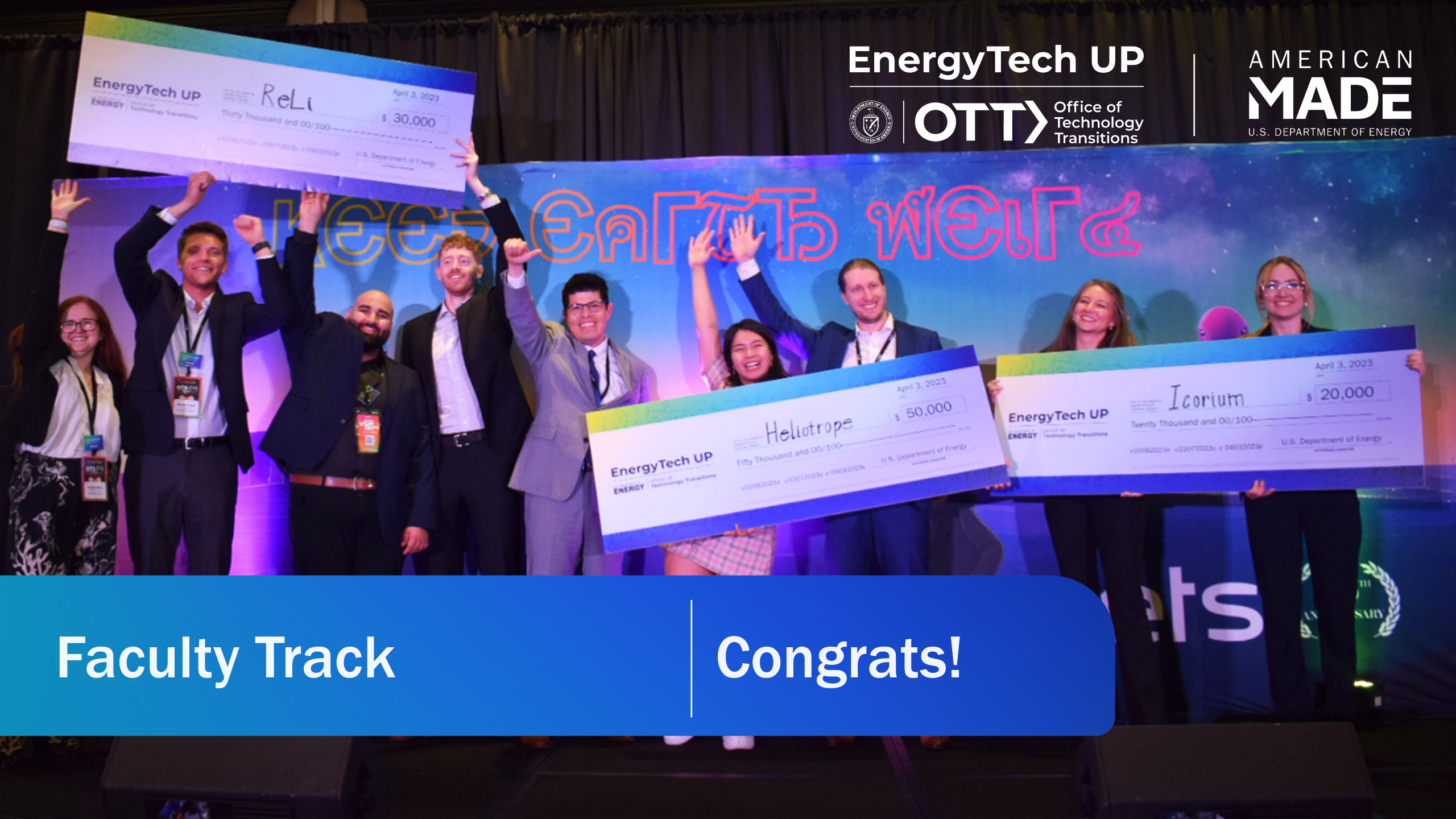
EnergyTech UP



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Faculty Track

Congrats!

Faculty Track: Onwards from Explore!



- Any faculty can submit to the Implement Phase, even if they did not submit to the Explore Phase.
- Winners announced as part of the National Pitch Event, which occurs April 15, 2024.
- \$4,000 to each of the Faculty Explorers and \$60,000 in prizes for the Implement Phase.

DOE Awards 10 Collegiate Faculty Explorer Awards for Advancing Energy Entrepreneurship

- Derek Abrams, The University of Texas Rio Grande Valley (*Edinburg, TX*)
- Akosua Acheamponmaa, Norfolk State University (*Norfolk, VA*)
- Mohamed K.M. Ahmed, Florida Agricultural and Mechanical University (*Tallahassee, FL*)
- Antwon Foreman, North Carolina Agricultural and Technical State University (*Greensboro, NC*)
- Gary Koenig, the University of Virginia (*Charlottesville, VA*)
- Gang Li, Mississippi State University (*Mississippi State, MS*)
- Heather Liddell, Purdue University (*West Lafayette, IN*)
- Kassandra McQuillen, J.D., Texas Tech University (*Lubbock, TX*)
- Brien Walton, J.D. Ed.D., Husson University (*Bangor, ME*)
- Maryam Younessi Sinaki, PhD, Cleveland State University (*Cleveland, OH*)



Student Track Details

Student Track



- Registration closes on February 1, 2024.
- Regional Explore Events occur on February 27, 28, and 29, 2024.
- Regional and Bonus Prize Finalists each receive \$3,000
- National Pitch Event occurs April 15, 2024.
- At the National Event, prizes are \$50,000 for 1st place, \$20,000 for 2nd Place, \$10,000 for 3rd place, and \$22,000 for each of 11 technology Bonus Prizes, the undergraduate-only Bonus Prize, and the National Lab IP Licensing Bonus Prize.



All energy technologies are welcome.

Technology Areas of Interest

- Student submissions must focus on technologies that produce and/or store energy, improve the efficiency of energy consumption or energy transmission, or increase the security and reliability of energy systems.
- Several DOE technology offices are offering technology bonus prizes for the best student entries in each technology office's respective fields.

Our Target Customer



- Mine Profitability
- Stable Waste Dumps
- Community Relations
- Decarbonize the Mine

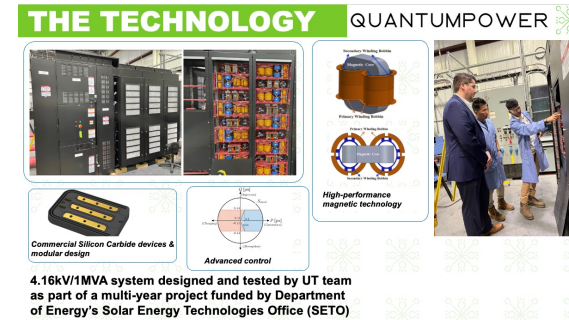
"I can see a place for RockFix"
—General Manager

There are three primary techniques to recover battery materials:

	Flexibility of Feed	Low Energy Usage	Low Waste & Emissions	Safe	Final Product
Pyrometallurgical	+	-	-	-	Recovery of Co, Cu, Ni, not Li, Al, organic components
Direct	-	+	+	-	Recovery of specific cathode or anode material
Hydrometallurgical	+	+	-	-	Recovery of all cathode components as raw materials
Re ³ Li	+	+	+	+	Recovery of all battery components as raw materials

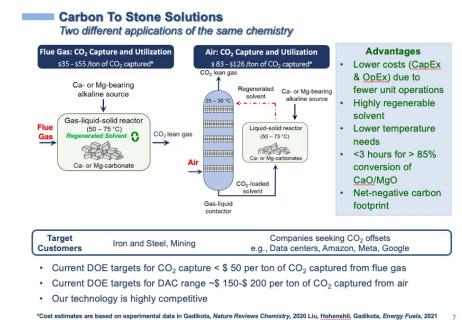
Sources: Fast Markets,

THE TECHNOLOGY QUANTUMPOWER



4.16kV/1MVA system designed and tested by UT team as part of a multi-year project funded by Department of Energy's Solar Energy Technologies Office (SETO)

Carbon To Stone Solutions
Two different applications of the same chemistry



Advantages

- Lower costs (CapEx & OpEx) due to fewer unit operations
- Highly regenerable solvent
- Lower temperature needs
- <3 hours for > 85% conversion of CaO/MgO
- Net-negative carbon footprint

Target Customers Iron and Steel, Mining

Companies seeking CO₂ offsets e.g., Data centers, Amazon, Meta, Google

- Current DOE targets for CO₂ capture < \$ 50 per ton of CO₂ captured from flue gas
- Current DOE targets for DAC range ~\$ 150-\$ 200 per ton of CO₂ captured from air
- Our technology is highly competitive

*Cost estimates are based on experimental data in Gasfolks, Nature Reviews Chemistry, 2020 Liu, Hishamji, Gasfolks, Energy Fuels, 2021

Lab Partnering Service

- Nearly 2,000 technologies available for license from DOE's national labs are summarized.
- About 100 energy technologies highlighted for consideration by EnergyTech UP competitors.
- Teams are not restricted to the technologies highlighted.

The screenshot displays the Lab Partnering Service website, which is powered by the Office of Technology Transitions in the U.S. Department of Energy. The main navigation bar includes links for Labs, Explore, Patents, and Funding. The 'Lab Partnering Service Discovery' section features a search bar and filters for various categories like Aerospace & Defense, Automotive, and Energy & Utilities. A list of technologies is shown, including 'Highly efficient catalysts for ethanol oxidation in alkaline media' and 'Synthesis of High Quality Graphene'. The 'EnergyTech University Prize' section describes a competition for multidisciplinary student teams. A sidebar on the right lists participating national laboratories and facilities, such as Ames National Laboratory, Argonne National Laboratory, Brookhaven National Laboratory, Fermi National Accelerator Laboratory, Idaho National Laboratory, Kansas City National Security Campus, Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, Los Alamos National Laboratory, National Energy Technology Laboratory, National Renewable Energy Laboratory, Nevada National Security Site, Oak Ridge National Laboratory, Pacific Northwest National Laboratory, Pantex Plant, Princeton Plasma Physics Laboratory, SLAC National Accelerator Laboratory, Sandia National Laboratories, Savannah River National Laboratory, Thomas Jefferson National Accelerator Facility Jefferson Lab, and Y-12 National Security Complex.

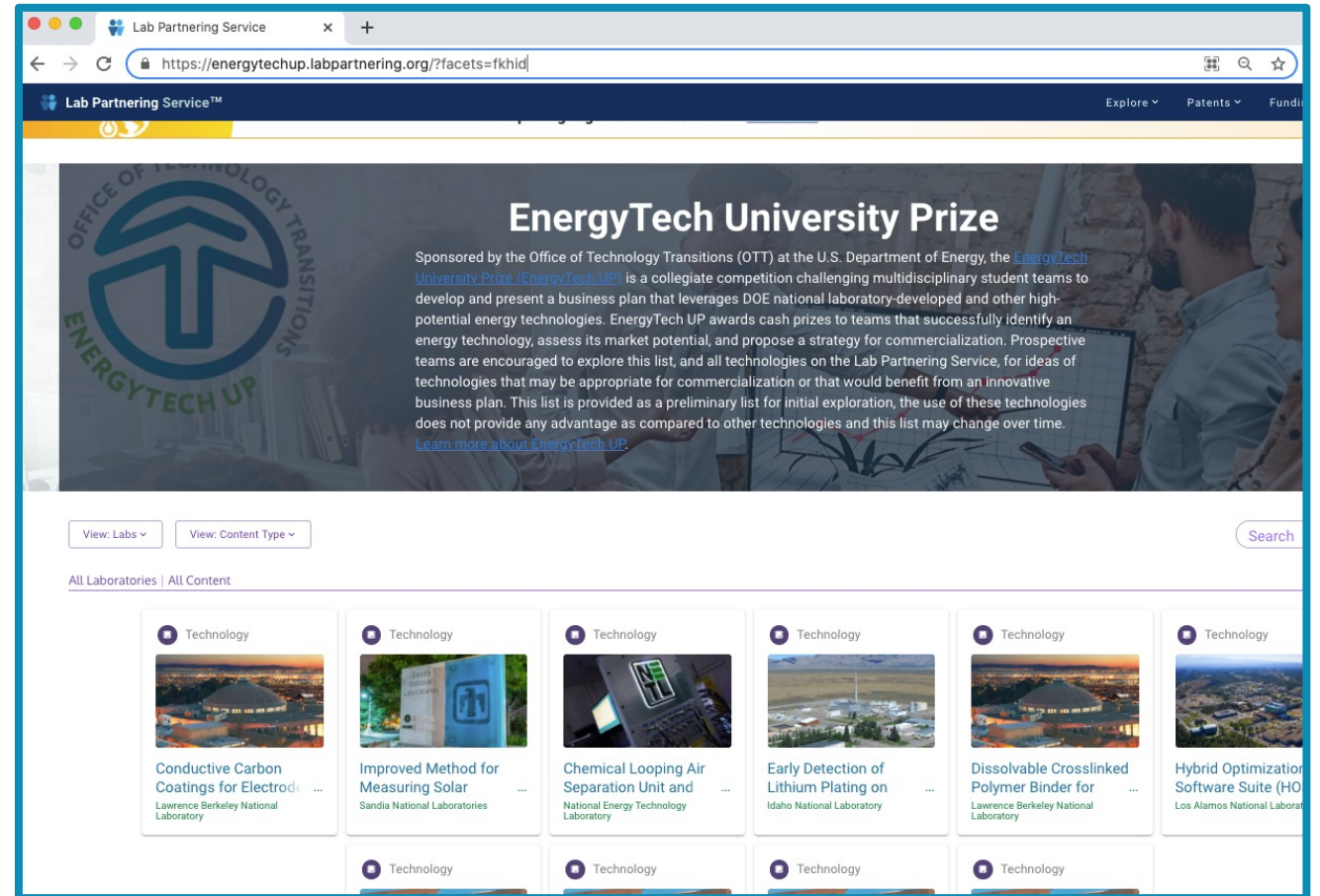
This is not a startup competition.

You don't need to own or have a license to the IP.

You don't need to have a business formed.

IP Ownership or License Not Required

- Technology you or your team members developed.
- Your institution's technologies.
- National lab-developed technologies via the Lab Partnering Service.
- Emerging technologies of interest to you and your team.

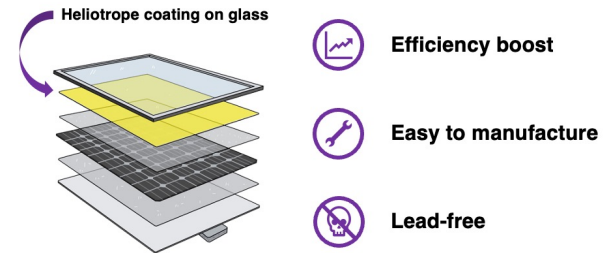
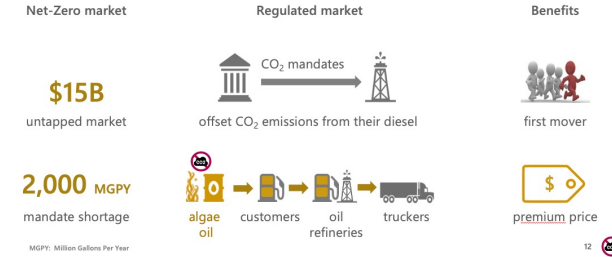


**Students from anywhere in the U.S.,
pursuing any degree at any level, are
welcome and invited to compete.**

Eligibility

- A team composed of two or more enrolled students.
 - Accredited U.S.-based collegiate institution.
 - 2-year, 4-year, and/or graduate institutions invited.
 - Any level student (undergraduate or graduate level).
 - Team captain must be a U.S. citizen or permanent resident.
 - Only students can present to judges.
- Following the close of registration on Feb. 1, teams will be assigned to a regional convener's Explore Event to enable an equitable competition.
- Business plans that have not previously received notable funding may receive preference by the prize administrator. Competition is seeking new ideas and plans.

Sales Strategy



The Rules indicate:

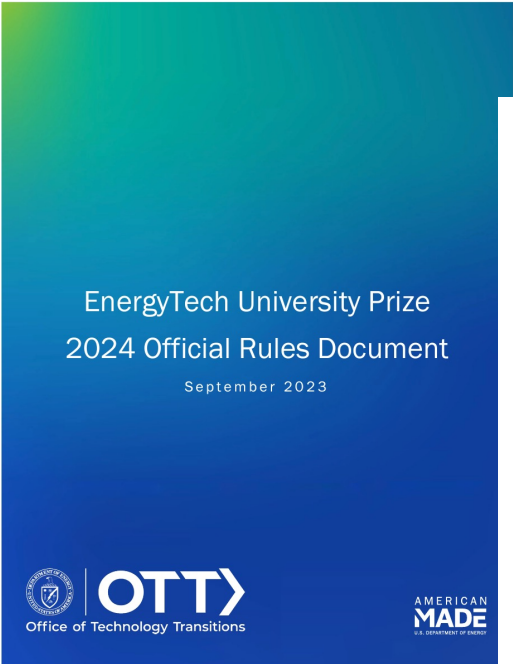
Topics of interest

What you'll do

How winners are determined

Competition Rules

- Released Sept. 27.
- Available on HeroX under “Resources”.
- Define eligibility, technologies areas of interest, prizes to win, how to enter, what to submit, and how winners are determined.



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How Bonus Prize Winners Are Determined

The Prize Administrator screens all completed submissions and, in consultation with DOE, assigns expert reviewers to independently score the content of each submission. Expert reviewers will review submissions according to the evaluation criteria described in this document. A representative of OTT will make the final selection of winners for the Bonus Prizes based on the Pitch Phase reviewers' scores and comments as well as the program policy factors described in these rules.

How We Score Bonus Prizes

Subject matter experts selected by the Prize Administrator and OTT will individually evaluate the Bonus Prize Finalist team pitches based on the pitch content and the written submission given in Table 7. Judges will meet after the Explore Phase presentations to discuss the teams with high average scores, update their scores to reflect all the information available, and determine winner(s).

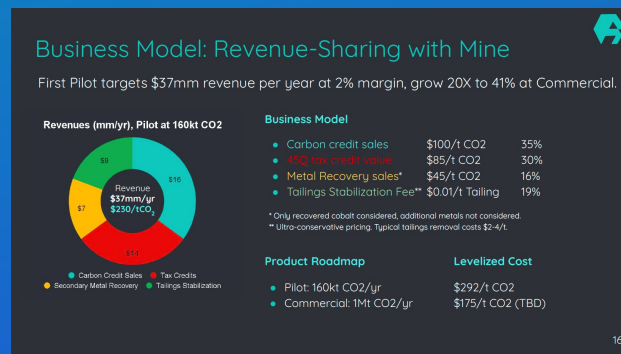
Table 6: Scoring Scale

1	2	3	4	5	6
Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

Bonus Prize Challenge and Evaluation Statements

For the Bonus Prizes, teams present a comprehensive business plan that leverages a National Lab-

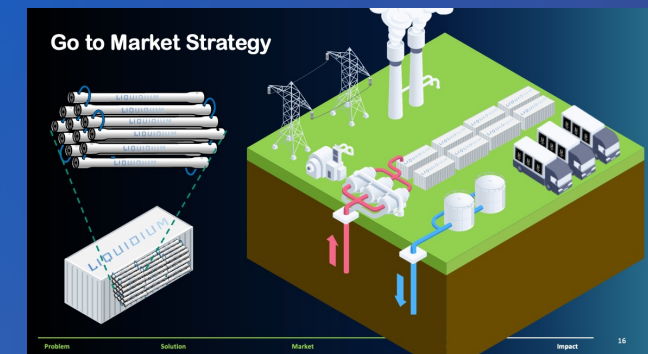
Winners are determined based on the strength of the plan presented.



EXISTING HYDROGEN PRODUCTION PROCESS

The extensive natural gas network in Texas will need to be retrofitted to remain a global energy leader

	Argonne Hydrogen Ceramic Membrane	Steam Methane Reformation	Green Hydrogen
The membrane separates and isolates only hydrogen	✓	✗	✓
Tolerates temperatures as high as 100°F	✓	✗	✓
Produced from renewable resources	✗	✗	✓
Economical 2-step hydrogen production solutions	✓	✗	✗
Zero carbon emissions	✗	✗	✓
Increases hydrogen production efficiency by 32%	✓	✗	✗
Ability to adapt to the market quickly due to cost competitiveness	✓	✓	✗



Up to 28 different teams can win a share of \$450,000 in prizes.

Prizes are awarded for your work in this competition and come with no IP or ownership transfer, no further obligations, and no reporting requirements.

Prizes Available to Student Teams

Category	Amount	Number Awarded	Total
Regional Finalist (up to 15)	\$3,000	15	\$45,000
Bonus Prize Finalists (up to 1 per prize)	\$3,000 each	Up to 13	\$39,000
All Finalists Eligible for Any of the Prizes Below			
1 st place	\$50,000	1	\$50,000
2 nd place	\$20,000	1	\$20,000
3 rd place	\$10,000	1	\$10,000
Technology Bonus Prizes	\$22,000 each	Up to 11	\$242,000
National Lab IP Licensing Bonus Prize	\$22,000	Up to 1	\$22,000
Undergraduate-Only Team Bonus Prize	\$22,000	Up to 1	\$22,000

Bonus Prizes

\$3,000 to each finalist
\$22,000 to each winner

- Building Technologies Office: HVAC Electrification
- Geothermal Technologies Office: Innovation and Inclusiveness
- Hydrogen Fuel Technologies Office: Innovation and Inclusiveness
- Office of Electricity: Grid-Enhancing Technologies (GETs)
- Office of Electricity: Large Power Transformers (LTPs)
- Office of Electricity: Long-Duration Energy Storage (LDES)
- Office of Fossil Energy and Carbon Management: Carbon Dioxide Removal (CDR)
- Office of Manufacturing & Energy Supply Chains: Smart Retrofit Manufacturing
- Office of Nuclear Energy: Accelerated Development and Deployment
- Solar Energy Technologies Office: Performance, Affordability, Reliability, and Value of Solar Technologies
- Water Power Technologies Office: Powering the Blue Economy
- Office of Technology Transitions: National Lab IP Licensing
- Office of Technology Transitions: Undergraduate-Only Team

EnergyTech UP



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Reasons to Compete

“My favorite part of EnergyTech UP was **learning how to frame my research in the perspective of a business model.**”

“I enjoyed learning about other technologies and **ideas from other teams.**”

“I really like this program! So many other [similar competitions] are extremely labor and time intensive, and [EnergyTech UP] is a **great introduction to this sector**”

Describe EnergyTech UP in one word:



84%

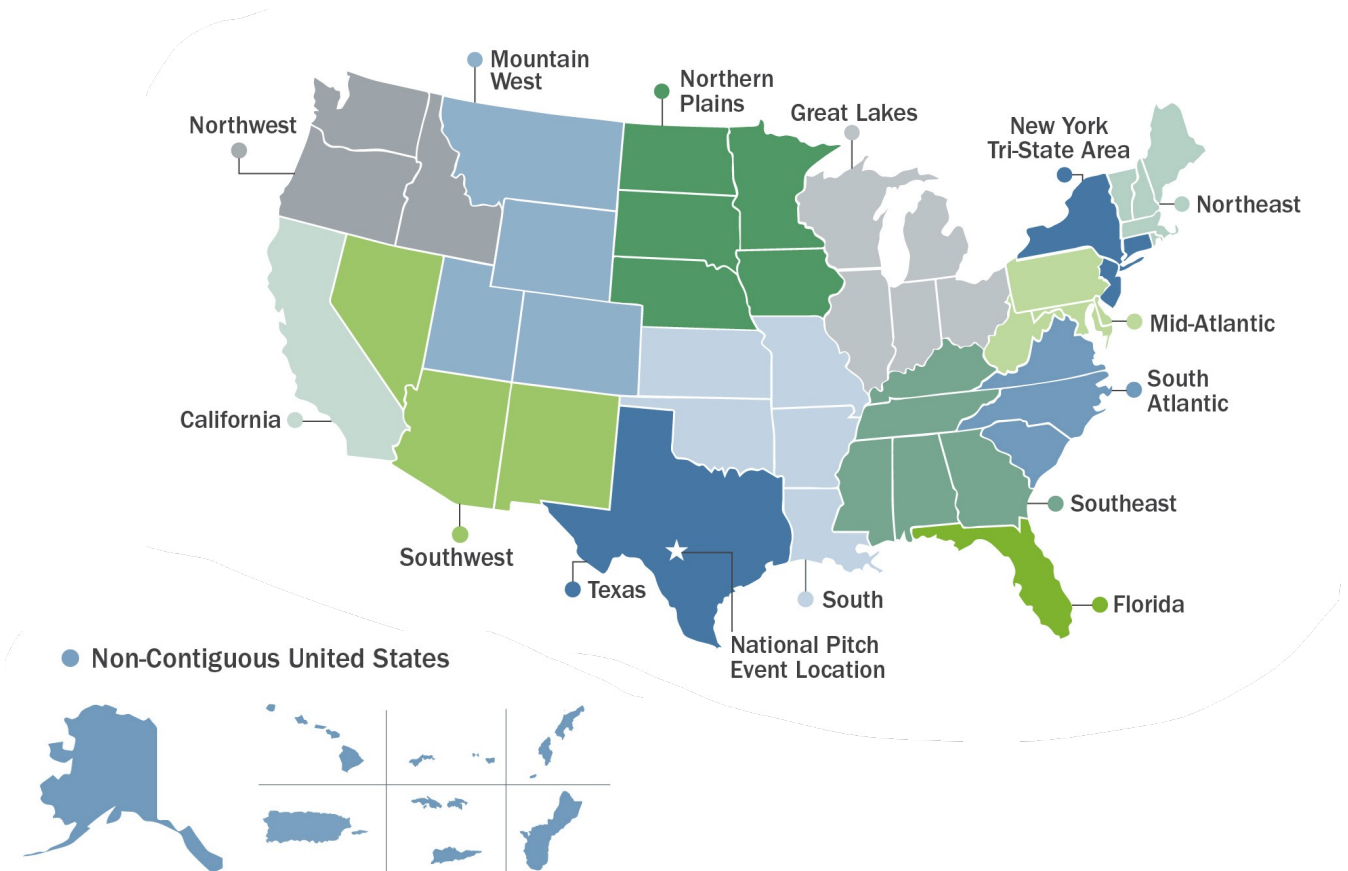
reported increased
interest in an energy
career
(up from 73% in 2022)

90%

reported increased
knowledge of skills required
for technology
commercialization
(*up from 79% in 2022*)

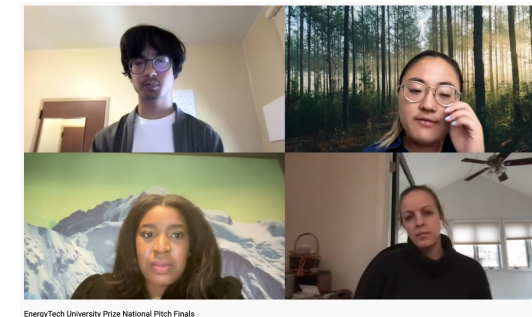
Large & Growing Network

- 600+ participants per year
- 300+ teams from 150+ collegiate institutions already, more to be added in 2024.
- 47 states + DC + 3 U.S. territories.
- Many regional conveners, 50+ judges annually, other viewers to see your solutions.



Free Mentorship, Materials & Experience

- Highlighted energy technologies with business potential.
- Access to Energy I-Corps educational materials.
- Expert mentorship from DOE and/or lab staff.
- Example presentations from past competitions.
- Industry connections.
- Live comments, questions, and feedback from judges for all teams.
- Opportunity to hear other student pitches and learn from their ideas.
- Cash prizes.



All Teams will Receive Access to DOE's Energy I-Corps Asynchronous Learning Materials

Creating Market Pathways for Laboratory Research

The Energy I-Corps program is a specialized training curriculum intended to:

- Increase the number of national laboratory-developed technologies that are transferred into commercial development or industry agreements.
- Train national laboratory researchers to better understand the commercialization process and private sector needs.
- Transform national laboratory culture to value commercialization and entrepreneurial activities.

ENERGY I-CORPS

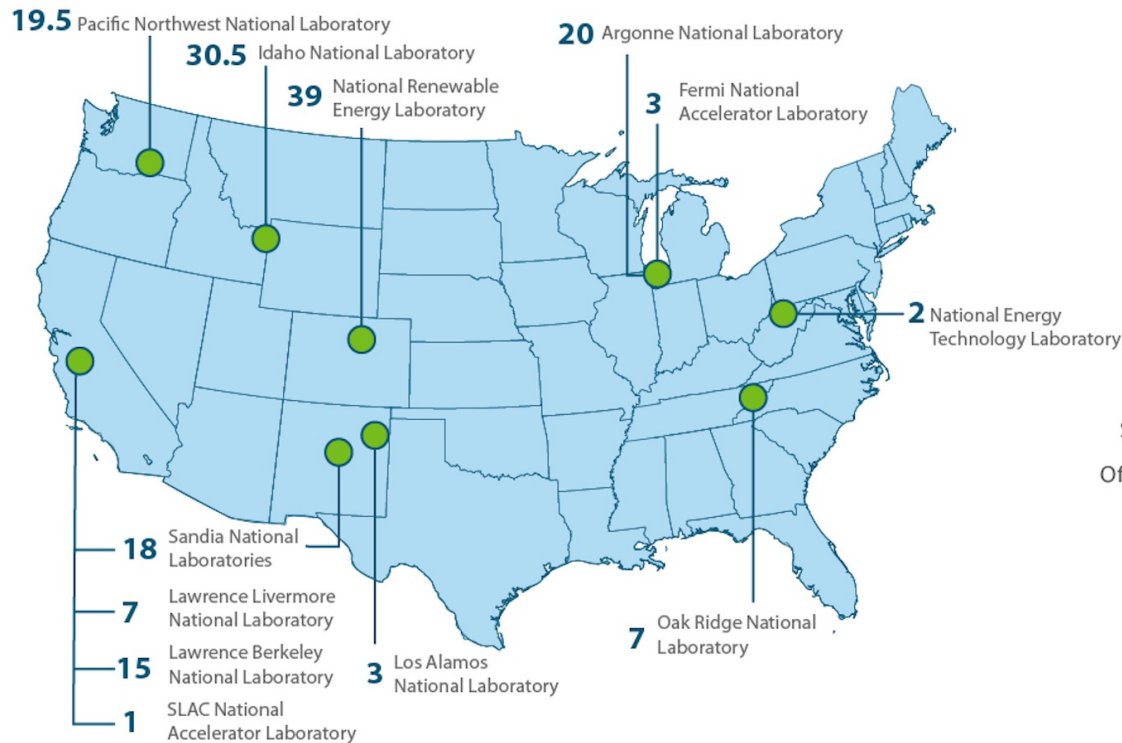
U.S. DEPARTMENT OF
ENERGY

OFFICE OF
Technology Transitions

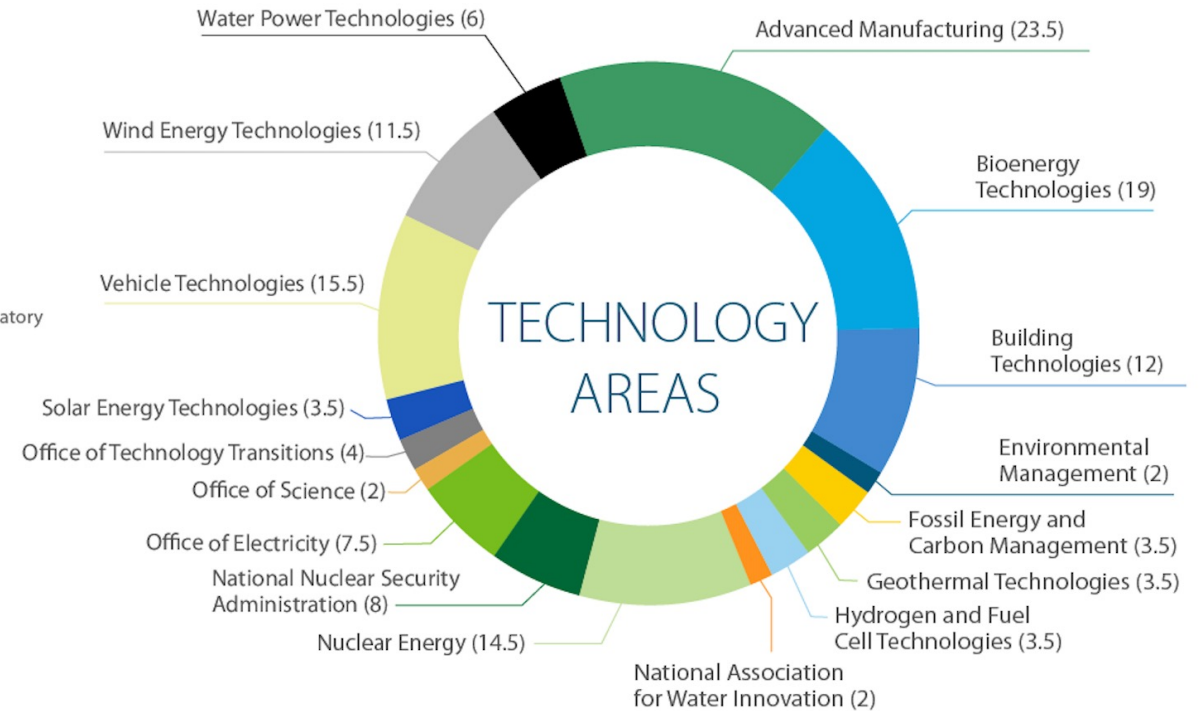


13 Cohorts of Energy I-Corps

165 TEAMS | 12 NATIONAL LABORATORIES



BRINGING **ENERGY INNOVATIONS** TO



Core Concepts

- Business model canvas
- Customer discovery process
- Ecosystem
- Customer segments
- Value propositions
- Direct market feedback.
- 12,000+ stakeholder interviews
- 20+ startups
- ~\$140M in post-program funding.

Program Highlights through Cohort 13

Wide Variety of Emerging Energy Tech

- In 2023:
 - ~80% of teams competing regionally leveraged a technology developed at their institution for their business plan, and ~20% of teams used a Lab Partnering Service technology.
 - 50+ industry leaders served as judges, sharing their perspectives & insights with student teams.
 - A survey of competing students showed that students found the program's networking, business plan development, pitch practice, and learning from others as the most valuable aspects of participation.

Lab Partnering Service

- National Lab-developed technologies via the Lab Partnering Service.
- Nearly 2,000 technologies available for license from DOE's National Labs are summarized.
- It may be possible to engage with inventors at labs.
- <https://labpartnering.org/>
 - <https://energytechup.labpartnering.org/> for about 150 highlighted technologies.

The image displays two overlapping web interfaces. The top interface is the 'Lab Partnering Service Discovery' page, powered by the Office of Technology Transitions in the U.S. Department of Energy. It features a search bar, filters for various sectors (Aerospace & Defense, Automotive, Energy & Utilities, etc.), and a list of technologies. Two technologies are highlighted: 'Highly efficient catalysts for ethanol oxidation in alkaline media' and 'Synthesis of High Quality Graphene'. The bottom interface is the 'Visual Patent Search' tool, showing a treemap of patent data across various fields (Energy, Engineering, Computer, etc.) and a timeline graph of patent counts from 1980 to 2022. A list of 25 national laboratories is also visible on the right side of the bottom interface.

Lab Partnering Service™
Powered by the Office of Technology Transitions in the U.S. Department of Energy

Lab Partnering Service Discovery

Filters: clear filters | View: By Labs | Sort: By: Relevance | Items/Page: 25 | Search

All Laboratories | Experts (325) | Facilities (80) | Technology Summaries (951) | Success Stories (177)

Showing 1 - 25 of 951

- Highly efficient catalysts for ethanol oxidation in alkaline media**
Technology | Lawrence Berkeley National Laboratory | Other | Advanced Materials
Hydrogen-rich liquid fuels, such as ethanol is an attractive alternative of hydrogen for directly converting chemical energy to electricity in fuel cells due to their high energy density, wide availability, and convenience in storage, distribution, and refuel. Its full oxidation involves 12 electron transfers per molecule with CO₂ as the oxidized product (CH₃CH₂OH + 3H₂O + 2CO₂ + 12H⁺ + 12e⁻). However, 2-electron and 4-electron oxidation products often dominate in alkaline reaction.
- Synthesis of High Quality Graphene**
Technology | Lawrence Berkeley National Laboratory | Other | Chemical and Thermal Storage
Researchers at Berkeley Lab have developed a technology for synthesizing high quality, micrometer scale graphene layers on silicon carbide wafers in a thermal process. The thickness of the graphene is controlled by controlling the annealing temperature and duration of heating.

Visual Patent Search

Keyword Search... | Viewing: All | Treemap | Taxonomy Tag

Filters: Expand All | Search Properties...

- Patent Status: 0 / 2
- Inventor: 0 / 35767
- Assignee: 0 / 2073
- Lab: 0 / 23
- Taxonomy Tag: 0 / 878

Timeline: Range: 12/2004 - 12/2022 | Zoom | Status Date

Patents: 25,825 | Sort: Status Date | Export

SYSTEM AND METHOD FOR ENGINEERED CERAMIC PACKAGES FOR USE IN FLUID...
Lawrence Livermore Nat... | Lawrence Livermore Nat...
The present disclosure relates to a method for making a ceramic micro-tube configured for use in a fluid modification system. The method involves using an electroforming system to create a quantity of...

APPLICATION ID: US20220303476 | APPLICATION: 08/10/2022 | PUBLISHED: 08/10/2022

2D AMORPHOUS CARBON FILM ASSEMBLED FROM GRAPHENE QUANTUM DOTS
Other DOE Sponsors: The Board of Trustees of the University of California
Amorphous two-dimensional graphene-like carbon films provide benefits to a variety of applications due to advantageous electrical, mechanical, and chemical properties. Methods are provided to efficiently and...

APPLICATION ID: US20220303476 | APPLICATION: 08/10/2022 | PUBLISHED: 08/10/2022

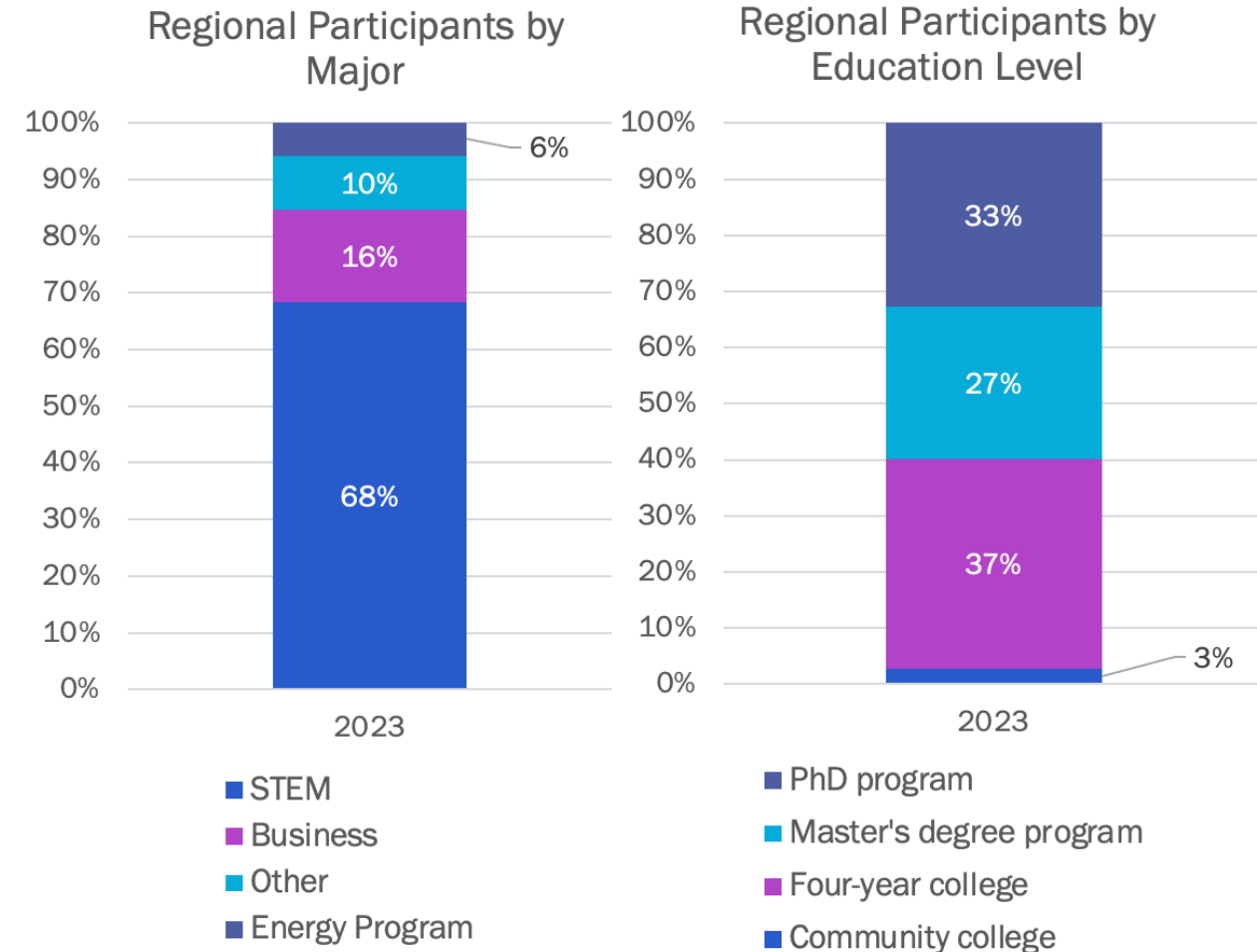
RARE EARTH ELEMENT EXTRACTION AND RECYCLING
Other DOE Sponsors: Princeton Astrophysics
Systems and methods for recovering neodymium and other related rare earth elements from permanent magnets and/or various ore compositions are presented herein. In one...

APPLICATION ID: US20220303476 | APPLICATION: 08/10/2022 | PUBLISHED: 08/10/2022

- ☐ Ames National Laboratory (2)
- ☐ Argonne National Laboratory (5)
- ☐ Brookhaven National Laboratory (3)
- ☐ Fermi National Accelerator Laboratory (0)
- ☐ Idaho National Laboratory (24)
- ☐ Kansas City National Security Campus (0)
- ☐ Lawrence Berkeley National Laboratory (5)
- ☐ Lawrence Livermore National Laboratory (4)
- ☐ Los Alamos National Laboratory (1)
- ☐ National Energy Technology Laboratory (4)
- ☐ National Renewable Energy Laboratory (12)
- ☐ Nevada National Security Site (0)
- ☐ Oak Ridge National Laboratory (11)
- ☐ Pacific Northwest National Laboratory (5)
- ☐ Pantex Plant (0)
- ☐ Princeton Plasma Physics Laboratory (8)
- ☐ SLAC National Accelerator Laboratory (1)
- ☐ Sandia National Laboratories (9)
- ☐ Savannah River National Laboratory (1)
- ☐ Thomas Jefferson National Accelerator Facility Jefferson Lab (0)
- ☐ Y-12 National Security Complex (1)

Many Different Types of Competitors & Reasons for Competing

- Different areas of study were represented, with some STEM students learning more about business and entrepreneurship & some business students learning more about energy.
- Different educational levels of student participants, with success achieved at all levels.
 - We have added an undergraduate-only bonus prize in this year's program.





Explore & Pitch Events

About the Feb. 1 Deadline

200-word summary of technology to be leveraged and perceived business opportunity

Optional slide deck

Basic information about expected team makeup

Not expected to contain final ideas or information

How Explore Phase Student Teams are Determined

- Prize Administrator screens all completed registrations for eligibility.
- Price Administrator reviews eligible submissions according to evaluation criteria shown in Rules to make final selection of competing teams.
- Competing teams are then assigned to regional convener Explore Event.
- Last year we had 184 teams, this year we can support up to 225 teams presenting, we don't expect this phase to be a large downselect.

What Students Submit

Registration

- A 200-word written summary addressing the energy technology to be leveraged and the business opportunity.
- A preliminary slide deck that summarizes the team's business plan, including the suggested content identified in Table 2 (Optional)
- A completed registration entry form on HeroX including answers to all required questions.

Explore Phase

Table 3: Scoring Scale

1	2	3	4	5	6
Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree

Table 2: Registration Submission Evaluation Statement

Registration Submission Evaluation Statement	
Suggested Content: • What is the energy technology to be leveraged? • Who will buy the product or service, and why do they need the product or service? • Who will benefit should this business succeed? • What role will this business play in the energy transition?	Evaluation Statement: • The team understands their technology of choice and has evaluated the relevant market, outlined a vision for the role the business could play in an equitable energy transition, and considered what would be necessary to achieve success.

About the Regional Explore Events

2024 Explore Events

- ~15 regions across the U.S.
- ~12-15 teams per region.
- ~3-5 industry judges per region.
- 3 Explore Event dates:
 - East – Feb. 27 from ~2–5:30 p.m. ET
 - Central – Feb. 28 from ~2–5:30 p.m. CT
 - West – Feb. 29 from ~2–5:30 p.m. PT

How Explore Phase Bonus Prize Finalists are Determined

- Program office staff watch recorded regional pitches.
- Up to 1 finalist identified for each Bonus Prize.
- Finalists win \$3,000 each and are invited to the Refine and Pitch Phases of the competition.

Office of Technology Transitions (OTT) – National Lab IP Licensing Bonus Prize	
Challenge Statement: Leverage the OTT's LPS to identify a national lab-developed technology available for license and propose an innovative business model to commercialize the technology.	Evaluation Statement: The entry demonstrates a clear understanding of the technology and market potential of a technology listed on the OTT's Lab Partnering Service and presents an innovative business model to significantly increase its adoption.
Building Technologies Office (BTO) Technology Bonus Prize	
Challenge Statement: Develop innovative business model(s) or commercialization plan(s) to increase the adoption of electrification solutions for commercial or residential HVAC technologies that increase market adoption and address industry challenges.	Evaluation Statement: The entry demonstrates a clear understanding of the technology and market potential for electrification solutions for commercial or residential HVAC technologies and presents an innovative business model(s) or commercialization plan(s) to increase market adoption and address industry challenges. The entry can be multifaceted and propose commercial business plan(s) to challenge.
te-Only Team Bonus Prize	
uation Statement: The eligible team presents an entry that demonstrates a clear understanding of the technology and market potential and presents an innovative business model to	
Office of Nuclear Energy (NE) Technology Bonus Prize	
Challenge Statement: Develop innovative business models to accelerate the development and deployment of advanced technologies supporting advanced reactors and fuel cycle technologies.	Evaluation Statement: The entry demonstrates an understanding of the technology and market potential of the chosen technology and the path to improved technology and/or enhanced adoption is well-articulated and reasonable.
Office of Electricity (OE) – Grid-Enhancing Technologies (GETs) Technology Bonus Prize	
Challenge Statement: Develop innovative business models to increase the adoption of GETs to benefit the U.S. power grid.	Evaluation Statement: The presentation emphasizes a clear understanding of GETs and the market potential for GETs to be implemented by various utility entities in a way that decreases congestion and reduces electricity costs.
Office of Electricity (OE) - Large Power Transformers (LPTs) Technology Bonus Prize	
Challenge Statement: Develop innovative business models to stimulate the adoption of flexible LPTs in the electric sector.	Evaluation Statement: The presentation emphasizes a clear understanding of the technology and market potential for flexible LPTs and presents an innovative business model to significantly increase their adoption.
Office of Electricity (OE) - Long-Duration Energy Storage (LDES) Technology Bonus Prize	
Challenge Statement: Develop innovative business models to propose an LDES technology solution, explain the technology's use case, and address market challenges to enable greater adoption of LDES on the U.S. power system. Innovative energy storage use cases are encouraged.	Evaluation Statement: The presentation outlines a clear understanding of LDES technologies and the LDES market space, explores barriers to greater LDES adoption, and proposes an innovative business plan to accelerate LDES deployment for a defined, innovative use case.

Solar Energy Technologies Office (SETO) Technology Bonus Prize	
Challenge Statement: Develop innovative business models to improve the performance, affordability, reliability, and value of solar technologies on the U.S. grid and to tackle emerging challenges in the solar industry.	Evaluation Statement: The entry demonstrates a clear understanding of the technology and market potential for optimizing performance and/or reducing the costs associated with components, installation, and operation of solar energy systems and presents an innovative business model to significantly increase its adoption.
Hydrogen Fuel Technologies Office (HFTO) Technology Bonus Prize	
Challenge Statement: Develop innovative business models to identify mechanisms for commercially viable hydrogen technologies to achieve market lift-off, supporting domestic competitiveness, job creation, and achievement of climate goals.	Evaluation Statement: The entry demonstrates a clear understanding of the technology and market potential for hydrogen technologies and presents an innovative business model to significantly increase its adoption.
Office of Manufacturing & Energy Supply Chains (MESCC) Technology Bonus Prize	
Challenge Statement: Develop innovative and practical business models for deployment of smart manufacturing solutions at small and medium-sized manufacturers – recognizing the need for retrofit projects that accommodate the inherent implementation challenges of these solutions with uncertain payback periods and financing obstacles.	Evaluation Statement: The entry emphasizes a clear understanding of, and plans to address, both the immense opportunities and challenges associated with SMART manufacturing specifically at small and medium-sized manufacturers.
Water Power Technologies Office (WPTO) Technology Bonus Prize	
Challenge Statement: Develop innovative business models for a selected novel hydropower or marine technology of your choice that tackles emerging challenges in the water power industry and aims at	Evaluation Statement: The entry demonstrates an understanding of the technology and market potential of the chosen technology, and the path to improving the technology and/or increasing its adoption is well-articulated

How Explore Phase Events Work

- NREL will create the Zoom links.
- Conveners secure judges.
- Begin around 2 p.m. ET/CT/PT.
- Expect about 3.5 Hours.
 - Could be less if fewer than 15 teams per region.
- Only decide Regional Finalist and Undergraduate-Only Semifinalist this year, not all the Bonus Prize finalists.
- NREL staff will be available for every region's breakout room/session.

Regional Convener Name	Regional Explore Event
Rice Alliance for Technology and Entrepreneurship	Central – Feb 28
Evergreen Climate Innovations	
Grid Catalyst	
University of Kentucky with the Circular Venture Lab	
Russell Center for Entrepreneurship (RICE) Atlanta	
Florida High Tech Corridor	East – Feb 27
Wilton E. Scott Institute for Energy Innovation at Carnegie Mellon University	
Cleantech Open Northeast, NECEC	
Research Triangle Cleantech Cluster	
Urban Futures Lab, New York University	
CleanTech San Diego/UC San Diego	West – Feb 29
University of Arizona Center for Innovation	
Clean Energy Institute - University of Washington	
Colorado School of Mines, McNeil Center for Entrepreneurship & Innovation with WY Ranch	
Cold Climate Housing Research Center, NREL, Alaska	

Start time	End	Action
2:00 p.m.	2:08 p.m.	Gather
2:08 p.m.	2:16 p.m.	Welcome
2:16 p.m.	2:34 p.m.	Team 1
2:34 p.m.	2:42 p.m.	Team 2
2:42 p.m.	2:50 p.m.	Team 3
2:50 p.m.	2:58 p.m.	Team 4
2:58 p.m.	3:06 p.m.	Team 5
3:06 p.m.	3:20 p.m.	Break
3:20 p.m.	3:28 p.m.	Team 6
3:28 p.m.	3:36 p.m.	Team 7
3:36 p.m.	3:44 p.m.	Team 8
3:44 p.m.	3:52 p.m.	Team 9
3:52 p.m.	4:00 p.m.	Team 10

4:00 p.m.	4:15 p.m.	Break
4:15 p.m.	4:23 p.m.	Team 11
4:23 p.m.	4:31 p.m.	Team 12
4:31 p.m.	4:39 p.m.	Team 13
4:39 p.m.	4:47 p.m.	Team 14
4:47 p.m.	4:55 p.m.	Team 15
4:55 p.m.	5:20 p.m.	Judge Deliberate / Guest Speaker
5:20 p.m.	5:30 p.m.	Announcement of Regional Finalist and Undergraduate-Only Semi-Finalist

National Pitch Event: April 15 at the Energy Thought Summit

- All student finalists will present and compete for bonus and national prizes.
- Free access to the entire Energy Thought Summit will be provided, though you are responsible for your own travel and lodging costs.





Full video of national pitches is available online: https://www.youtube.com/watch?v=Wt_lk6u4p5M

Interview with ReLi (2nd place national winner): https://www.youtube.com/watch?v=vC6esmakWJ0&list=PLDnyxu9YaAUvvD-UaCCKP0qdCjF_YY86G&index=5

Interview with Icorium (3rd place national winner): https://www.youtube.com/watch?v=xJT9fNXZvrc&list=PLDnyxu9YaAUvvD-UaCCKP0qdCjF_YY86G&index=8



What To Do Now:

How to Get Involved

First...

- “Follow” the prize on HeroX.
- Read the Rules and determine how you want to participate.
- Spread the word using our “Promo Pack” of resources.
- Build your team.

Then...

- Explore energy technologies, especially at <https://labpartnering.org> and more specifically, <https://energytechup.labpartnering.org>.
- Click “Solve this challenge” and submit a “Register” entry by Feb. 1, 2024!



Leverage Resources to Recruit Students & Faculty

- Social posts.
- Newsletter content.
- Flyer.
- Web cards and graphics.

EnergyTech UP  **OTT** Office of Technology Transitions

A collegiate competition challenging teams to craft and present a business plan that leverages National Laboratory-developed or other emerging energy technologies developed by students, faculty, or industry.

New for 2024: A competition track challenging faculty to develop and implement educational activities to engage more students in energy technology commercialization and entrepreneurship topics at their institution.

 **Connections to like-minded competitors & industry leaders**

 **Opportunity to develop impactful plans for increasing commercialization of emerging energy technologies**

 **Tailored mentorship, access to prior pitches, & recorded Energy I-Corps educational materials**

 **\$400,000+ in cash prizes for students
\$100,000 in cash prizes for faculty**

Students: Submit a brief 200-word summary by Feb. 1, 2024 to register: heroX.com/EnergyTechUP

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U.S. DEPARTMENT OF ENERGY

EnergyTech UP  **OTT** Office of Technology Transitions

Collegiate Business Plan Competition

Sponsored by the Office of Technology Transitions at the U.S. Department of Energy, the EnergyTech University Prize (EnergyTech UP) is a collegiate competition challenging multidisciplinary student teams to craft and present a business plan that leverages National Laboratory-developed or other emerging energy technologies developed by students, faculty, or industry.

EnergyTech UP awards more than \$400,000 in cash prizes to teams that successfully identify an emerging energy technology, assess its commercialization potential, and develop a business plan that leverages that technology.

1

Follow the Prize
Create a HeroX account and follow the prize to get updates about deadlines, events, and updates:
HeroX.com/EnergyTechUP

2

Explore Emerging Technology Opportunities
See what inspires you to develop a business plan:
EnergyTechUP.LabPartnering.org

3

Develop Your Business Plan
Start crafting your business plan with your team.

4

Plan to Participate
Prepare to present at a regional event in February.

Submit a brief 200-word summary by Feb. 1, 2024, to register your team: HeroX.com/EnergyTechUP

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<https://www.herox.com/EnergyTechUP/resources>

Join us!

Students submit by Feb. 1 to be invited to regional Explore Events.

Follow the Challenge on HeroX

herox.com/EnergyTechUP



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American-Made Challenges

27,124

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EnergyTech University Prize

Tasking students to create & present a business plan around energy tech. Tasking faculty to elevate energy entrepreneurship at their school.

Energy, Environment & Resources

Technology

Stage:
Seeking Student Entries
by Feb 1st, 11:59 p.m. ET
w/ 200-word idea. Final
Informational Webinar on
Jan 23.

Prize:
\$550,000

SOLVE THIS CHALLENGE

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Overview

About the Prize

Prize Structure for Student Competitors

Prize Structure for Faculty Competitors

How to Compete

2024 Important Dates

Get Started

Herox.com/energytechup

Click “Solve This Challenge” and submit a complete entry by 11:59 P.M. ET on Feb. 1!

herox.com/EnergyTechUP

AMERICAN MADE CHALLENGES

Log In

AMERICAN MADE CHALLENGES

9,786 Share Follow (1K)



Office of Technology Transitions EnergyTech University Prize 2022-2023

Tasking student teams to develop and present a business plan using National Laboratory-developed or other high-potential energy technologies

Energy, Environment & Resources Technology

Stage:
Enter

SOLVE THIS CHALLENGE

[Herox.com/energytechup](https://herox.com/energytechup)

[I learned how] Working with people of different technical skill sets really gave a different feel to the project. I like that it gives less focus to the technical side, but emphasizes practicality in implementation. It really gives people who aren't specialized in engineering or scientific topics a chance to make an impact and learn more about sustainability.

-Student Participant

Questions?

OTT.EnergyTechUP@nrel.gov

[I learned] How to be more optimistic about global warming - it can be an opportunity to create a more sustainable and equitable future.

-Student Participant