

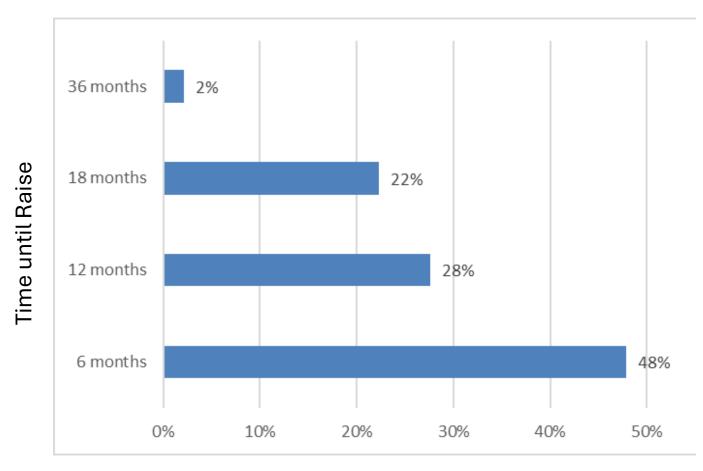
Developing a Strategic Cap Table – Commercialization Workshop

Welcome! The workshop will get started at 1PM.

Workshop recording and slides will be posted.



83% of DOE awardee registrants anticipate raising funds, first raise for majority (70%)





Workshop Agenda

1:00 PM — 1:10 PM Welcome

Carol Rabke | Tech to Market (T2M) Advisor - Partnering

1:10 PM — 1:30 PM The Impact of Net-Zero Implementation - Industry Overview

Anthony Schiavo | Senior Director & Principal Analyst, Lux Research

1:30 PM - 2:10 PM Developing a Strategic Cap Table

Dave McCarthy | Tech to Market (T2M) Advisor - Commercialization Programs

2:10 PM - 2:40 PM Financing Strategies Awardee Panel

Etosha Cave | Co-Founder & CSO, Twelve

Chris Faranetta | Co-Founder, Near Star Fusion

- 5 MINUTE BREAK -



Workshop Agenda

2:45 PM – 3:15 PM Reverse Pitches

Micha Ben-Naim | Clean Energy Ventures

Chris Sipos | United Airlines Ventures - Sustainable Fuel Fund

Joshua Speros | BASF Venture Capital

Austin Hwang | Honda Xcelerator Ventures

3:15 PM - 3:45 PM Working with Corporate Venture Panel

Moderated by Lisa Dufresne, GC Ventures America

3:45 Closing Remarks



1:1 MEETING REMINDER

1:1 meetings with representatives from the presenting venture groups:

- Wednesday, December 11th (9-12AM Eastern)
- Thursday, December 12th (1-5PM Eastern)

Same ZOOM link as you used today.

Same ZOOM link for <u>all</u> 1:1 meetings – different breakout rooms.

Confirmation email has the link in it as well.



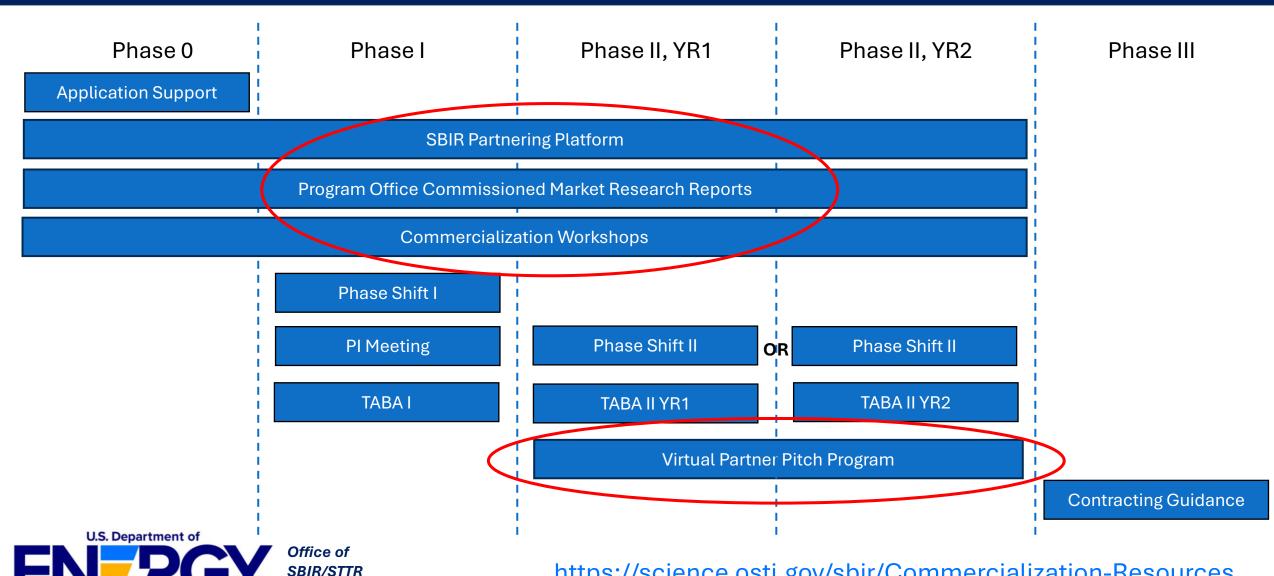
You will need partners to successfully commercialize...

Commercialization is hard...



DOE Commercialization Resources

Programs



https://science.osti.gov/sbir/Commercialization-Resources

Virtual Quarterly Commercialization Workshops

- Focus on topics that are typical areas of weakness manufacturing, licensing, financial modeling, preparing to pitch, intellectual property strategies, etc.
 - FY22 Q4 Commercialization and the Power of Partnering
 - FY23 Q1 Preparing to Pitch [50% of registrants!]
 - FY23 Q2 Financial Modeling
 - FY23 Q3 Navigating Phase III Contracting
 - FY23 Q4 Licensing
 - FY24 Q1 Manufacturing
 - FY24 Q2 Financial Modeling based on Cash Flow
 - FY24 Q3 Preparing for Product Launch
 - FY24 Q4 **Developing a Strategic Cap Table**



https://bit.ly/DOECommercializationWorkshops

ALL WELCOME!!



SBIR Partnering Platform

- SBIR Partnering Platform provides searchable database where SBIR/STTR
 applicants (INNOVATORS) can find potential PARTNERS and network with other
 INNOVATORS to complete your team through collaboration and/or subcontract
 - Find PARTNERS using keyword and AI searching; myriad of filtering
 - Find SBIR funding opportunities <u>across all agencies</u>
 - Bookmark favorites; Confidential messaging
 - <u>Network</u> with other <u>INNOVATORS</u> on the <u>Community Page</u>; collaborate/subcontract to complete your team!
 - Newsfeed for applicable industry/stakeholder news
 - NEW resource page!



https://www.sbirpartnering.org/doe

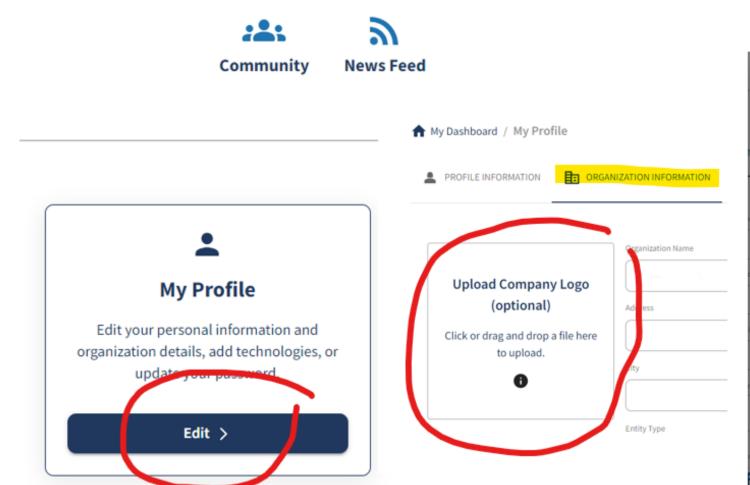
• As an SBIR/STTR applicant, register as an INNOVATOR; review the

Platform Overview for Innovators



DOE Disclaimer: By enabling and publishing the DOE SBIR Partnering Platform, DOE is not endorsing, sponsoring, or otherwise evaluating the qualifications of the individuals and organizations that appear on this platform as partners, resources, awardees or innovators.

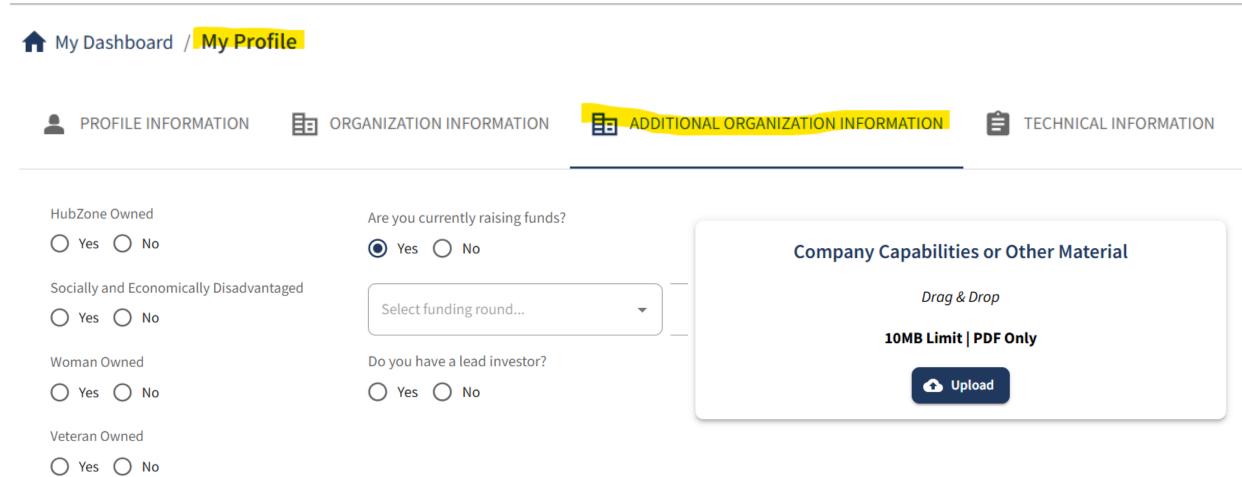
Register to complete your profile and claim your awards...







Don't miss out – complete all your onboarding...

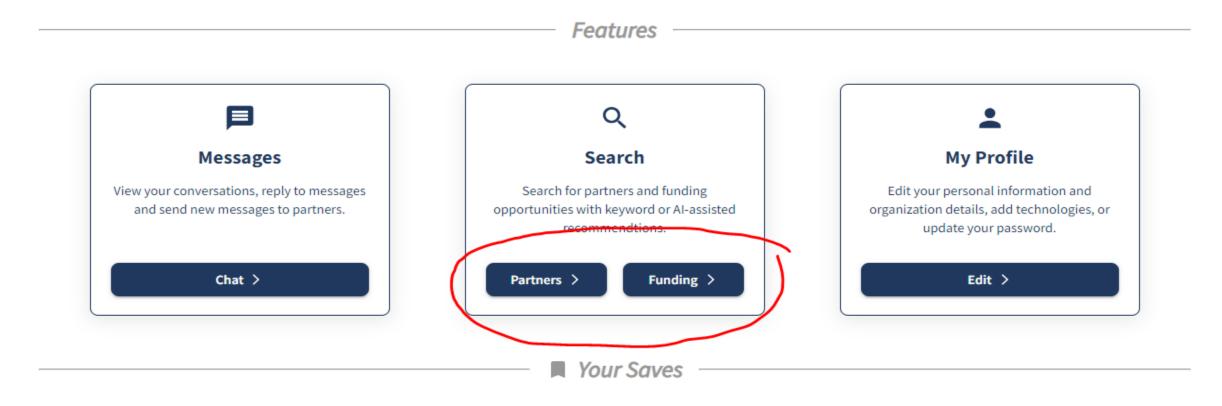




Certifications, NAICS, brochure, looking for funding...partners can filter on this info...

Innovators can find funding opportunities & partners

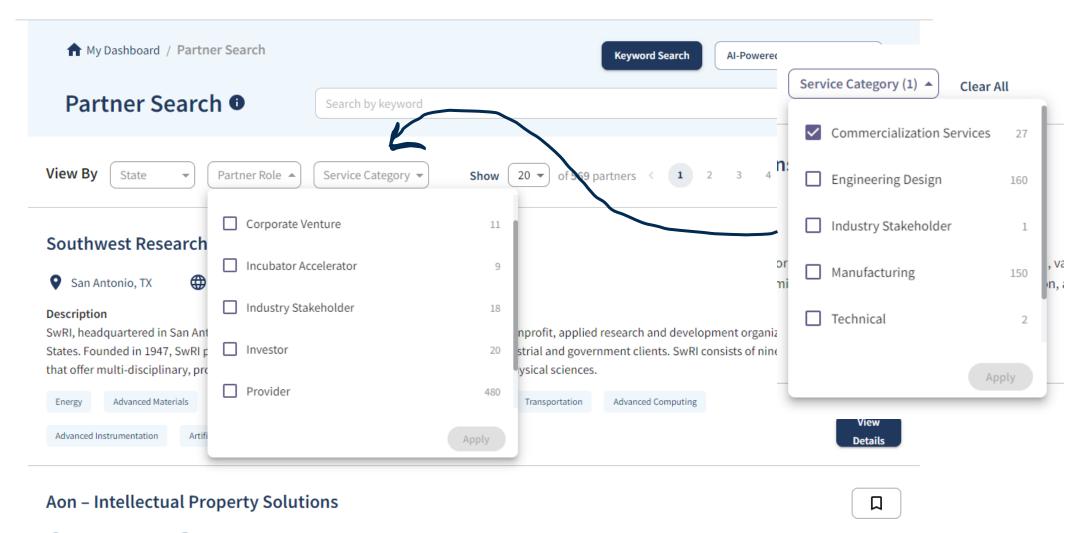
My Dashboard



Manage, export, or set notifications for your saved SBIR awards here. Select an item to view additional details.

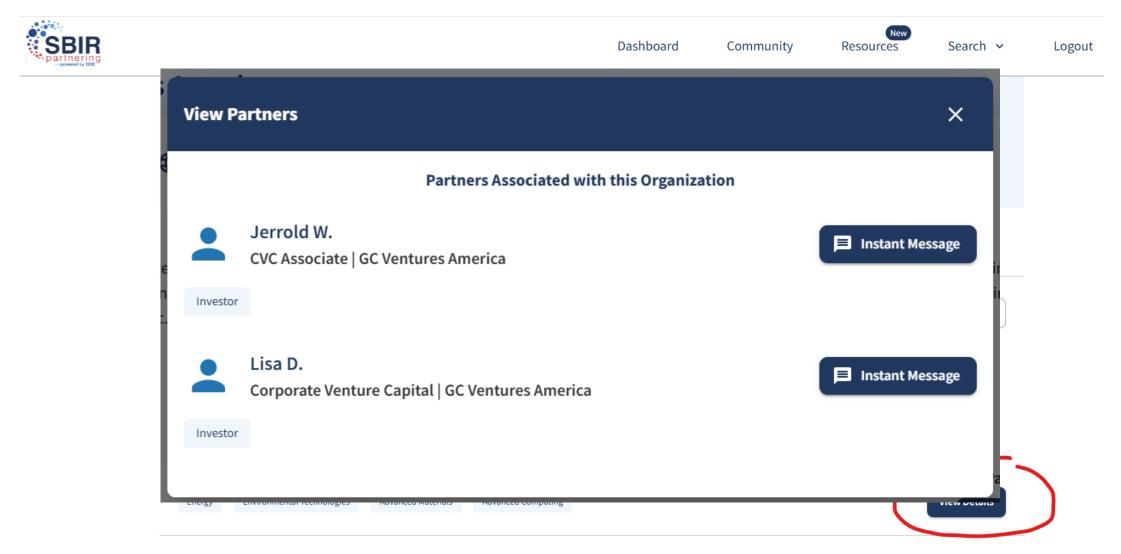


Search based on your unique needs



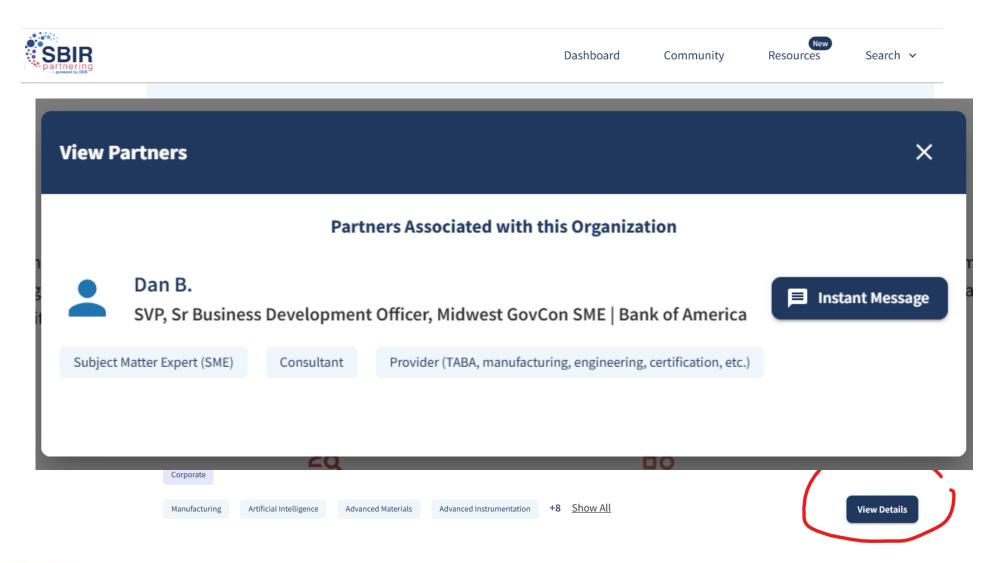


Find a Partner? Use Instant Message to Connect!



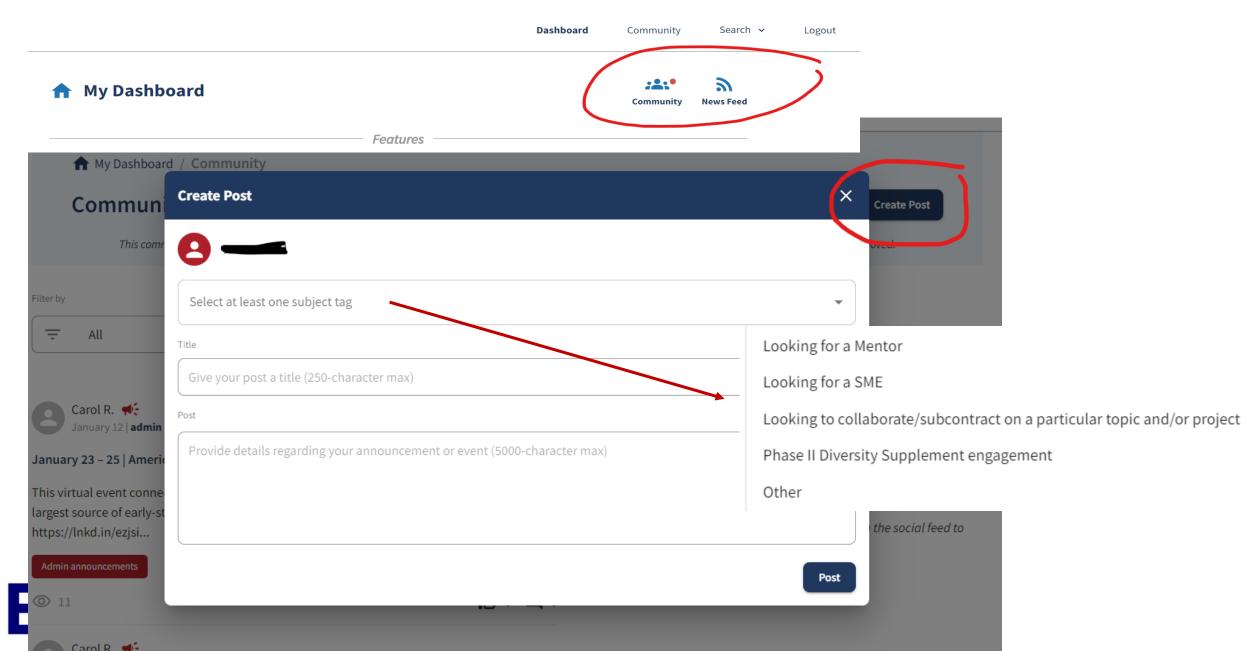


Find a Partner? Use Instant Message to Connect!





Network with other INNOVATORS ...



New Resource Pages – Find NL SBIR POCs



Dashboard

Community





Resources

NATIONAL LABS

COMMERCIALIZATION TUTORIALS

MARKET RESEARCH (COMING SOON)



Ames National Laboratory 🔼

Ames National Laboratory is a government-owned, contractor-operated national laboratory of the U.S. Department of Energy (DOE), operated by and located on the campus of Iowa State University in Ames, Iowa.

SBIR Contact

Julienne Krennrich

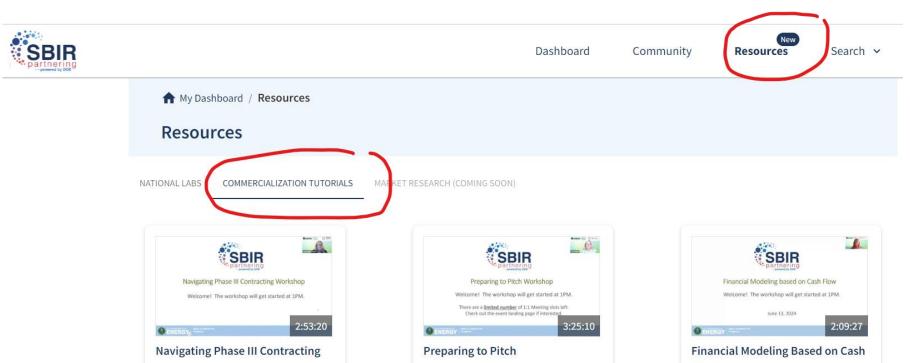


Argonne National Laboratory 🔼

Argonne is a multidisciplinary science and engineering research center, where talented scientists and engineers work together to answer the biggest questions facing humanity, from how to obtain affordable clean energy to protecting ourselves and our



New Resource Pages – View Commercialization Workshop Recordings





An introduction to the challenges in

interpreting/executing Phase IIIs



An educational overview of what should be

done as you prepare to pitch





- **Preparing to Pitch**
- Licensing
- Manufacturing
- Financial Modeling
- Navigating Phase III Contracting
- Preparing for Product Launch





THE IMPACT OF NET ZERO IMPLEMENTATION

Industry Overview



Anthony SchiavoSenior Director and
Principal Analyst

AGENDA

01 Introduction

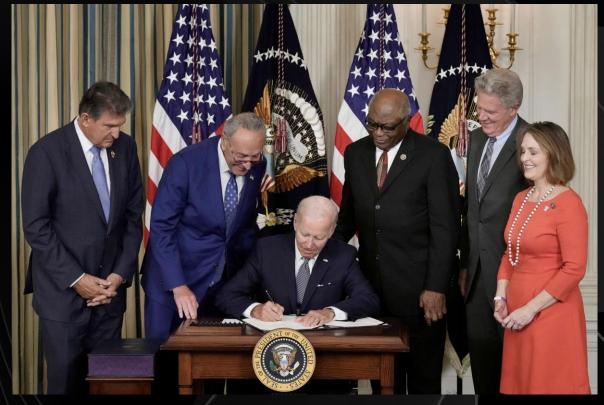
O2 The state of net-zero technologies

03 Outlook

2022 WAS A HIGH WATER MARK FOR NET ZERO AMBITION



Six months previous: COP26 and the Glasgow accords



Six months later: the Inflation Reduction Act is signed into law

2024: VIBE SHIFT

WORLD NEWS

The 'super year' of elections has been super bad for incumbents as voters punish them in droves

LAST UPDATED: JULY 02, 2024

Green hydrogen at EUR 14/kg – a harsh reality check for the hydrogen economy



UNCERTAINTY IS THE DOMINANT MOOD

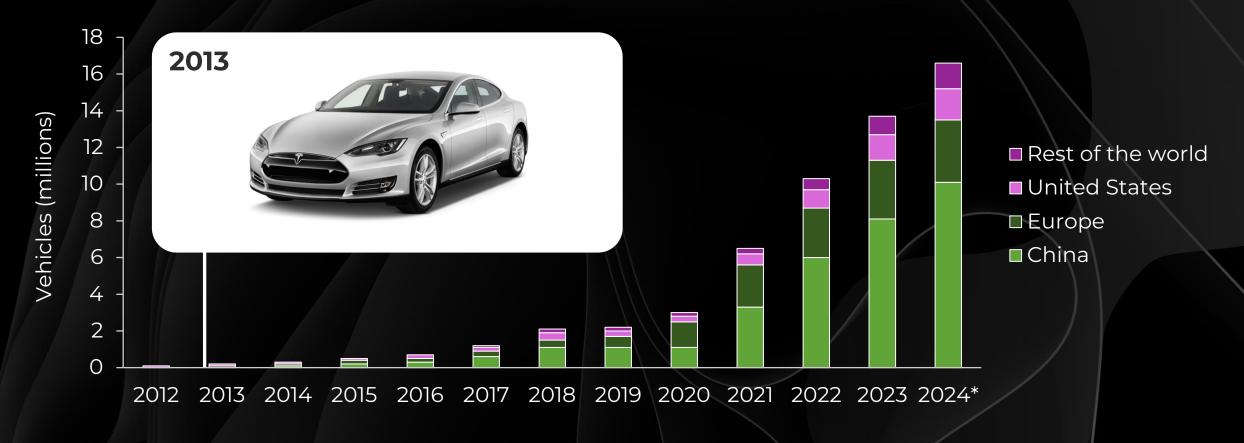
2023:

'ESG' Is Too Important to Ax, Investors Say

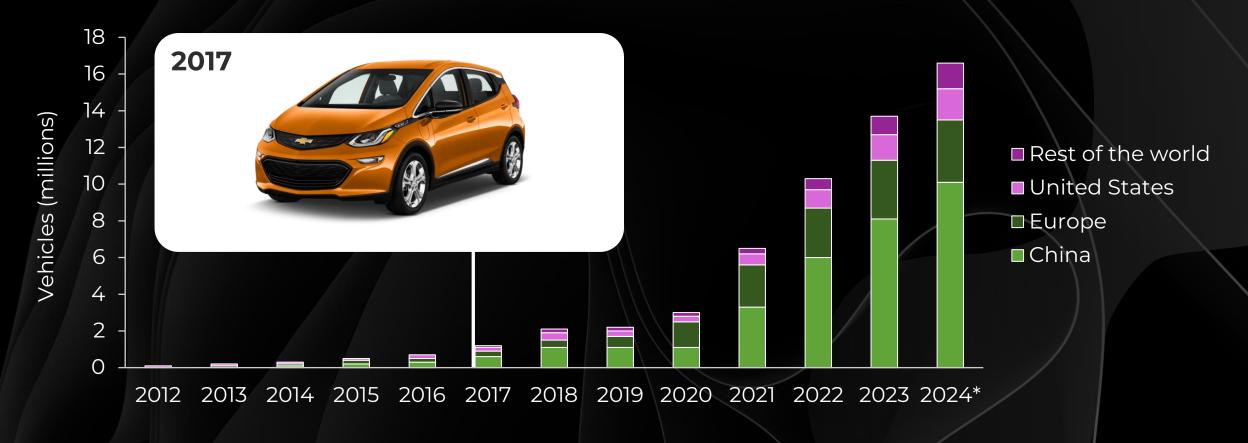
2024:

Wall Street Starts Calling Time on ESG Labels After Backlash

Global EV Sales, IEA

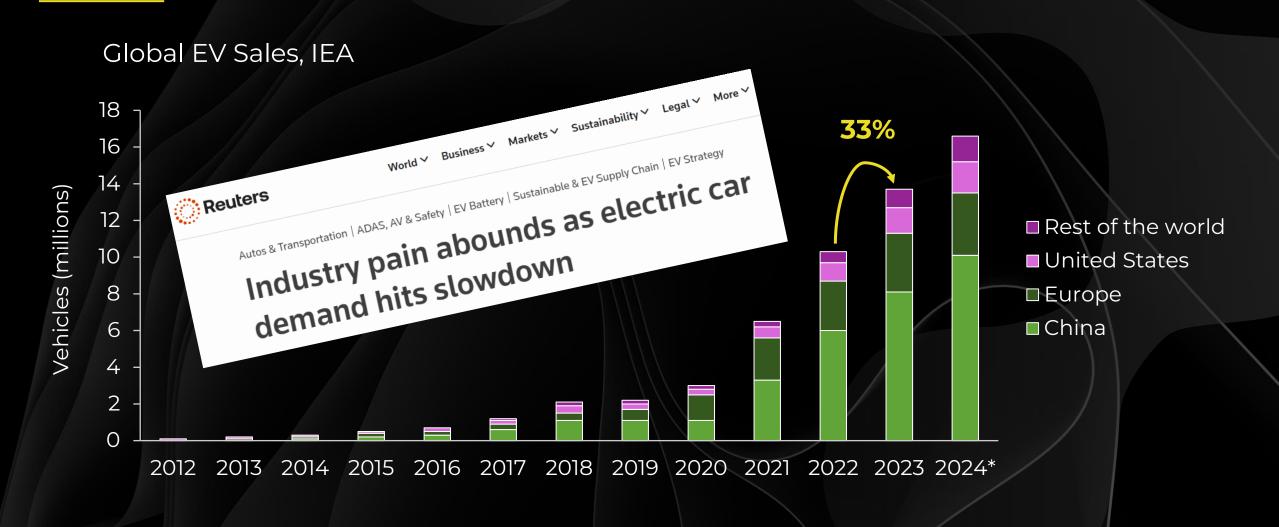


Global EV Sales, IEA



Global EV Sales, IEA 18 The 2021 Ford Mustang Mach-E Is the Latest Victim of 16 14 Vehicles (millions) Ridiculous Dealer Markups Would you pay a \$5,000 to \$15,000 markup to be one of the first to get one? 12 ■ Rest of the world 117% 10 ■ United States 8 □Europe ■ China 6 4 2 0 2014 2015 2016 2017 2018 2012 2013 2019 2020 2021 2022 2023 2024*







What does the rest of the decade hold for net zero tech?

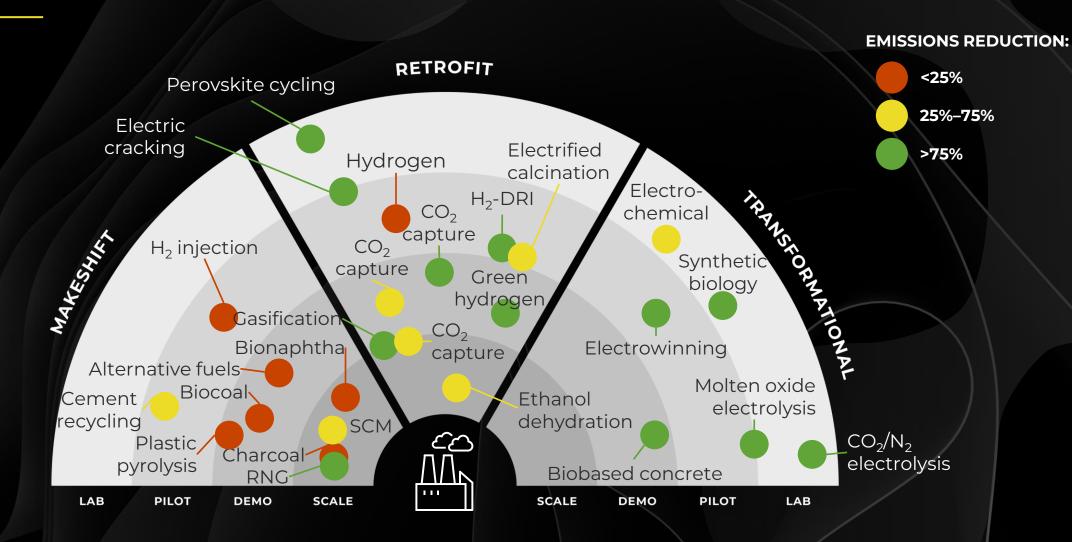
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01 Introduction

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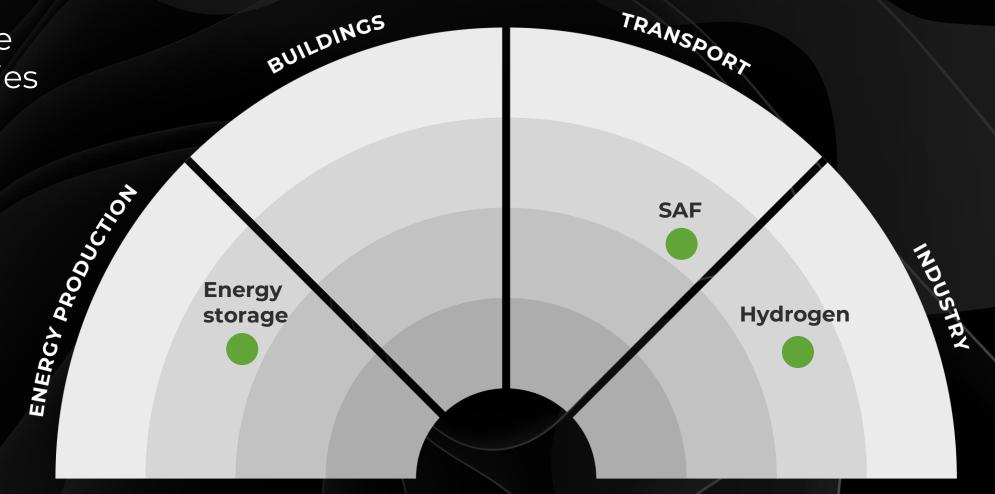
03 Outlook

THE LUX DECARBONIZATION RADAR



THREE KEY TECHNOLOGIES FOR UTILITIES, OIL AND GAS, AND CHEMICALS

Highlight three key technologies



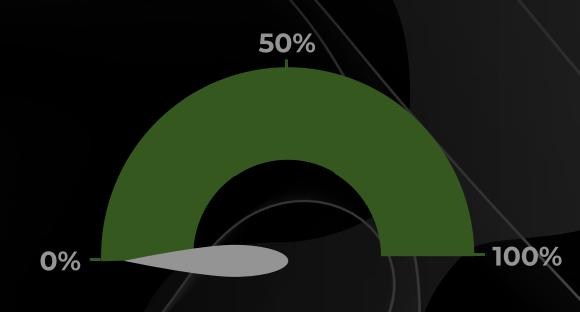
SUSTAINABLE AVIATION FUEL

GOALS

EU: ~3.3 billion liters of SAF blended into fossil jet fuel by 2030.

US: ~11 billion liters by 2030

Progress toward 2030 target





SUSTAINABLE AVIATION FUEL

GOALS

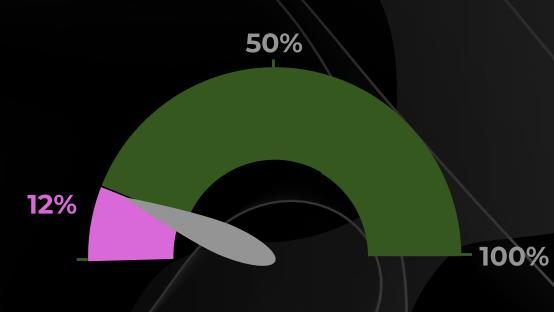
EU: ~3.3 billion liters of SAF blended into fossil jet fuel by 2030.

US: ~11 billion liters by 2030

PROGRESS

The EU's maximum production capacity for SAF is 288 million liters in 2024; US is ~1.7 billion* liters

Progress toward 2030 target





POLICY SUPPORT

Moderate

REFuelAviation imposes a mandate but does not provide any financial support for SAF projects.

MARKET ACCEPTANCE

Weak

SAF is too expensive for airlines to adopt.

TECHNOLOGY READINESS

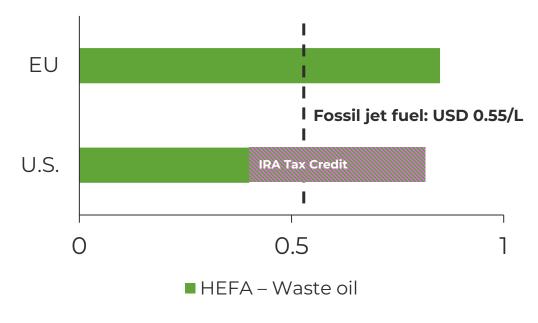
Moderate

The only established technology — HEFA — is feedstock constrained.

INCENTIVES TO OFFSET COSTS

The U.S. IRA provides up to USD 1.75/gallon of SAF based on its carbon intensity.

SAF Selling Price (USD/L)

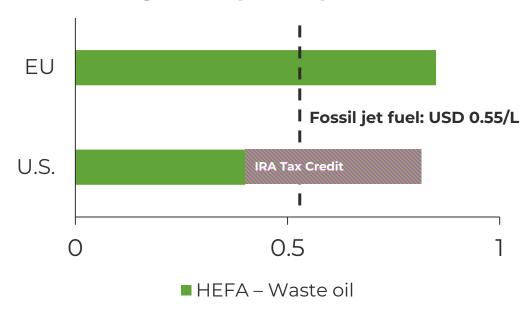




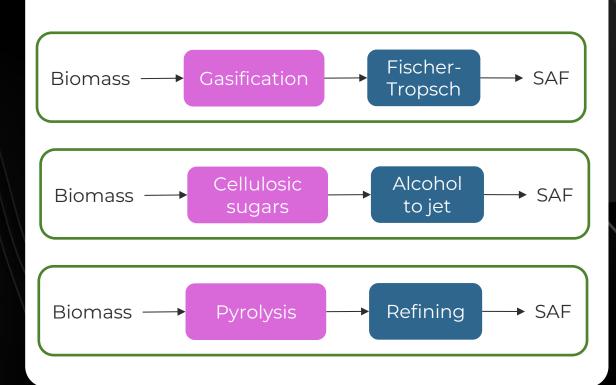
NEW TECH SOLUTIONS ARE NEEDED

The U.S. IRA provides up to USD 1.75/gallon of SAF based on its carbon intensity.

SAF Selling Price (USD/L)



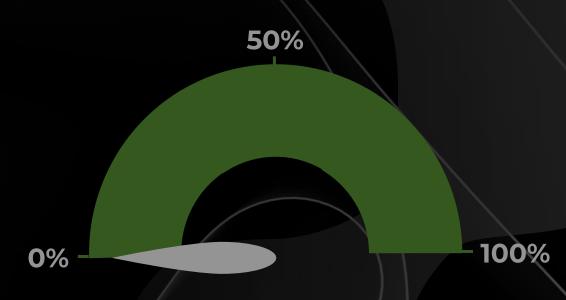
The SAF industry needs to unlock new pathways based on biomass feedstock.



ENERGY STORAGE

GOAL

200 GW of storage by 2030 and 600 GW by 2050. Progress toward 2030 target



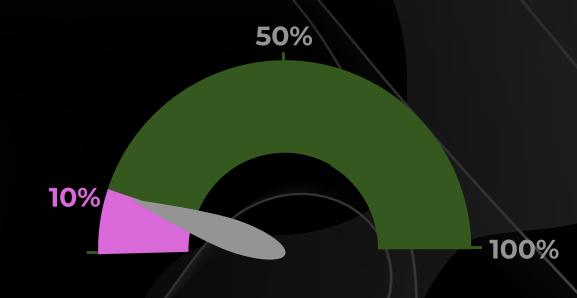
ENERGY STORAGE

GOAL

200 GW of storage by 2030 and 600 GW by 2050.

PROGRESS

Europe has deployed 20 GW of storage including pumped hydro. Progress toward 2030 target



POLICY SUPPORT

Moderate

Regulations are improving, but lack incentives for substantial buildout.

MARKET ACCEPTANCE

Weak

High technology costs with uncertain revenue potential.

TECHNOLOGY READINESS

Strong

Storage technology is mature enough to meet initial goals.

POLICY SUPPORT

Moderate

Regulations are improving, but lack incentives for substantial buildout.

MARKET ACCEPTANCE

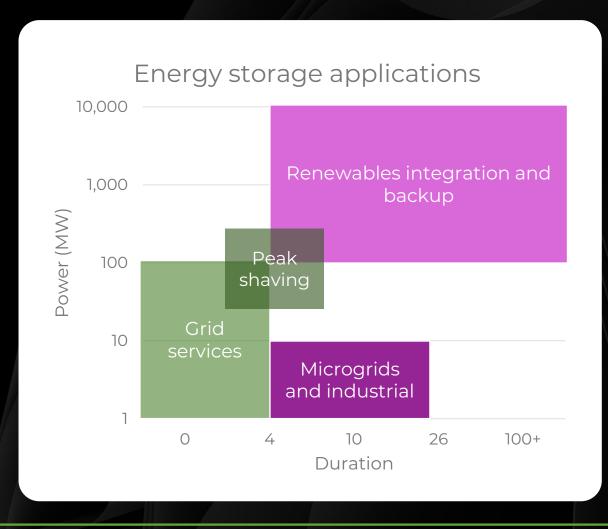
Weak

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TECHNOLOGY READINESS Strong

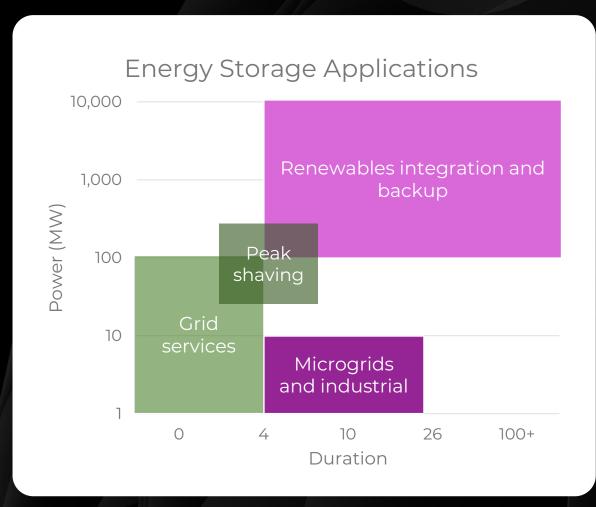
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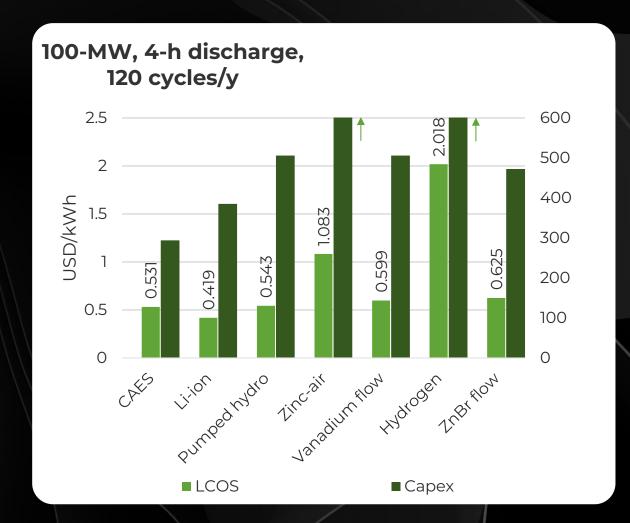
REGULATION FOR NEW APPLICATIONS





COSTS MUST COME DOWN

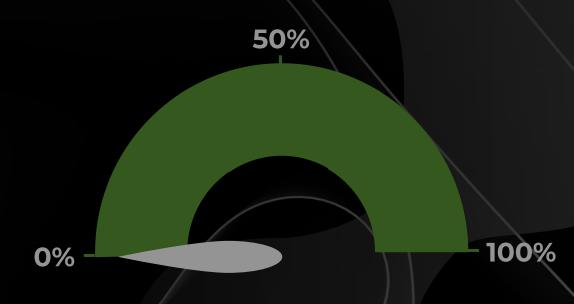




LOW-CARBON HYDROGEN

GOAL

10 Mtonne of hydrogen production + 10 Mtonne of hydrogen imports by 2030. Progress toward 2030 target





LOW-CARBON HYDROGEN

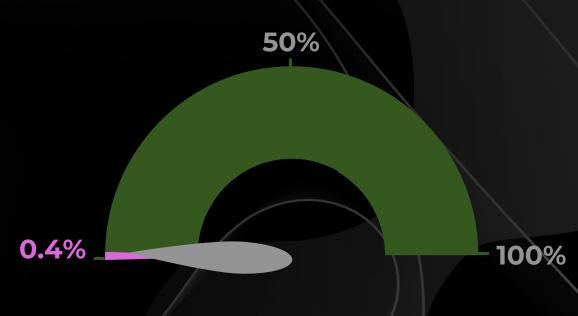
GOAL

10 Mtonne of hydrogen production + 10 Mtonne of hydrogen imports by 2030.

PROGRESS

EU: 37,000 tonnes of green hydrogen in 2024. US: 720,000 tonnes under construction, ~18,000 tonnes operating

Progress toward 2030 target



POLICY SUPPORT STRONG

The US and EU's regulatory measures — including tax credits, mandates, and more — strongly support a hydrogen ecosystem.

MARKET ACCEPTANCE

WEAK

High cost of lowcarbon hydrogen dampen adopters' enthusiasm.

TECHNOLOGY READINESS STRONG

Electrolyzers are fully commercial, albeit still expensive.

POLICY SUPPORT STRONG

The US and EU's regulatory measures — including tax credits, mandates, and more — strongly support a hydrogen ecosystem.

MARKET ACCEPTANCE

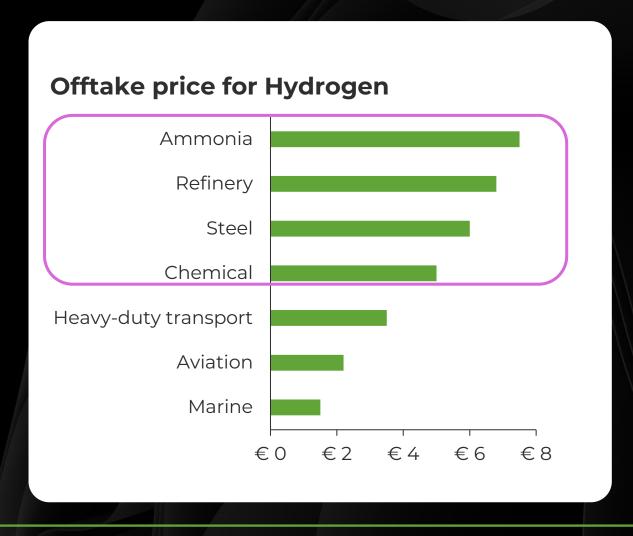
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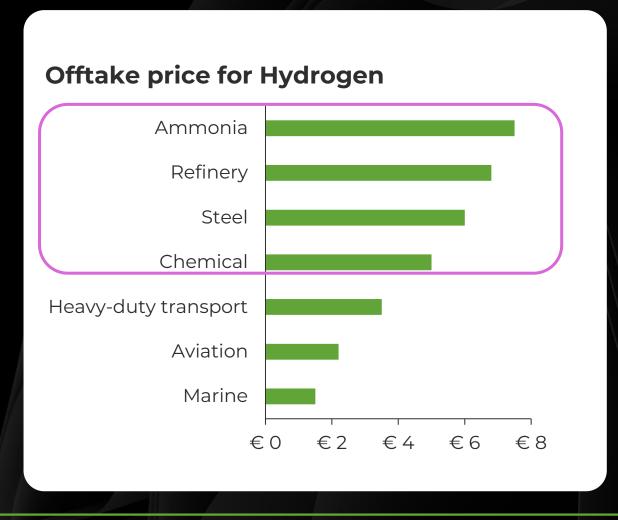
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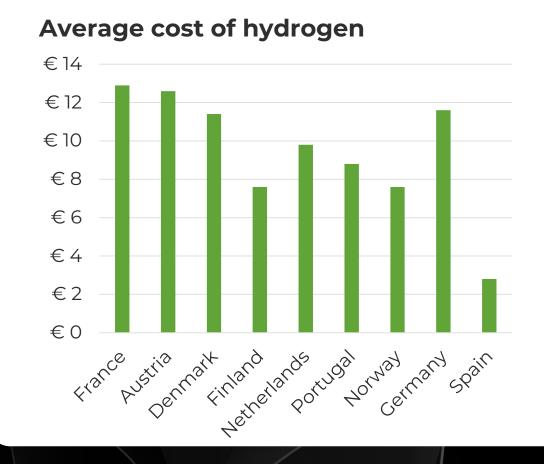
FOCUS ON EXISTING APPLICATIONS

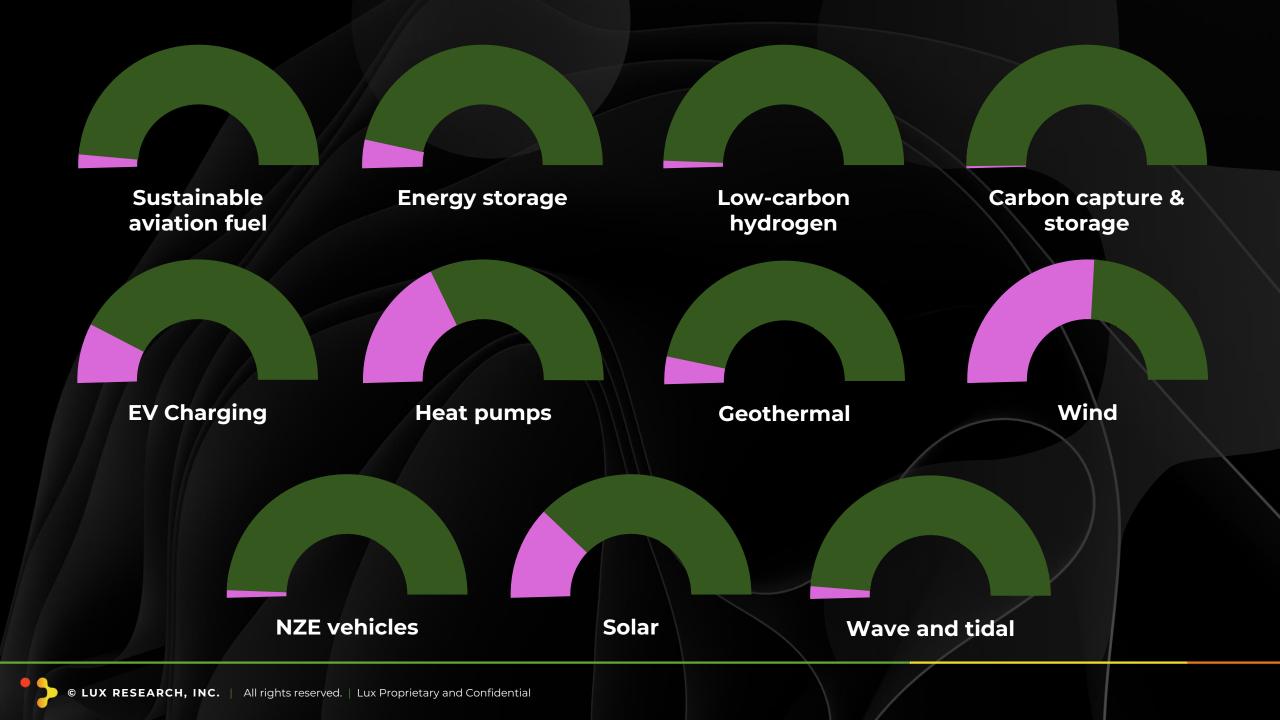




APPLICATIONS AND REGIONAL ENERGY NEED TO MATCH







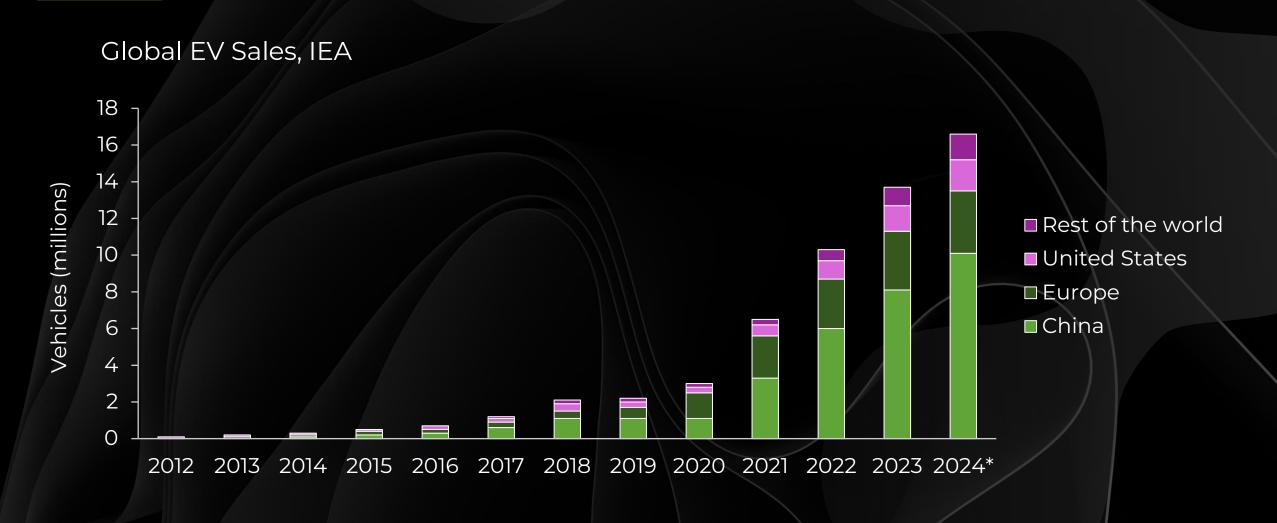
AGENDA

01 Introduction

O2 The state of net-zero technologies

03 Outlook

THE LONG TERM DIRECTION IS CLEAR







Companies need to prepare to sell net zero tech differently

SUPPLY CHAINS AND NATIONAL SECURITY WILL BE KEY

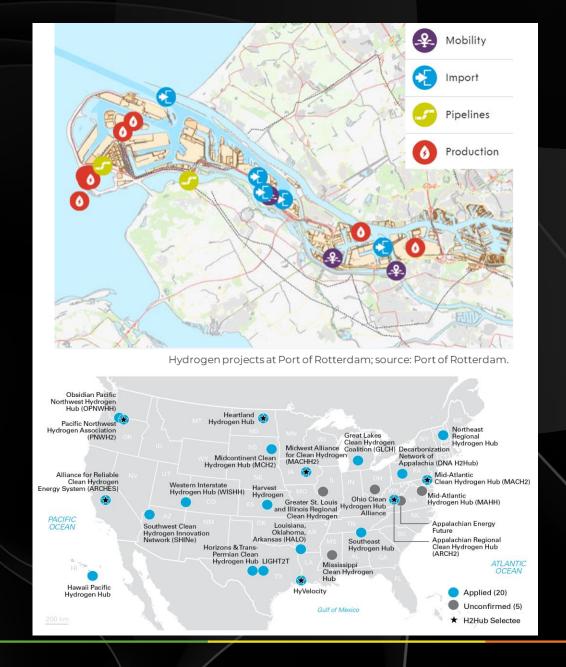
China bans exports to US of gallium, germanium, antimony in response to chip sanctions

Texas will add more grid batteries than any other state in 2024

ENGAGE WITH ECOSYSTEMS

Collaborations will be resilient to changes in policy

- Hydrogen and carbon consortia
- Supply and demand match better at scale
- Local support makes it more difficult to remove political backing



PUSH TO MAINTAIN POLICY

Big Oil Urges Trump Not to Gut Biden's Climate Law

Oil companies try to persuade Trump and his Republican allies not to slash provisions of the Inflation Reduction Act potentially worth billions



KEY TAKEAWAYS

The energy transition is behind schedule, but making progress

Green hydrogen is lagging but technologies like energy storage are moving ahead 2

Companies need to pivot their messaging, but not their tech development

The energy transition can be slowed but not stopped; positioning technologies to maintain support will be crucial

15)

Tech investment is still necessary across industry

While focus has been on deployment for the last few years, core improvements to cost and performance are still necessary



THANK YOU



READ

http://www.luxresearchinc.com/blog/



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Innovation Matters Podcast - Spotify



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ABOUT LUX

Our mission is to advise leaders about commercially viable science and technology to enable sustainable innovation. We deliver research and advisory services to inspire, illuminate, and ignite innovative thinking that reshapes and grows businesses. Using quality data derived from primary research, fact-based analysis, and opinions that challenge traditional thinking, our experts focus on finding truly disruptive innovations that are also realistic and make good business sense.

The "Lux Take" is trusted by innovation leaders around the world, many of whom seek our advice directly before placing a bet on a startup or partner — our clients rely on Lux insights to make decisions that generate fantastic business outcomes. We pride ourselves on taking a rigorous, scientific approach to avoid the hype and generate unique perspectives and insights that innovation leaders can't live without.



REAL

http://www.luxresearchinc.com/blog/



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Developing a Strategic Cap Table

Dave McCarthy
Tech to Market Advisor, DOE SBIR
(prior CEO, VP BD, angel investor x16)



Agenda

- Giant Disclaimer
- Some context
- The Cake, aka, the Stack
 - Startup
 - Grant Money
 - Angel Round
 - A Round
- Quick example
- BTDT Panel Etosha and Chris



GIANT DISCLAIMER

I am not your personal or corporate attorney, nor tax adviser nor spouse, not heir nor co-founder



Intros in chat, please...

- Name
- Company
- Role
- Pre-/Post-revenue

Workshop Expectations

- 1. Conversation starter
- 2. An understanding of your specific strategic situation and how to discuss ownership with co-founders, employees, et al.
- 3. An understanding of what it means to dilute equity positions
- 4. This is not an MBA



Strategic Cap Table Safe Zone



All questions welcome; that's why we're all here

Let's get into it

Context

Who should be / might be on your cap table (own shares)

Founders

Angel/seed investors – non-funds, possibly individuals, possibly SPEs

Employees via employee pool

Professional Funds – A, B, C ... rounds

Board of Advisors/Directors

Accelerators



Keep your cap table as simple as possible to minimize future complications

Who should not be on your cap table (NOT own shares)

 Service providers – set-up sharks (10% to register a company), attorneys, accountants – just no

- Individual employees \rightarrow pool, may be early-ins, minimize it
- Every tiny angel investor → SPE, may be early-ins, minimize it

Crowdfund??

Some definitions re shares

- <u>Authorized</u> = created and allowed to issue
- Outstanding = someone owns or has rights to shares
- <u>Fully-diluted</u> = all authorized shares are outstanding
- Pre-money // postmoney



Into the Cap Table

At Startup

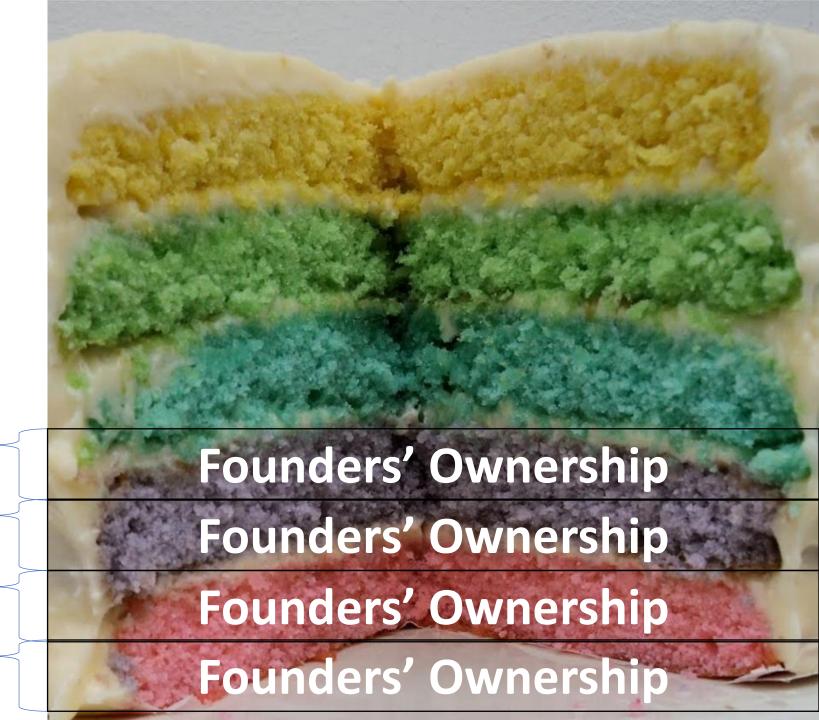
- They're all yours!!!!!!
- The Whole Cake!!!!!
- Typically, fully-diluted
- Get out your founding documents ...
- Go find out: How many shares are there in your company? Who owns?



At Startup

Founders' Equity

 May actually look like this



To XLS

Grant Money

• Guess What?

 No change // nondilutive. You still own it all!!



Why would you raise an Angel/Seed round of funding?

Answer in Chat

Angel/Seed Round

When: Pre-revenue, typically first money in

Operations Why: Used to finance their early-stage MILESTONES and move from the idea phase to generating revenue: product development, early marketing (exploring Product/Market Fit), building team

Finance Why: speed date to exit, increase exit value, increase likelihood of exit

How would you improve description of those milestones // Finance Why with specificity FOR YOUR SITUATION?

At Angel

If fully-diluted, need to add shares to sell

Defn: Dilution = you own less % of the company



To XLS

Why would you raise an A Round of funding?

Answer in Chat

A Round

When: Typically, first professional money and post first revenue

Operational Why: Used to finance their early-growth MILESTONES and move to scaling first market revenue. Prove beach head market and ability to capitalize on a market opportunity.

Finance Why ...

How would you write milestones with specificity?

A Round Analysis

If fully-diluted again, need to add shares to sell

A Rounders

Angels' Equity

Founders' equity

You can see why it's called a funding 'stack'



To XLS



Questions STOP





To XLS

Other things to think about ... Raising in general



 You are dealing with money, hopefully lots of it → people will misinterpret/have feelings hurt/see another side of them/get mad/...

- Trust but verify
 - Good contracts make for good partnerships
 - Bad contracts make for bad marriages

 BYLAWS, contracts, accounting all matter → yes, pay for good attorneys and tax advisers b/c they have seen 1,000s

Other things to think about ... Raising in general



Engage early, communicate often, raise later

Plan on multiple rounds now → equity pro forma

Consider the exit NOW! Waterfall exit.

https://carta.com/learn/startups/exit-strategies/waterfall-analysis/

Other things to think about ... Founders' Equity



How are you splitting founders' equity?

Pre-splits suck – Why?

• "4-year earn-in with a 1-year cliff" — yes, even for the founders and C-Suite

Stock options ... another topic all together

Other things to think about ... Employee Options Pool



Why? To retain employees that you can't fully pay

Why? Professional money will require it

Employee option pool – can be 20% (investors will want it pre-money)

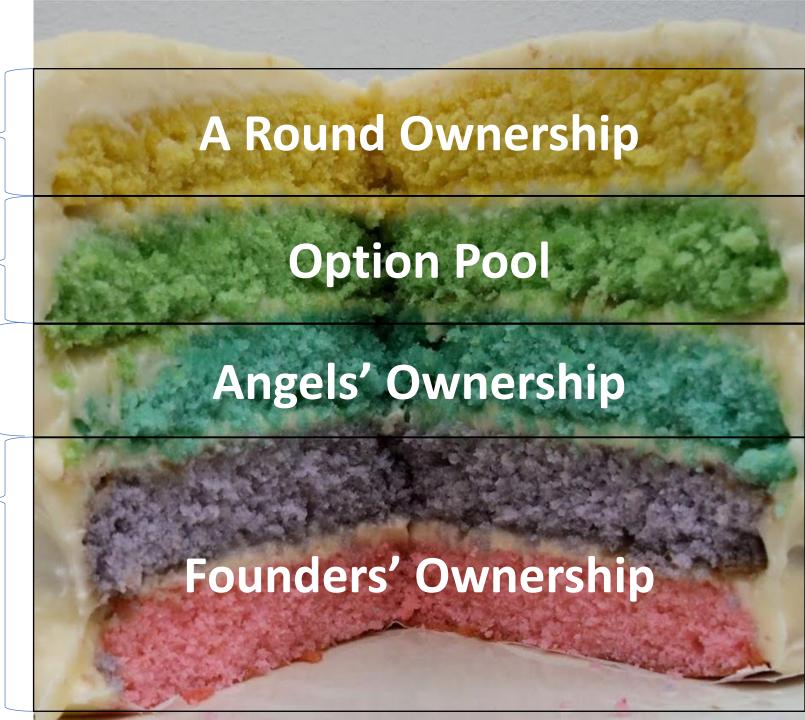
A Round Analysis

A Rounders

Option Pool

Angels' Equity

Founders' equity



Let's Just Talk About It



Our Cap Table-ists ...



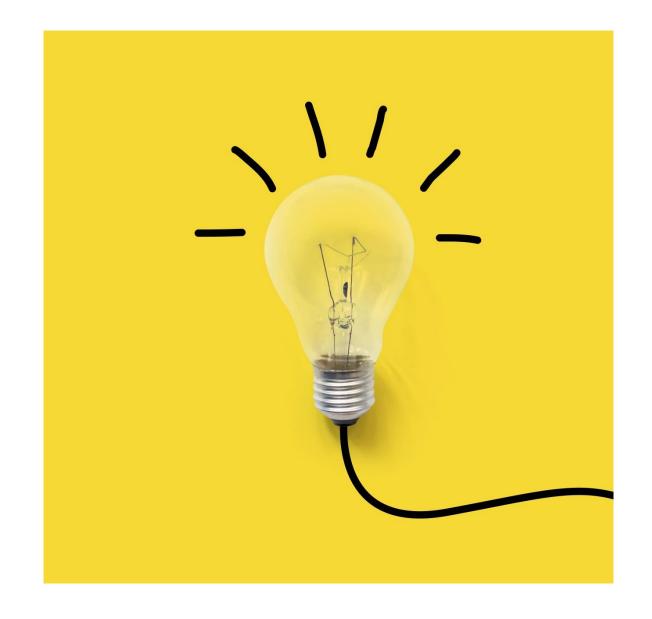
Etosha Cave Co-Founder and CSO Twelve



Chris Faranetta
Co-founder
Near Star Fusion

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- 4. This is not an MBA



GIANT DISCLAIMER REITERATED

FEEDBACK, PLEASE

Plus / delta on today's session

What else to help you get through tough times?

Developing a Strategic Cap Table

Dave McCarthy
Tech to Market Advisor, DOE SBIR
Dave.mccarthy@science.doe.gov



Reverse Pitches

Micha Ben-Naim | Clean Energy Ventures
Chris Sipos | United Airlines Ventures — Sustainable Fuel Fund
Joshua Speros | BASF Venture Capital
Austin Hwang | Honda Xcelerator Ventures
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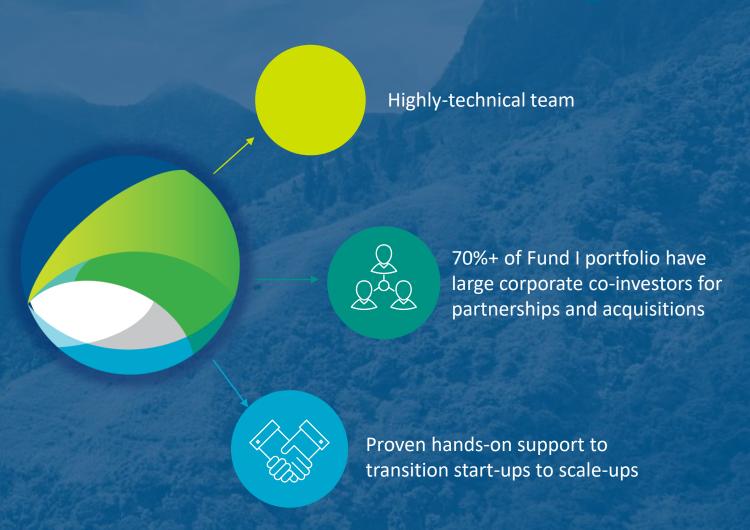


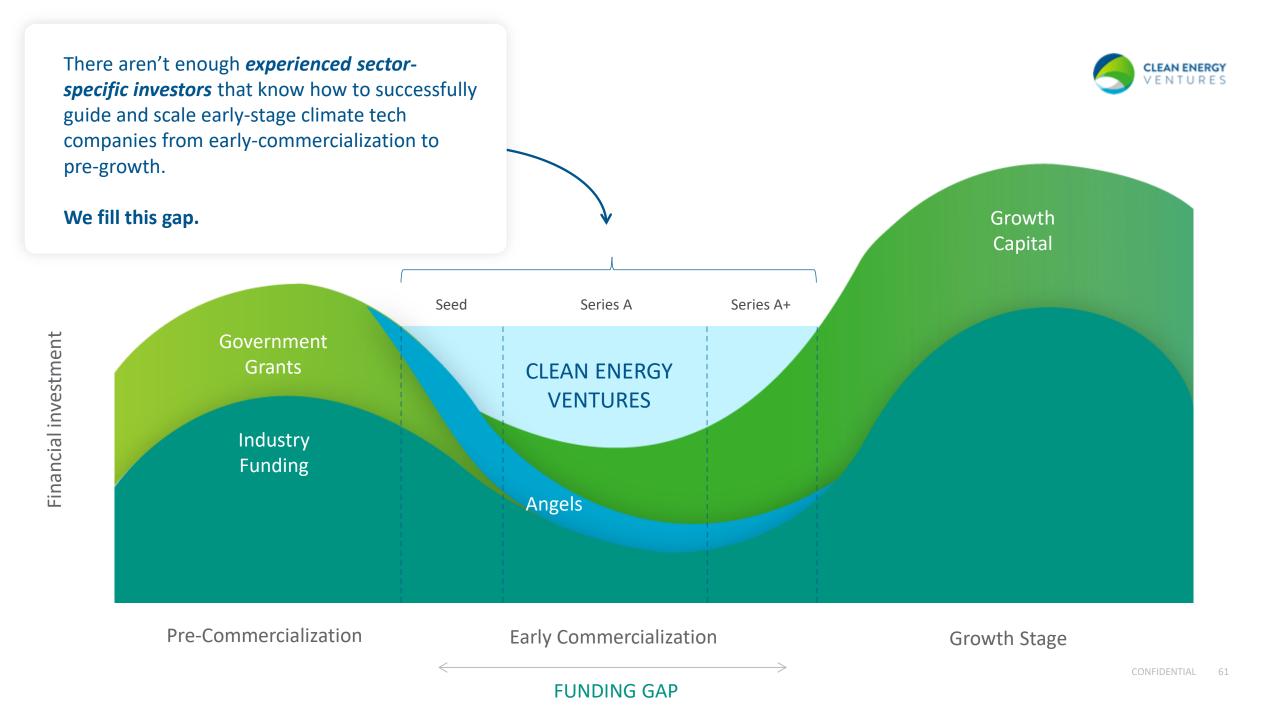
12/09/2024



OUR MISSION

Clean Energy Ventures invests in highly disruptive, advanced energy companies that have the potential to materially reduce greenhouse gas emissions (2.5 Gt of CO₂e by 2050, each)





CEV FUND STRUCTURE

CEV FUND II

\$305M early-stage climate tech fund

Targeting **25–35** portfolio companies

European, Israeli & North American startups

Fund Structure

Sweet spot for investment: **Seed and Series A**

\$2-\$6M Initial Investments

First institutional & lead investor in early-stage and pregrowth rounds

TARGETED INVESTMENT CRITERIA

- Technology is at most 12-24 months from commercialization, and science de-risked
- Sustainable competitive advantage, typically through strong IP
- Company can be commercialized with modest future equity financing required
- Potential for risk-adjusted 10x return
- Executive team passes our leadership evaluations and is receptive to coaching and building a diverse team

2.5 Gt of CO₂e emissions reduction potential between investment and 2050 in each company

DISRUPTIVE TECHNOLOGIES & BUSINESS MODELS











ENERGY STORAGE



CARBON TO VALUE



ENERGY MANAGEMENT



RECYCLING & RE-USE



CLEAN ENERGY PRODUCTION



ENERGY EFFICIENCY



VALUE-ADD PORTFOLIO MANAGEMENT

Our active engagement with each company guides startups from pre-commercialization to growth-stage with significant exit value.

BOARD MANAGEMENT

Active involvement as board members to provide consistent oversight and guidance throughout the commercialization stages.

LEADERSHIP COACHING

Transform brilliant technical teams into commercial teams able to address global markets, leveraging dedicated leadership advisors.

IP & TECH ENHANCEMENT

Enhance technology development and add to IP portfolio. Support from our deep technical team.

STRATEGIC FINANCING

Lead/co-lead initial investments to establish financing roadmap and governance for proper capitalization long-term.

STRATEGIC MARKETING

Execute three-year plan to engage key customers and potential acquirers, leveraging our in-house marketing expertise.

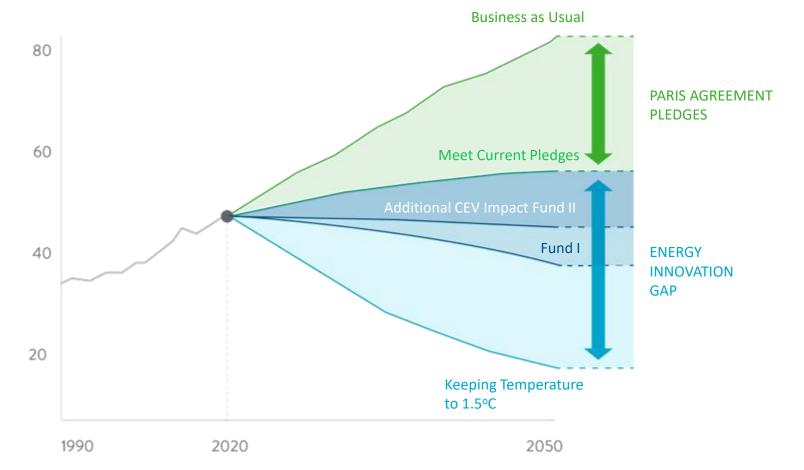
GROWTH & EXIT PLANNING

Foresight and guidance on the path to scale and exit. Close collaboration to avoid pitfalls and seize upcoming opportunities.

Energy innovation must bridge the divide between international pledges to reduce emissions and remaining below 1.5°C in 2050.

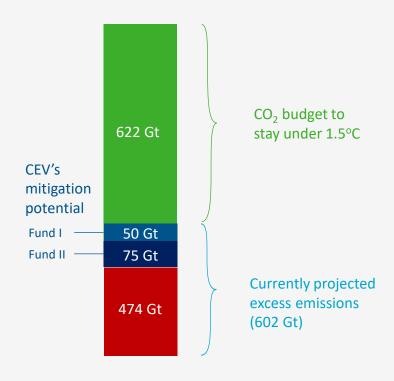
Clean Energy Ventures invests to close this gap.

ANNUAL GLOBAL EMISSIONS (GT CO₂e)

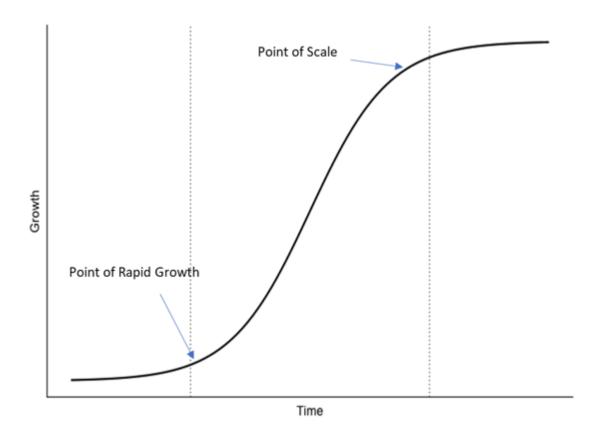




PREDICTED CO₂e EMISSIONS THROUGH 2050



SIMPLE EMISSIONS REDUCTION CALCULATOR





Clean Energy Ventures' Simple

Emissions Reduction Calculator (SERC)

provides a quick high-level

understanding of greenhouse gas (GHG)

reduction potential for new

technologies and business models. The

calculator is simple to complete with

information most entrepreneurs

already have on-hand.

OPEN TO ALL STARTUPS AND FREE
TO USE



DEEP BENCH FOR SOURCING & DUE DILIGENCE

- 35+ clean energy angel investors that help source, diligence and mentor CEV investments
- 30+ CEO roles, and 15+ executive roles
- 250+ combined years of clean energy operations and investment experience

EXPERIENCED VENTURE PARTNERS



Examples of CEV Fund I & II venture partners who currently serve as board representatives or senior advisors



JOHN OWEN

Former CFO and Co-founder of
Jetblue Airlines



Former FERC Commissioner, former Board Chair, PG&E; Co-founder, ESPY Energy Solutions

NORA MEAD BROWNELL



DR. MALLIKA GUMMALLA, PHD
Former Head of Innovation Hubs at UTC; chemical engineering scale-up



JOHN WISNIEWSKI

Former Exxon Mobile Engineer and
Director at Arcapita PE firm



JOHN HARPER

Project finance at Tioga Energy, EDF
Renewable Energy, Wärtsilä, and ABB



Hydraulic and environmental engineer; advisor to Green Climate Fund

DR. CARA TOBIN

JOHN BOBROWICH



MIKE HERZIG
Former CEO, Locus Energy



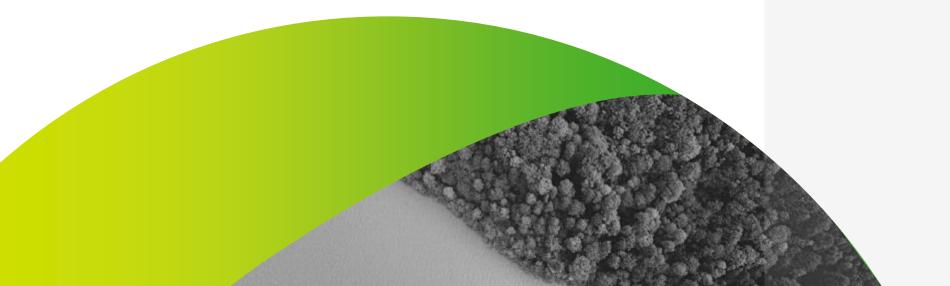
Former VP at Siemens; President & CEO at ReGENco



THANK YOU.

Micha Ben-Naim mbennaim@CleanEnergyVentures.com

Clean Energy Venture Management, LLC 50 Milk Street, Floor 16 Boston, MA 02109





IMPORTANT NOTICES

General

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IMPORTANT NOTICES (CONTINUED)

Forward-Looking Statement Disclaimer

CERTAIN INFORMATION CONTAINED IN THIS PRESENTATION CONSTITUTES "FORWARD-LOOKING STATEMENTS," WHICH CAN BE IDENTIFIED BY THE USE OF FORWARD-LOOKING TERMINOLOGY SUCH AS "MAY," "WILL," "SHOULD," "EXPECT," "ANTICIPATE," "TARGET," "PROJECT," "ESTIMATE," "INTEND," CONTINUE" OR "BELIEVE," OR THE NEGATIVES THEREOF OR OTHER VARIATIONS THEREON OR COMPARABLE TERMINOLOGY. DUE TO VARIOUS RISKS AND UNCERTAINTIES, ALL OF WHICH WILL BE MORE FULLY DESCRIBED IN THE FUND DOCUMENTS. ACTUAL EVENTS OR RESULTS OR THE ACTUAL PERFORMANCE OF THE FUND MAY MATERIALLY DIFFER FROM THOSE REFLECTED OR CONTEMPLATED IN SUCH FORWARD-LOOKING STATEMENTS. THE STATEMENTS INCLUDED IN THIS PRESENTATION ARE MADE ONLY AS OF THE DATE OF THIS PRESENTATION AND EXCEPT AS OTHERWISE REQUIRED BY APPLICABLE LAW OR REGULATION, UNITED UNDERTAKES NO OBLIGATION TO UPDATE OR REVISE ANY STATEMENT, WHETHER AS A RESULT OF NEW INFORMATION, FUTURE EVENTS, CHANGED CIRCUMSTANCES OR OTHERWISE. IN ADDITION, SOME OF THE STATEMENTS INCLUDED IN THIS PRESENTATION ARE ESTIMATES OR BASED ON ASSUMPTIONS DUE TO INHERENT MEASUREMENT UNCERTAINTIES.

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Portfolio Companies

THE LIST OF PORTFOLIO COMPANIES ON SLIDE 8 COMPRISE THE FUND PORTFOLIO AS OF THE DATE OF THIS PRESENTATION. THESE INVESTMENTS MAY NOT CONSTITUTE ALL THE INVESTMENTS THAT WILL BE MADE BY THE FUND.

THE PRESENTED INVESTMENTS WERE BOUGHT IN PARTICULAR ECONOMIC AND MARKET CONDITIONS. THERE CAN BE NO ASSURANCE THAT THE FUND WOULD ELECT, OR BE ABLE, TO INVEST IN SIMILAR OPPORTUNITIES IN A SIMILAR MANNER UNDER SIMILAR OR DIFFERENT ECONOMIC AND MARKET CONDITIONS. MORE GENERALLY, THERE CAN BE NO ASSURANCES THAT THE FUND WILL HAVE COMPARABLE INVESTMENT OPPORTUNITIES IN THE FUTURE. IT SHOULD NOT BE ASSUMED THAT THESE INVESTMENTS OR INVESTMENTS MADE IN THE FUTURE WILL BE PROFITABLE.



Investing in startups focused on decarbonizing the aviation and associated energy supply chains

Fund Size	Over \$200M in commitments	
Sector Focus	 Start-ups developing technologies focused on decarbonizing the aviation and its associated energy supply chains, including through research, production and technologies associated with Sustainable Aviation Fuel (SAF) 	
Geographic Focus	Global with North America focus	
Investment Size / Stage	 \$1M-\$25M investment Pre-seed / seed financing, all Series rounds of financing 	



UAV SFF has a network of 22 LPs representing a diverse array of industry sectors

Aviation







jetBlue Ventures



Aviation Manufacturing and Finance













Financial Services

JPMORGAN CHASE & CO.





Energy Producers and Service Providers



ventures



Industrial

Honeywell

Travel Platform







Advisory



Technology





UAVM Investment Team brings cross-functional experience within banking, manufacturing, startups, and airlines

The team was built with the experience to facilitate a holistic approach in the evaluation and execution of investment opportunities, valuing financial, technical, and corporate development perspectives

Mukul Hariharan, Managing Partner

MBA, B.S. in Aerospace Engineering at the University of Texas

Experience: 19 years of energy financing and airlines experience; 6 years in investment management at Carlson Capital focused on oil & gas and power, 9 years in investment banking focused on M&A, restructuring, covering oil & gas, power, and energy transition; and 4 years as a commercial pilot

Andrew Shen, Principal

MBA, University of Chicago; BA Carleton College

Experience:

UAL experience in Corp Dev, Commercial Finance and Operations Finance Prior experience in operations management and research, MRO supply chain

Chris Sipos, Associate

MBA, University of Chicago; MS Biochemical Engineering, Villanova University; BS Chemical Engineering, Rowan University

Experience: 7 years with DuPont across multiple business units as a process engineer and product manager. 2 years in Commercial Planning & Development for an alternative protein startup, scaling fermentation of novel microorganism

Nick Linton, Associate

BCom, McGill University

Experience: 3 years in investment banking at Houlihan Lokey focused on M&A, restructuring, covering oil & gas, power, and energy transition



All potential SAF pathways as well as associated supply chains and their enabling technologies are considered for investment

Feedstock	Energy
Hydrogen and CO ₂ Direct air capture, point source carbon capture, hydrogen electrolysis.	Electricity and Heat Remove the oxygen from CO ₂ molecule and electricity for hydrogen via electrolysis
Solid carbon and hydrogen feedstocks MSW, woody biomass, agricultural waste	Heat, pressure and catalyst Decompose feedstocks into synthesis gas, a mixture of carbon monoxide and hydrogen
Cellulosic sources Corn, sugarcane, ag waste, woody biomass, flue gas	Fermentation and distillation Extract sugars convert to alcohols and distill
Lipid-rich sources Animal fats, vegetable oil, algae, etc.	Heat, pressure and hydrogen Ignite chemical reaction by using H ₂ to remove oxygen
	Hydrogen and CO ₂ Direct air capture, point source carbon capture, hydrogen electrolysis. Solid carbon and hydrogen feedstocks MSW, woody biomass, agricultural waste Cellulosic sources Corn, sugarcane, ag waste, woody biomass, flue gas Lipid-rich sources



UAVM SFF has experience building a portfolio of technologies that enable the SAF value chain

	VERNE	® KOLOMA	BANYU CARBON	4 ELECTRIC HYDROGEN
Investment theme	Hydrogen Logistics	Hydrogen Production	Carbon Capture	Electrolyzer Manufacturer
Company description	Optimizes hydrogen transportation through storage and compression tech	Exploration and production of geologic hydrogen	Carbon capture leveraging the ocean's natural ability to concentrate carbon	Lower cost green hydrogen through mass manufacture of standardized electrolyzers

	savor	Dimensional Energy	OXCCU	viridos
Investment theme	Alternative Edible Fat / Power-to-X	Power-to-Liquids	Power-to-Liquids	Synthetic Biology
Company description	Uses paraffinic waxes from the Fischer-Tropsch process to produce synthetic butters and oils for human consumption	Catalyst technology to convert CO ₂ into carbon monoxide for use in Power-to-Liquids	Developing Oxford University catalyst research to combine two separate Power- to-Liquids processes	Using synthetic biology to increase output of HEFA feedstock from algae oil



UNITED

Thank You







CAN YOU TELL US ABOUT YOUR ORGANIZATION?



BASF Venture Capital is a wholly-owned subsidiary of BASF that invests to **catalyze change for our parent company**. One unique aspect of this is that we are an **evergreen fund**, placing us in the middle of the strategic/financial balance.

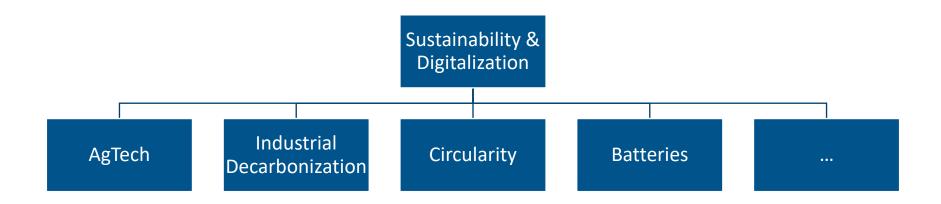
Strategic Financial



WHAT IS YOUR INVESTMENT FOCUS?



We tend to focus on startups in the **Seed to Series B range**. The topics can vary depending on changes in both BASF focus and the market. However, macro themes include **sustainability and digitalization**. Below those, our current focus is on **AgTech, industrial decarbonization, circularity, and batteries**.





HOW DO YOU SUPPORT YOUR PORTFOLIO COMPANIES?



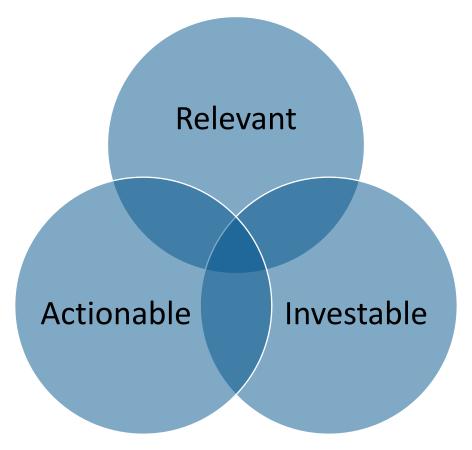
We write **\$1-5m** checks for a minority position with a preference for priced rounds. We can lead or follow and always prefer to syndicate. Beyond investment, we look to bring value in various ways: board service, connections inside BASF, connections to the BASF network, technical mentorship, and partnership.





WHAT DO YOU CONSIDER WHEN MAKING AN INVESTMENT CLEAN ENCLY PRINTERS OF THE PROPERTY OF THE PRO

Every investment case is unique, and we practice good VC discipline regardless. That said, we aim to keep it simple by asking ourselves three questions. Is this opportunity: **relevant**, **actionable**, and **investable**?

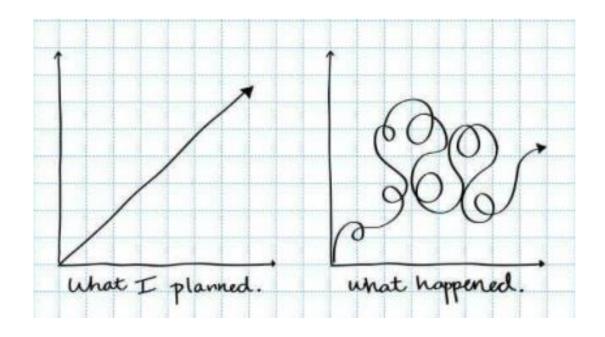




CAN YOU DESCRIBE YOUR PROCESS?



We begin with an initial meeting(s). If the investment opportunity proves relevant and actionable, we will pitch it to the broader BASF VC team to gauge the level of agreement. After that, we begin due diligence and broader discussions with BASF to gauge investability before a final challenge session with the team. The ultimate approver depends on the size of the investment but can be our MD or advisory board. Our pace depends on the maturity of the deal, but ~4 months is a good rule of thumb.





We create chemistry











GC Ventures America is the CVC arm of PTTGC.

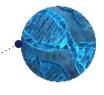
We invest in Series PreSeed, Seed, A and B startups with unique offerings to solve global unmet needs in

materials and manufacturing.

Megatrend & **Customer Behavior**



Advanced Materials



Biotech & Life Science

Economic Growth Strategy



NTURES

Clean Technology



Digital **Platforms**









➤ Mid-stage strategic opportunities

Initial Investment: Series Pre-Seed, Seed, A or B (up to \$5M)

➤ Information right, board observer right



- Advanced Materials
- Composites
- Biopolymers
- 3D printing
- Coating
- New chemistry
- Biobased chemicals



- **Biotech & Life** Science
- Ag tech
- Industrial biotech
- Food & feed
- Synthetic Biology
- Fermentation Tech
- Green Chemicals





- Clean Technology
- **GHG** Reduction
- Hydrogen
- Water
- Recycling
- Energy storage
- Energy efficiency
- Clean energy
- Transportation
- **CCUS**



- **Digital Platform**
- Data analytics
- Adv manufacturing
- Industrial IoT
- Al for industry
- Materials Discover **Platforms**









Unparalleled Access to Diversified Group of Businesses

Oil & Gas

Power & Utility

Exploration & Production

IT Services









Refinery

Green Chemicals

Retail, Food Service

Maintenance & Engineering









Material Subsidiaries























Funds



BUILDERS

Advance Materials. Electronics, Life Science Sustainability

Industrial Tech/ Healthcare/ AgTech

Advanced Materials/ AgTech/ Energy/ Industrial IT/ Water



Late-stage circular economy companies

Advanced Recycling

Energy Storage



INFINITY RECYCLING



actnano







Bio-based phase change material for energy efficiency

Companies

Long-duration energy storage



3D Printing for mass production



Chitsan biopolymer production



CO₂ to polyols



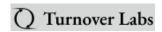
Composites with Z-axis fiber reinforcements



Additives to enhance recyclability



Membranes for carbon capture and other industrial separations



Conversion of impure CO2 to valuable products



Biobased acrylic acid and other acrylic products







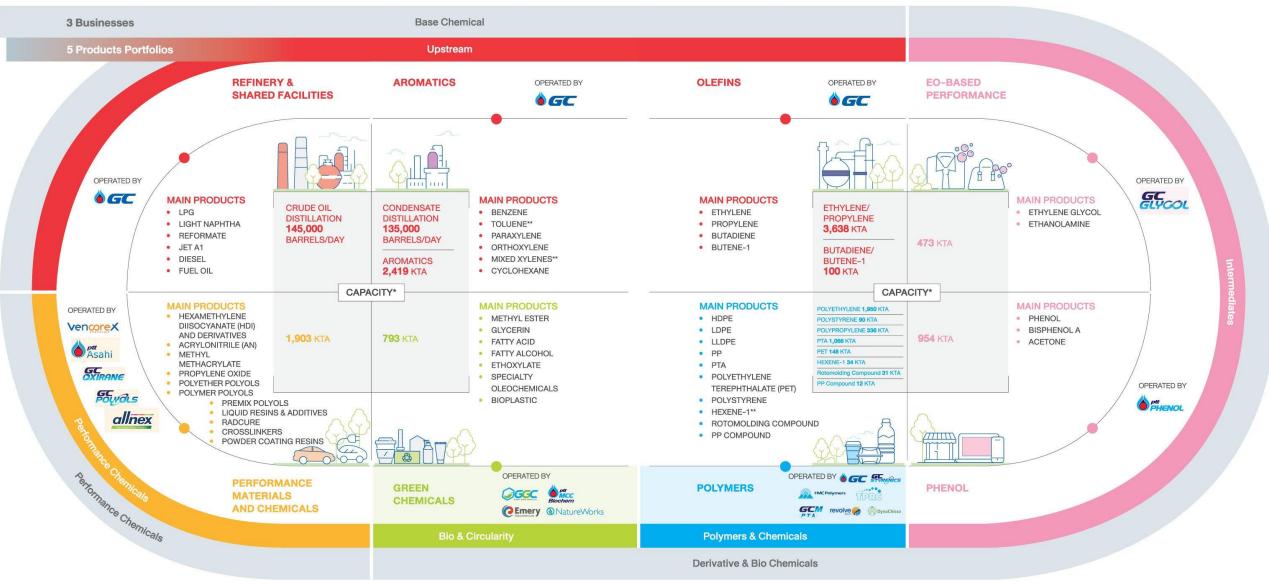


Contact us: cvc-us@gcinternational.com









Working with Corporate Venture Panel

Moderated by Lisa Dufresne, GC Ventures America



1:1 MEETING REMINDER

1:1 meetings with representatives from the presenting venture groups:

- Wednesday, December 11th (9-12AM Eastern)
- Thursday, December 12th (1-5PM Eastern)

Same ZOOM link as you used today.

Same ZOOM link for <u>all</u> 1:1 meetings – different breakout rooms.

Confirmation email has the link in it as well.



Key Take-Aways

- From the net-zero perspective not as bleak as it might appear:
 - Behind schedule in terms of the goals but making progress
 - Given the climate, startups may need to pivot their messaging but NOT your technology development
 - Technology investment is STILL very necessary to hit goals
- From the cap table discussions
 - o Know where your founding documents are and what they mean
 - o Think seriously about who you put on your cap table
 - Understand the FINANCE WHY when thinking about bringing in dilutive funding
 - o Engage early, communicate often, raise later...
- From the investor discussions
 - Understand the investor you are approaching (strategic vs financials; broad interests & some have interest in collaborations, too)
 - Often investment is less about the "name" of the round and more about TRL
 - o Engage early, communicate often...
 - o Be authentic realistic
 - Do your HW (customer discovery)



FY 2025 Funding Opportunities

Phase I	Release 1	Release 2
Topics Issued	Monday, July 8, 2024	Tuesday, November 12, 2024
Document	Phase I Release 1 Topics 🔓	Phase I Release 2 Topics 💪
Phase 0 Application Assistance (free for first time applicants) starts	Monday, July 8, 2024	Tuesday, November 12, 2024
FOA Issued	Monday, August 5, 2024	Monday, December 16, 2024
Letters of Intent (LOI) Due	Tuesday, August 27, 2024 5:00pm ET	Tuesday, January 7, 2025 5:00pm ET
Full Applications Due	Tuesday, October 8, 2024 11:59pm ET	Wednesday, February 26, 202 11:59pm ET
Award Notification	Monday, January 6, 2025	Tuesday, May 27, 2025
Projected Grant Start Date	Tuesday, February 18, 2025	Tuesday, July 8, 2025

Phase II	Release 1	Release 2
FOA Issued	Tuesday, October 15, 2024	Monday, February 24, 2025
LOI (All Phase II applications) Due	Wednesday, November 6, 2024 5:00pm ET	Wednesday, April 2, 2025 5:00pm ET
Applications Due	Tuesday, December 3, 2024 11:59pm ET	Tuesday, May 6, 2025 11:59pm ET
Award Notification	Monday, March 3, 2025	Monday, August 4, 2025
Projected Grant Start Date	Monday, April 14, 2025	Monday, September 15, 2025
**Preliminary dates subject to change		

New to DOE?
Apply for the **free** Phase 0
Program!

REGISTER for NOFO Webinar (12/19) and Q&A session (12/20)

Letters of Intent **required** (see <u>LOI instructions</u>)

Letters of Intent **required** (see <u>LOI instructions</u>)



Participating DOE Program Offices – 2 Releases/year



Release 1 – July 8, 2024

CLOSED – Applications due on October 8th!



Release 2 – November 12, 2024

Applications due on February 26th!

Advanced Scientific Computing Research (ASCR)

Fusion Energy Sciences (FES)

Nuclear Nonproliferation (NNSA)

Cybersecurity, Energy Security & Emergency Response (CESER)

Basic Energy Sciences (BES)

High Energy Physics (HEP)

Energy Efficiency & Renewable Energy (EERE)

Electricity (OE)

Biological & Environmental Research (BER)

Nuclear Physics (NP)

Nuclear Energy (NE)

Environmental Management (EM)

Fossil Energy & Carbon Management (FECM)



SBIR Partnering Platform

- SBIR Partnering Platform provides searchable database where SBIR/STTR applicants (INNOVATORS) can find potential PARTNERS and network with other INNOVATORS to complete your team through collaboration and/or subcontract
 - Find PARTNERS using keyword and AI searching; myriad of filtering options
 - Find SBIR funding opportunities across all agencies
 - Bookmark favorites; Confidential messaging
 - <u>Network</u> with other <u>INNOVATORS</u> on the <u>Community Page</u>; collaborate/subcontract to complete your team!
 - Newsfeed for applicable industry/stakeholder news
 - NEW resource page!



https://www.sbirpartnering.org/doe

• As an SBIR/STTR applicant, register as an INNOVATOR



DOE Disclaimer: By enabling and publishing the DOE SBIR Partnering Platform, DOE is not endorsing, sponsoring, or otherwise evaluating the qualifications of the individuals and organizations that appear on this platform as partners, resources, awardees or innovators.

Questions??

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Dave McCarthy

Tech to Market (T2M) Advisor – Commercialization Programming dave.mccarthy@science.doe.gov

Eileen Chant, Ph.D.

Outreach Program Manager

eileen.chant@science.doe.gov



https://www.sbirpartnering.org/doe

