

Catalyst/DICES Spring 2024 Webinar

Presented by:

Eric Sargent, Program Manager, Technology-to-Market

Priya Yadav, MassVentures, VP of Investments



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- Put yourself on mute
 - This meeting will be recorded
 - We will take questions at the end
 - Use the raise hand feature and I will call on you to come off mute
 - Or put question in chat and Leslie or I will read it out loud
 - We will post responses to questions on the website as well



The CATALYST/DICES Team

Massachusetts Clean Energy Center (MassCEC)



Leslie Nash
Program Director



Eric Sargent
Program Manager



Maddy Zeliff
Program Manager



Allison Markowski
Fellow

MassVentures (MV)



Vinit Nijhawan
Managing Director



Priya Yadav
VP of Investments

AGENDA

- Introduction and Overview
- MassCEC Overview & Mission
- MassVentures Overview & Mission
- Catalyst
- Diversity in Climatetech – Early Stage (DICES)
- Other Funding Opportunities



MassCEC Overview

Mission:

The Massachusetts Clean Energy Center's mission is to accelerate the clean energy and climate solution innovation that is critical to meeting the Commonwealth's climate goals, advancing Massachusetts' position as an international climate leader while growing the state's clean energy economy.

How we approach our work:



Innovation

MassCEC supports innovation to develop new solutions to unmet challenges, and reduce cost and increase performance of existing solutions.




Workforce Development

MassCEC ensures we have a diverse and equitable workforce that is trained and ready to take part in the growing clean energy industry.




Market Development

MassCEC de-risks commercially ready technologies paving the way for broad adoption, filling gaps unmet by the private sector.



MassCEC's clean energy programs and investments have awarded over **\$442M** and attracted over **\$2.5B** in private and federal capital



SINCE 2010 MASSCEC HAS:

Awarded **\$159M** for technology innovation and company growth

Enabled a **73%** increase in clean energy jobs

Awarded over **47,000** clean energy projects

Supported over **900** companies

Built the **1st** U.S. offshore wind port in New Bedford

Tested **52** wind turbine blades at the Wind Technology Testing Center



Massachusetts' Clean Energy Industry is Robust

44,000 direct jobs added since 2010, totaling **104,000+** workers in 2022

Economic contribution of **\$1.8B** in state and local taxes, and **\$3.5B** in federal taxes in 2022

\$14.2B contributed to the Gross State Product in 2021



MassCEC has Trained Tomorrow's Clean Energy Workforce

5,400+ college and vocational internships

670+ employers offering internship opportunities

3,600+ certificate trainees

64% of interns are women or minorities

Tech-to-Market Programs

DIRECT & INDIRECT SUPPORT FOR EARLY-STAGE INNOVATORS

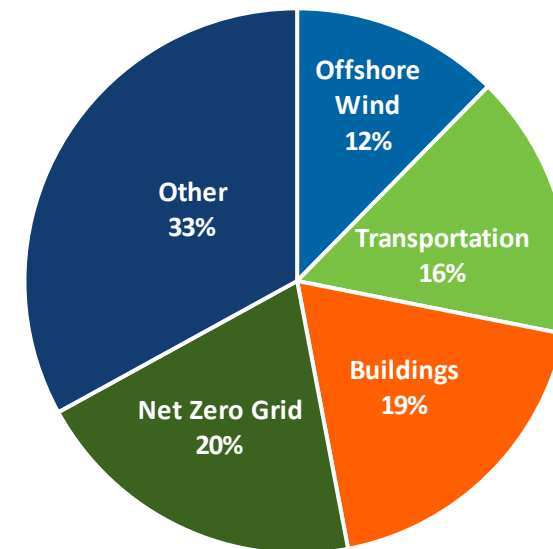
DIRECT – FUNDING AND MENTORSHIP TO STARTUPS AND RESEARCHERS

INDIRECT – FUNDING TO AND RELATIONSHIPS WITH INCUBATORS AND ACCELERATORS

GOALS

- Stimulate the commercialization of early-stage, promising clean energy technologies that are emphasized in the Commonwealth's decarbonization strategy
 - Support technological innovation
 - Support a just energy transition by supporting diverse founders
- Provide valuable funding and mentorship at a crucial time in company formation and technology development
- Continue to attract early-stage cleantech startups to Massachusetts
- Enable accelerators and incubators to provide the innovation community with valuable and complementary resources to MassCEC

Innovation Funding (\$)
by Focus Area
(since 2010)



TECH-TO-MARKET
PROGRAMS
(SINCE 2010)



405
AWARDS



89%
STARTUP Awardees
still in business



6,148
NEW HIRES



\$42.5M
AWARDED



\$194M
LEVERAGED

Two Sides to Technology Development

Benefits to Innovators

DIRECT SUPPORT TO INNOVATORS

Catalyst

AmplifyMass

InnovateMass

- Grant funding
- Technical support
- Fill a funding gap
- Recognition by MassCEC
- Leverage resources

- Technology development
- Networking
- Mentorship
- Attract external capital
- Commercialization

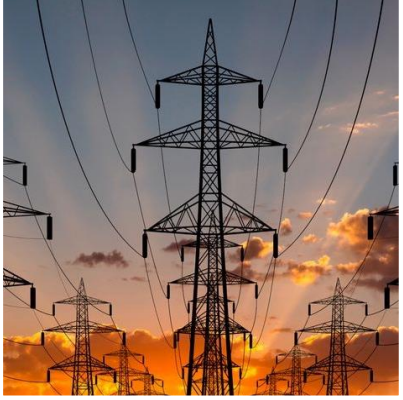
- Access to prizes
- Investor access
- Skills development
- Discounted services (i.e., legal)
- Physical resources (i.e., labs)

INDIRECT SUPPORT TO INNOVATORS

Accelerator
Funding Program

IncubateMass

Focus Areas



Net Zero
Grid



High Performance
Buildings



Clean
Transportation



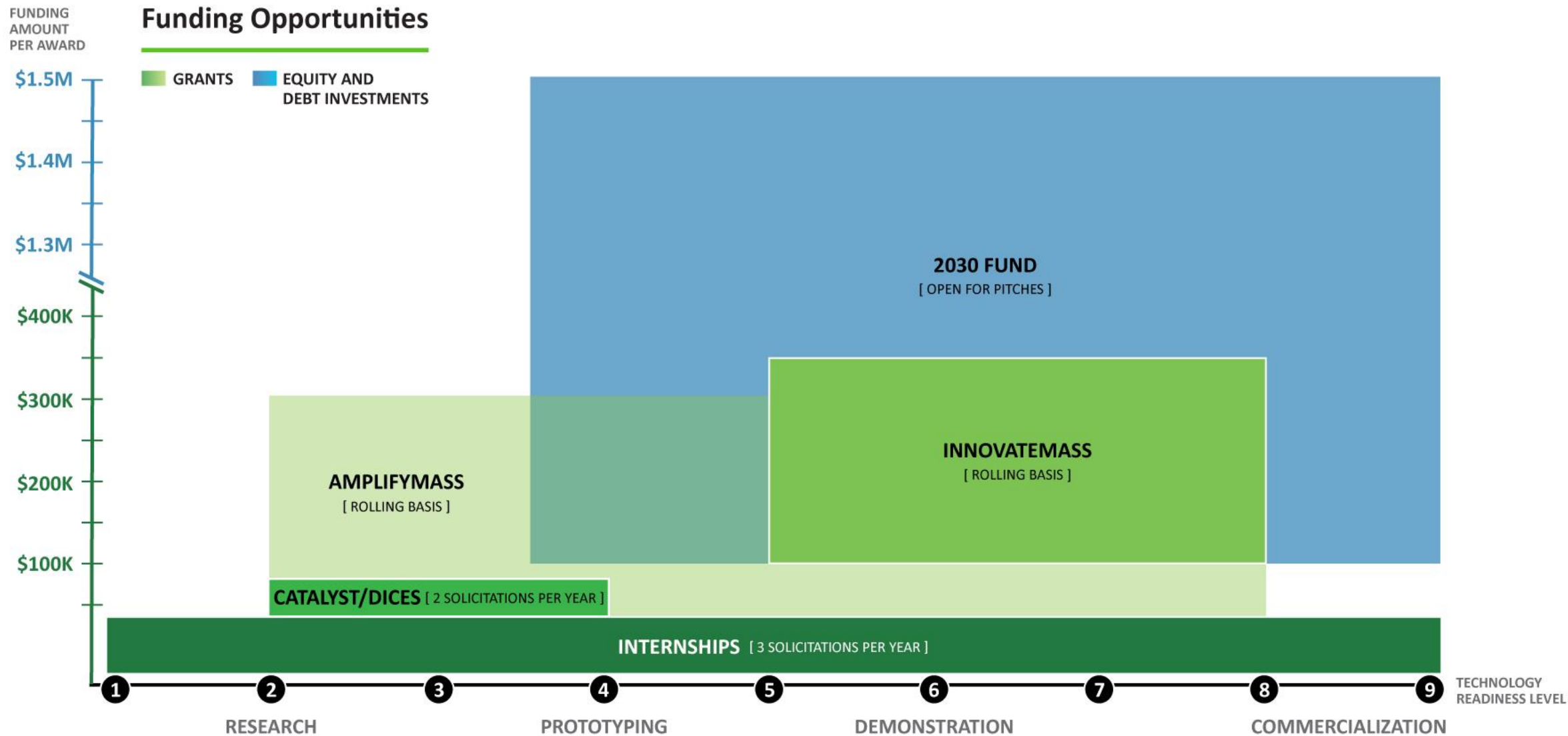
Offshore
Wind



Significant Decarbonization
(Other)



Tech 2 Market – Investments -- Workforce

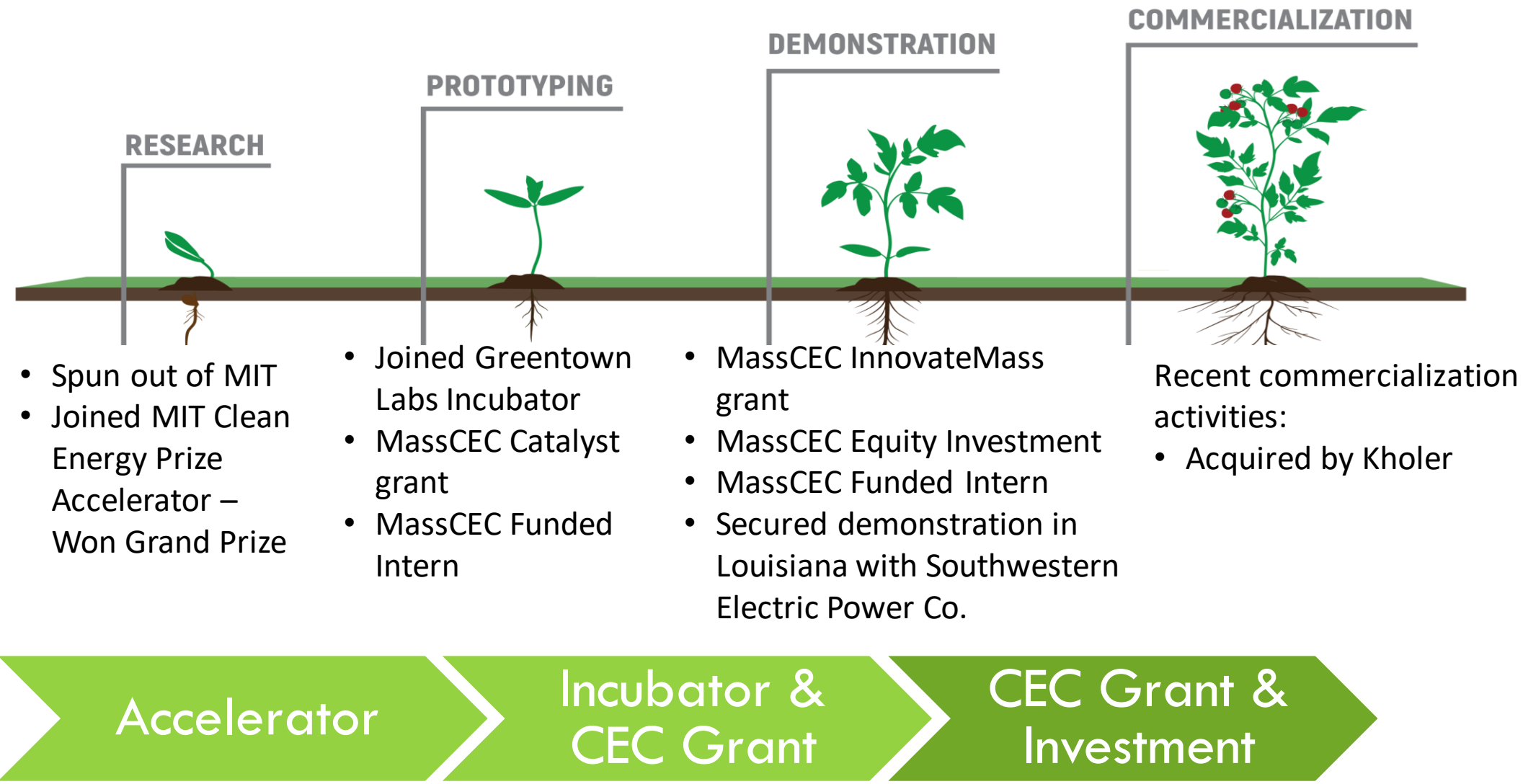


PATH TO COMMERCIALIZATION

EXAMPLE: HEILA

Focus Area:
Net Zero Grid

Heila Technologies is dedicated to simplifying the integration and operation of individual Distributed Energy Resources (DERs) through its Heila Platform.



MassVentures Overview

MassVentures' Mission & Activities

Support the innovation economy and economic growth initiatives of the Commonwealth by helping to transfer research and early-stage innovations to viable technology businesses and jobs.

MV Capital

Investment

Deep Tech Venture Fund
RLF loans

Non-dilutive Grants

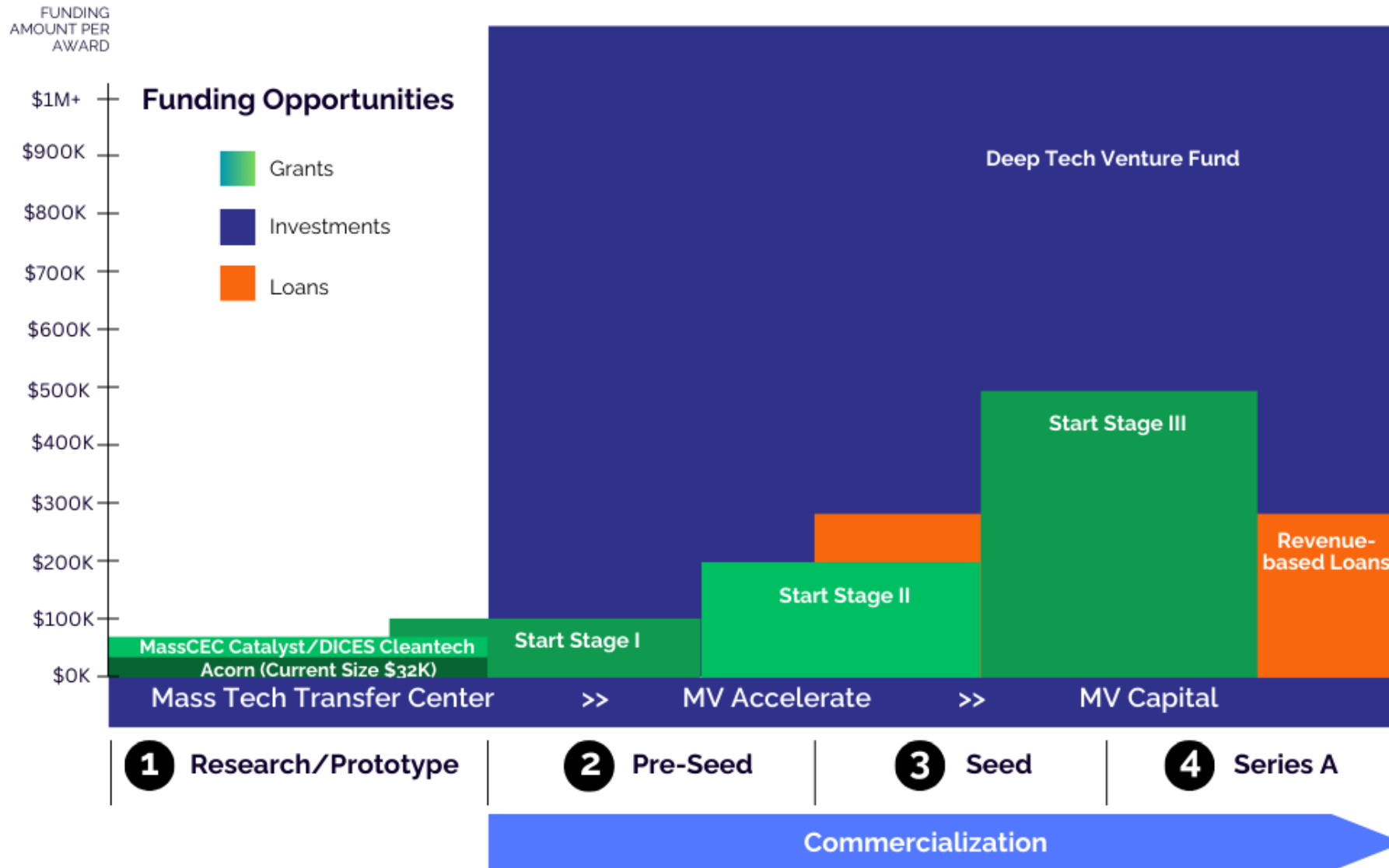
START grants
MassCEC Catalyst grants
Acorn Innovation grants

MV Accelerate

Commercialization Accelerator
Partner Program
MassVX
MassCEC InnovateMass
SBIR Support
MALSI
Mass Tech Transfer Center

From pre-investment to exit, offer mentoring & business guidance, grants, investments and follow on funding. Intentional in supporting founders who have diverse backgrounds or are from diverse geographies in the state.

MassVentures: Funding Opportunities by Technology Stage & Funding Amount per Award



Catalyst & DICES

Windows lose
\$200B/yr
in thermal energy
worldwide



Catalyst & DICES

Enabling researchers and young companies to develop prototypes



Support

- Grants of up to \$75,000 for cleantech prototype development
- Technical and business support from MassCEC and MassVentures



Timing

- Solicitations 2x/year. Spring & Fall
- Open now!



Eligibility

- TRLs 2-4
- Catalyst: MA-based startups & MA-based researchers
- DICES: MA-based eligible woman- and minority- owned startups

**Competitive
Two-Step
Application
Review Process**

Award Projects

**Business &
Technical
Support**

Catalyst and DICES Program Benefits

- Access to a vast network of partners
- Expert local market and policy insights
- Mentoring from MassCEC and MassVentures
- Finalist receive complimentary pitch coaching and business mentoring

Application Requirements

- ✓ Overview of technology and merit
- ✓ Clean energy impact
 - ✓ GHG avoidance from cost declines, efficiency improvements, etc.
- ✓ Commercialization potential and proposed business model
- ✓ Project plan (what, when, where, how much)
- ✓ Project budget summary
- ✓ Information on team members

What do we mean by “prototype”?

“a first, typical or preliminary model of something, especially a machine, from which other forms are developed or copied” (*Dictionary.com*)

- NOT basic research
- Early-stage technology design, development, and validation
- Test a concept, use to evaluate your design
- You are creating a “thing” – not an idea
- Real, working system or product
- Generating data to show the invention works

What are we looking for?

STRENGTHS OF THE PROJECT ✓

- ✓ Technical merit
- ✓ Technology is promising, new, and disruptive!
- ✓ Commercialization potential
- ✓ Market is large and/or growing, strong value proposition
- ✓ Market need exists
- ✓ Strong project plan
- ✓ Achievable within timeline and budget
- ✓ Will result in meaningful product development progress
- ✓ Knowledgeable team members
- ✓ Clear understanding on the steps needed for commercialization
- ✓ High likelihood of success

PROGRAMMATIC FIT



- ✓ Clean energy impacts
- ✓ Proposed technology demonstrates potential for measurable climate impacts through reduction of fossil fuel use
- ✓ Potential for follow-on funding
- ✓ Likelihood of market entry for university projects
- ✓ Likelihood of attracting private investment for start-ups
- ✓ High likelihood of success mattering

About- DICES

- MassCEC is committed to providing funding opportunities to Applicants who are underrepresented in the Climatetech industry or faced economic barriers entering the environmental or entrepreneurial landscape.
- The DICES Program seeks to provide access to funds and opportunities for those who can speak to how their lived experiences or economic context has caused barriers when entering the Climatetech industry.

Eligibility - DICES

Examples of Eligibility

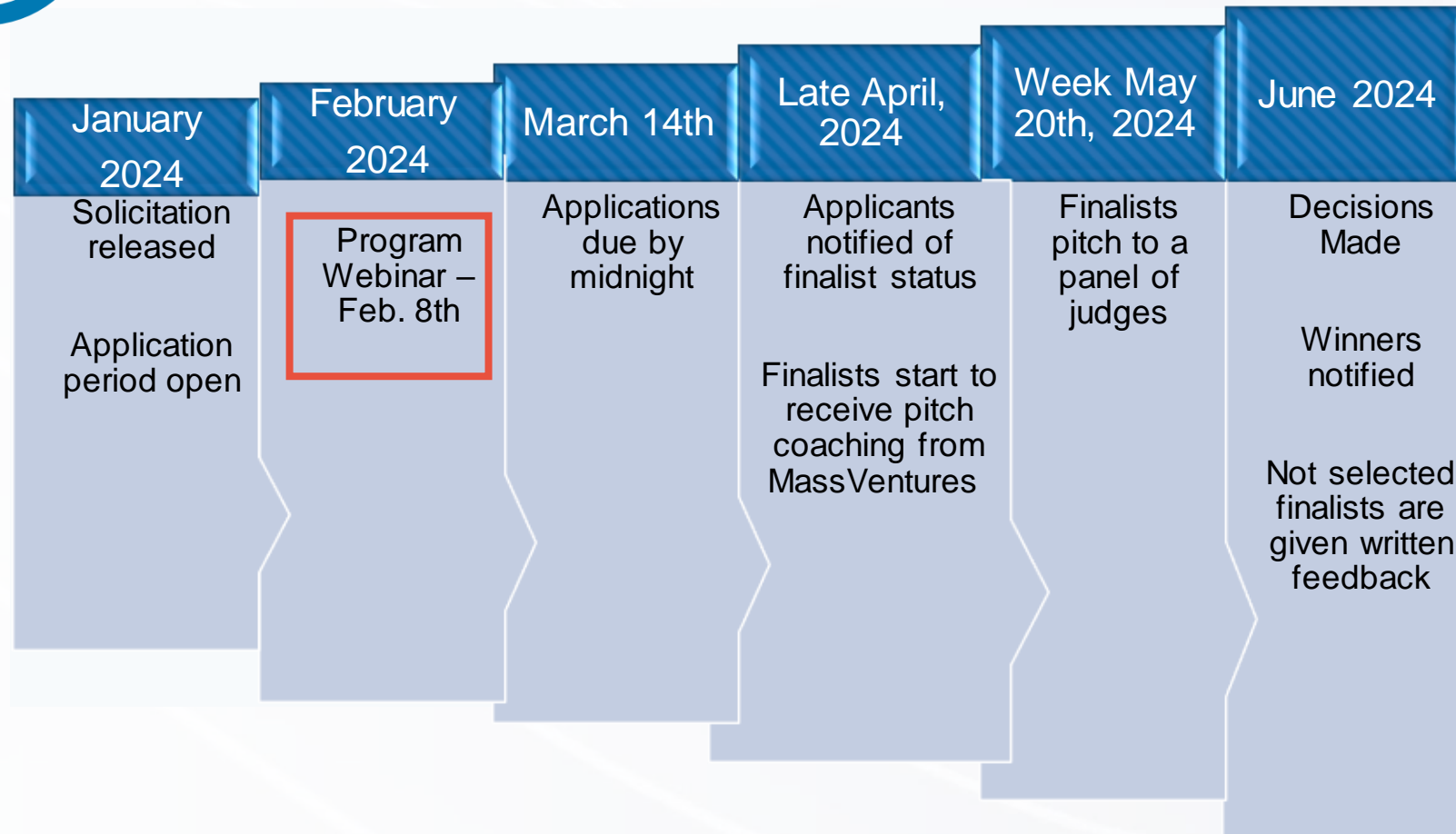
- Direct underrepresentation in the Climatetech ecosystem in Massachusetts
- Less support towards the commercialization of a Climatetech project or research
- Economic barriers to accessing or receiving capital for seed funding

How to Apply to DICES

- Meet all of the existing requirements for Catalyst
- Fill out all of the questions for the Catalyst Application
- Fill out section II on the application form to be considered for the DICES program
- Meet the intention of the DICES Program as described in the RFP



Timeline and Logistics



RECENTLY AWARDED PROJECTS

Lithios

Lithios is developing an environmentally friendly, low-cost electrochemical process which aims to revolutionize global lithium production by enabling access to untapped, low-grade brine resources.

Florrent

Florrent is developing ultracapacitors that pair with batteries which will enable utilities to reliably deliver power from renewable sources.

UMass Amherst

UMass Amherst is developing the wind Trawler, an autonomous, unmoored floating wind turbine.

Aloft Systems, Inc.

Aloft Systems is developing a self-contained Wind Propulsion Unit that will provide energy for ship propulsion without modifying the ship.

INNOVATE MASS



Providing support to startup companies as they deploy early demonstration projects



Support

- Grants of up to \$350,000
- Company must provide 25-50% cost share (of award)
- Technical and business support from MassCEC and MassVentures



Timing

- Applications are accepted on a rolling basis, but with 3 cohort deadlines per year until the earlier of funding is exhausted or June 30, 2024



Eligibility

- MA-based startups with a demo site anywhere
 - Non-MA-based (but US-based) startups with a demo site in MA with a tech in a MassCEC focus area
- TRLs 5-8

**Competitive
Two-Step
Application
Review Process**

Award Projects

**Business &
Technical
Support**

RECENTLY AWARDED PROJECTS

Sol Clarity, Inc.

Scaling up Electrodynamic Screen (EDS) from lab-scale prototype to full scale. EDS removes dust and dirt from solar panels using static electricity and generated electric field.

Valis Insights Inc.

Developing VALI-Sort, a software tool for nonferrous scrap processors that delivers real time quality monitoring and material sorting optimization for enhances material recovery and profitability.

Osmoses

Developing a membrane comprised of a novel family of polymers with exceptional gas separation performance, particularly for mixtures containing CO2 like refrigerant in air-conditioning.

CF Technologies

Demonstrating the conversions of second-generation feedstock, like brown grease, into marine biofuel, by using its supercritical fluid technology.

AMPLIFYMASS





Support

- Cost-share or adder grants for a prime award
- Up to \$300,000



Timing

- Applications are accepted on a rolling basis
- Applications must be submitted to MassCEC before the primary funding is contracted



Eligibility

- Companies must be a small business and be based in MA
- MA-based universities or non-profits
- TRLs 2-8

**Competitive
Two-Step
Application
Review Process**

Award Projects

**Leverage
Federal Funding**

RECENTLY AWARDED PROJECTS

Fraunhofer USA

Aiming to develop a novel, technology-assisted approach to conducting thermal retrofits in buildings.

ADL Ventures

Aiming to establish a national advanced building construction collaborative that convenes key industry players, provides technical support to business owners, and deploy highly enabling technologies to reduce constructions carbon footprint.

NewGrid, Inc.

Developing a grid optimization technology with the potential to reduce the cost of grid congestion by 25-50%, saving over \$1B annually

WPI (Center for Advanced Research in Drying, Professor Yagoobi)

Multi- year effort focused on reducing energy consumption in drying processes within the food and agriculture, pulp and paper, chemicals, and pharmaceutical industries.

Questions?

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Esargent@masscec.com

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Workforce Funding Opportunities

The MassCEC Clean Energy Internship Program

TAP INTO THE NEXT GENERATION OF THE CLEAN ENERGY WORKFORCE!

Fall enrollment starts
in mid-July

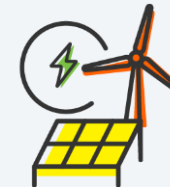
Apply online: masscec.com/user



EMPLOY STUDENT WORKERS
FUNDED BY MASSCEC



MENTOR A NEW GENERATION
OF CLEAN ENERGY PROFESSIONALS



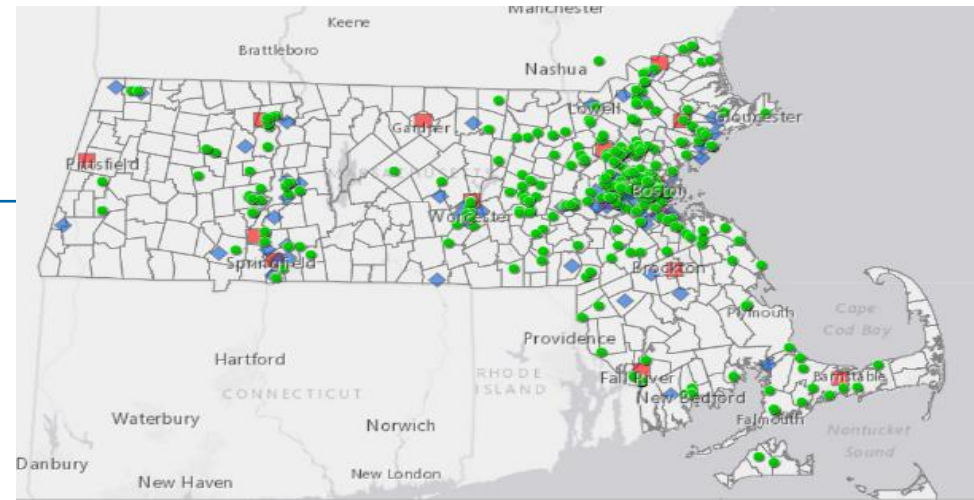
FIND AND HIRE YOUR NEXT
STAR EMPLOYEE!

MassCEC Clean Energy Internship Program

Paid internship opportunities for college students at
Massachusetts-based clean energy companies

PROGRAM LOGISTICS

- Students and Employers apply via www.masscec.com/user/login
- 3 sessions per year
 - **Fall 2023 session will open in mid-July**
- Companies may host up to 3* interns per session
- 30 spots reserved for students & companies located in Gateway Cities
- Employers reimbursed for 12 weeks of an intern's work at the host company
- MassCEC reimburses employers at the conclusion of the session. Cap is \$4,320/intern (spring/fall) \$8,640/intern (summer)



SUCCESSES TO DATE

- Placed over **5,000 interns at 600+ companies** since 2011
- Over 1,000 **students** have gained full or part-time employment at their host companies
- 283 companies and 1,100 students applied for the summer 2023 session
- Overwhelming participant satisfaction with the program to-date
- International students are eligible to participate.

Investment Opportunities

MassCEC Investments: The 2030 Fund

Strategically investing in MA-based startups
Providing funding for teams solving critical climate problems

How We Invest

Stage	Technology	Purpose
<ul style="list-style-type: none">Pre-Seed & Seed:Formal company incorporationPost-prototypePre-commercialFocus on R&D, first customer	<ul style="list-style-type: none">Clean transportationOffshore windNet Zero gridHigh performance buildingsOther decarbonization areas	<ul style="list-style-type: none">CountercyclicalDrive climate impactCatalyze private capitalStrategic and financial returnsReturn value to MA ratepayerCreate MA jobs, export MA innovation



\$50M
Total Fund Size

\$250K-\$500K
Typical First Check Size

Investment Types:

- Simple Agreement for Future Equity (SAFE)
- Convertible Note
- Equity
- Venture Debt

What We Offer

- High risk tolerance, early investor
- Extensive in-house expertise
- Value-add with other MassCEC programming (Grants, Workforce Development, Internship Funding)
- Intersection of public and private innovation
- Support through Series A, then handoff to later-stage investors
- Patient, longer-term capital
- Strategic advisor
- Extensive co-investor network
- Connections to other government funding and resources

How We Create Value

High Impact
Sustainable
Cost-Effective



62M+
Metric Tons
CO2e Avoided



500+
Jobs Created



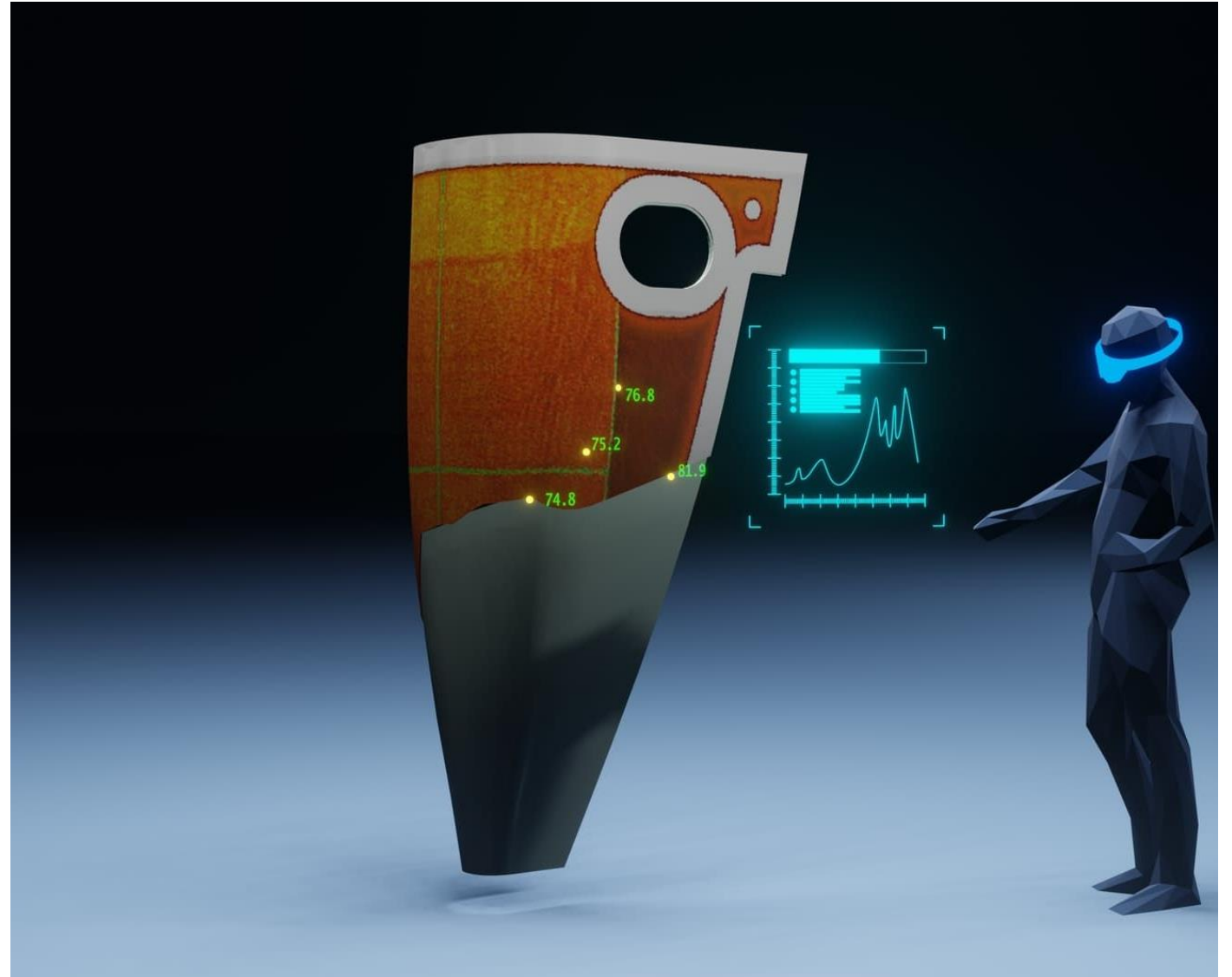
\$1.3B
Leveraged
Capital



Seeking investment or partnership?
Contact us at invest@masscec.com

[MassCEC portfolio page](#)

JUDGING & REVIEW OPPORTUNITIES



HOW CAN YOU GET MORE INVOLVED WITH MASSCEC?

- Help us promote the programs- tell your cleantech network about these funding opportunities
- Do you work for an organization that might want to collaborate with MassCEC? Reach out to us!
- Volunteer to review and/or judge MassCEC proposals

We maintain a list of contacts and then call upon those contacts on an as needed basis throughout the program rounds. This is always a no-obligation process!

1. **Written reviews:** these usually take about 1-2 hours per application (up to 3 apps at a given time) to review and are over email. These are assigned to reviewers based on topic area. Reviewers complete a reviewer template. (no more than 4x/year)
2. **Pitch days:** these pitch day competitions are usually 5-7 hours and include a set of pitches from the finalists of a given program round. You would be sitting on a panel of judges and interacting with the startups and other judges directly. (no more than 3x/year)

QUESTIONS?

