



MASSACHUSETTS
CLEAN ENERGY
CENTER®

MASSACHUSETTS Climatetech Economic Development Strategy & Implementation Plan

February 2025



MESSAGE FROM THE AUTHORS

When the Massachusetts Clean Energy Center (MassCEC) was established in 2008, climatetech was a nascent industry in the Commonwealth. Over the last 16 years, MassCEC has grown and guided the success of the ecosystem, broadening over time to drive progress across an expanding range of climatetech sectors in the clean energy space and beyond. Massachusetts now finds itself at a pivotal moment. The global race to develop a competitive edge in clean energy and climatetech is on as our communities are weathering mounting impacts from climate change. Breakthrough technologies will play a critical role in helping us reduce emissions cost effectively and making our infrastructure more resilient. Beyond direct climate impact, climatetech represents a new frontier of growth that Massachusetts can leverage to drive equitable economic development and job creation.

In light of this, the MA Climate Chief's October 2023 report recommended that MassCEC, in consultation with the Executive Office of Economic Development (EOED), develop a comprehensive strategy and implementation plan for climatetech economic development, aligned with the Healey-Driscoll Administration's vision – outlined in its Economic Development Plan – to become a global leader in climatetech. To build on this momentum, capitalize on growth opportunities, and rise to meet the existential challenge that climate change poses for the Commonwealth and the world, the Commonwealth puts forth this strategy.



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MassCEC CEO



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Melissa Hoffer
Climate Chief



Yvonne Hao
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Development

This strategy aims to bring together the full potential of Massachusetts to grow as a global climatetech leader while driving an equitable Net Zero economy & climate resilient future.

Massachusetts has a strong foundation to build on to reach its goal of becoming a global climatetech leader. It is the second-largest climatetech ecosystem by investment in the country over the last five years, and excels across sectors including offshore wind, grid efficiency, EV charging, industrial decarbonization, and more. This work also builds on the Commonwealth's proven track record of using deliberate state investments to drive leadership in cutting-edge industries like life sciences. Given the rapidly evolving landscape of climatetech, and the state's strength across many sectors, this strategy will primarily focus on strengthening the Commonwealth's opportunity to win where it is most likely to do so – our "right to win" -- across select stages of company and technological maturity vs. prioritizing specific sectors.

MassCEC – as the home for climatetech in Massachusetts – in partnership with EOED and other state agency partners, is well-positioned to drive MA's leadership, leveraging extensive industry expertise and proven track record executing a diverse range of programs. This strategy offers a framework to drive this work and is the beginning of what will be a transformative, collaborative effort for the Commonwealth. We extend our deep appreciation to the many organizations that have given input on this strategy, and looking ahead, we are grateful to the broader set of partners who will be instrumental in advancing this important work.

Sincerely,

**To inform this strategy,
we leveraged insights
from...**

100+ individuals
interviewed from across the
climatetech ecosystem

10+ geographies
exhibiting climatetech leadership
across the US and the world

400+ climatetech assets
mapped across the state to identify
clusters & gaps (e.g., companies,
accelerators, and more)

...and more
including extensive analysis of
investment & innovation and
statewide activity mapping

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EXECUTIVE SUMMARY

WHY MASSACHUSETTS NEEDS TO ACT

A unique, time-limited opportunity to be a global climatetech leader

The climate crisis requires urgent innovation...

34% of the path to Net Zero requires technology not yet on the market – MA is a climatetech innovation leader that can develop and scale these technologies, while leveraging this market opportunity

The transition presents an opportunity to drive growth across MA...

The climatetech industry is growing at 25% per year with headroom for further growth and equitable job creation in key sectors for MA

Federal investment flow is uncertain...

As the new federal administration signals a shift away from climate innovation, MA must bolster its existing strengths and catalyze private investment

...but competition is accelerating

Since 2021, MA's share of climatetech investment in the US has declined while other states' climatetech industries have accelerated

WHAT THIS STRATEGY WILL ACHIEVE



Grow, retain, and attract climatetech companies as they scale and commercialize



Drive equitable growth & create high-quality jobs in every region across the state



Expand leadership to become the destination for climatetech capital and investment



Remain the #1 state for R&D and innovation in climatetech, building on existing strengths

WHAT IS CLIMATETECH?

"Climatetech" encompasses innovative technology solutions that mitigate the impacts of climate change and help communities adapt & build resilience to climate change



MITIGATION TECHNOLOGIES

capture or reduce greenhouse gas (GHG) emissions to reduce the impacts of climate change

Decarbonize energy sources through renewable and clean energy and grid modernization



Reduce energy need across transport, buildings, industry, and other sectors of the economy



ADAPTATION & RESILIENCE TECHNOLOGIES

help prepare people, communities & infrastructure for the impacts of climate change

Examples include climate-smart planning, reducing embodied carbon, improving grid resilience, strengthening infrastructure, and using nature-based solutions to reduce climate change vulnerability



MASSACHUSETTS IS A NATIONAL AND GLOBAL LEADER

in climatetech investment, with a world-class climatetech innovation ecosystem

The Commonwealth's robust climatetech ecosystem is anchored on many elements, including...

INNOVATION	INVESTMENT	WORKFORCE & EDUCATION	POLICY & AMBITION
#1 in US climatetech startups per capita ¹	#2 largest US climatetech ecosystem over past 5 years ³	#2 in clean energy jobs per capita ⁴ (#7 overall)	#1 most environmentally friendly state ⁶
#3 in US climatetech patent filings ²	\$14B invested in climatetech since 2019 ³	#1 most educated state in US across degree levels ⁵	Net Zero Target by 2050 <i>One of 15 states with NZ target</i>

1. Powerhouse | The Geography of Climate Tech: Findings from Powerhouse's Data. 2. 2022-23 (>3k total). BCG Greentech Portal informed by natural language processing of United States Patent and Trademark Office filing data. 3. Based on 5-yr total investment (2019-23). BCG Greentech Portal investment data informed by multiple sources including Pitchbook. 4. E2 Clean Jobs America 2023 Report. 5. US Census American Community Survey, based on HS diploma, Bachelor's, and advanced degree attainment. 6. Forbes Sustainability Index ranking of 50 states' environmental policy based on water use, energy use, solar friendliness.

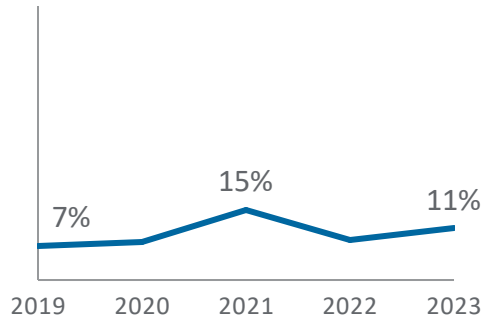
MASSACHUSETTS MUST CLOSE GAPS TO STAY COMPETITIVE

as other states expand climatetech activities and ecosystems

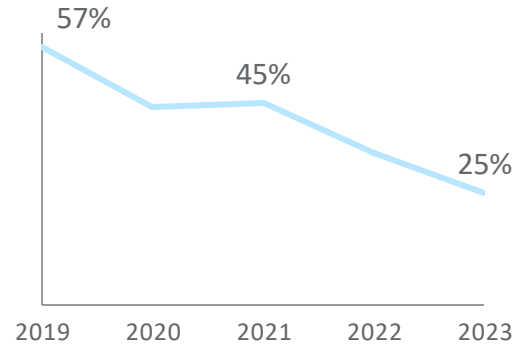
Share of total climatetech investment by state (%)¹

Includes venture capital, institutional, private equity, corporate, angel, accelerator and incubator investments

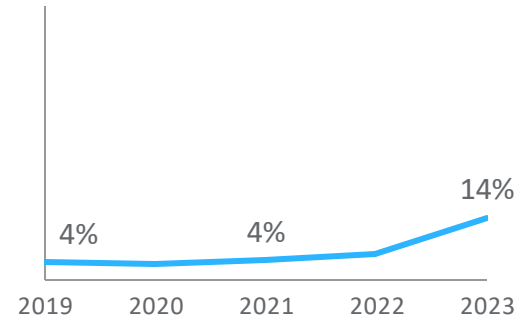
Massachusetts



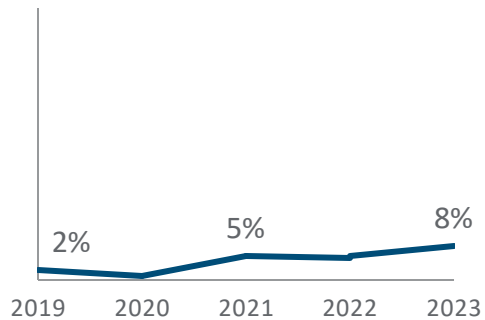
California



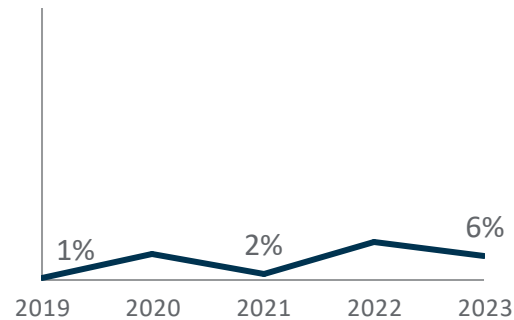
New York



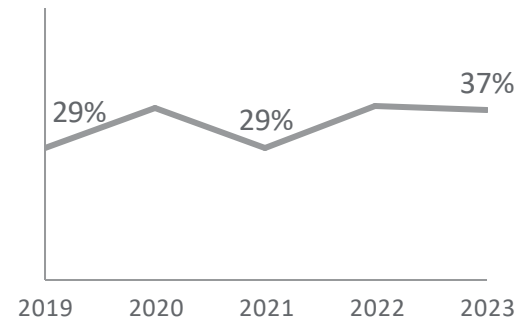
Texas



Illinois



Other states



Overall climatetech investment has declined since a peak in 2021-22, in line with broader market trends.

Since 2021, amid this trend, MA and CA shares have declined (-4pp and -20pp, respectively).

Meanwhile other states have increased share, particularly NY where deep government support has helped drive growth (+10pp). Over the past 5 years, MA received the 2nd largest total investment, but single-year investment levels in NY surpassed MA in 2023.

More broadly, while MA excels across early-stage innovation, it struggles to consistently retain firms as they progress towards commercialization.

Source(s): BCG Greentech Portal investment data informed by multiple sources including Pitchbook. 1. Includes VC, institutional, PE, corporate, angel, and accelerator/incubator investors. May not be exhaustive of all climatetech investment. Highlighting top 5 states based on total investment from 2019-23.

A NEW CLIMATETECH STRATEGY

To bring together the full potential of the state to grow as a global climatetech leader while driving an equitable Net Zero economy & climate resilience, MassCEC in partnership with EOED and other state agencies will...

INVEST

Fund companies and infrastructure to support climatetech growth in MA

- 1 **Provide funding supports to climatetech firms** across stages, including grants and tax incentives
- 2 **Invest in shared infrastructure & equipment** to build a testing & demonstration network grounded in regional clusters and support targeted deployment efforts (e.g., offshore wind)
- 3 **Provide funding supports to installation, maintenance, and supply chain** partners, particularly MWBEs¹

ACCELERATE

Make Massachusetts the best place for climatetech companies to do business

- 4 **Drive equitable training & career advancement** to meet evolving climatetech workforce needs
- 5 **Build markets for emerging tech** by stimulating demand among early customers (e.g., #1-100), facilitating early-customer matching, and supporting green procurement
- 6 **Coordinate the development of move-in ready spaces & manufacturing sites** for climatetech to help firms expand quickly

CONNECT

Enhance and promote the MA climatetech ecosystem on a state and global scale

- 7 **Provide hands-on concierge supports** to connect companies with the resources & partners they need to scale
- 8 **Convene & strengthen networks** to build a statewide Climate Corridor leveraging the full strength of the Commonwealth
- 9 **Amplify awareness** of state supports and MA's global climatetech leadership through communications, marketing, and events

OVER THE NEXT 10 YEARS, THIS STRATEGY WILL...

Create massive economic opportunity across the Commonwealth...

Support 1.3K companies ¹	Create 35K jobs ²	Train 25K individuals	Attract 7x in additional funds ³
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Climatetech growth will support companies across sectors and equitable job creation across multiple pathways from career and technical education and registered apprenticeship programs to community colleges through graduate programs

...and accelerate progress towards state & global climate goals

34%
of the emissions reductions
required to reach global Net
Zero targets will come from
tech not yet on the market

Climatetech will play a
crucial role in MA's path to
Net Zero
by 2050

Reducing statewide GHG emissions will help mitigate climate change, improve health and wellbeing across the state (especially in environmental justice communities), and increase energy affordability

1. Total companies directly funded by MassCEC, supported by MassCEC-funded incubators/accelerators, or receiving non-financial supports and services from MassCEC. 2. New jobs created in next ten years (assumed in increase in FY26 funding maintained annually). 3. Additional private and federal investment received by MassCEC awardees. Note: Estimates based on historic MassCEC program data on program participants, jobs created, and leveraged funds, as well as third-party analyses (e.g., from the Donahue Institute) and benchmark examples (e.g., MLSC tax incentive outcomes). As estimates are drawn from historic averages, actual impact of FY25 MassCEC spend may slightly differ due to different ecosystem and macroeconomic conditions; values shown here are intended to be approximate and directional. This estimate includes repeat companies often seen across both tech to market and investment programs. Sources: International Energy Agency's Net Zero Roadmap, MA Climate Targets. Historic MassCEC program data, third-party analyses (e.g., from the Donahue Institute) and benchmark examples (e.g., MLSC tax incentive outcomes)



CLIMATETECH &

ITS IMPORTANCE FOR MASSACHUSETTS



CLIMATE TECH encompasses a wide range of tech solutions across sectors that further mitigation, adaptation, and resilience

Mitigation

capture or reduce greenhouse gas (GHG) emissions

Adaptation & Resilience

prepare for, and respond to, the impacts of climate change

Enabling Solutions (leverage AI, data systems, etc. to achieve climate goals)

Energy

Increasing renewable energy generation (e.g., offshore wind), improving energy efficiency, modernizing the grid leveraging batteries and energy storage technology

Industry and Manufacturing

Adopting carbon reducing technologies and processes, and implementing sustainable production practices through a circular economy

Transportation

Transitioning to zero-emissions vehicles (e.g., electric vehicles), enhancing public transit, and promoting alternative fuel options

Agriculture, Food, and Nature

Adopting sustainable farming and forest management practices, developing alternative proteins, and leveraging nature-based solutions

Buildings

Improving energy and heating efficiency, transitioning to renewable energy sources, and implementing sustainable construction practices

Carbon Management

Developing and deploying carbon removal technologies, including bioenergy with carbon capture, direct air capture, and blue carbon technology

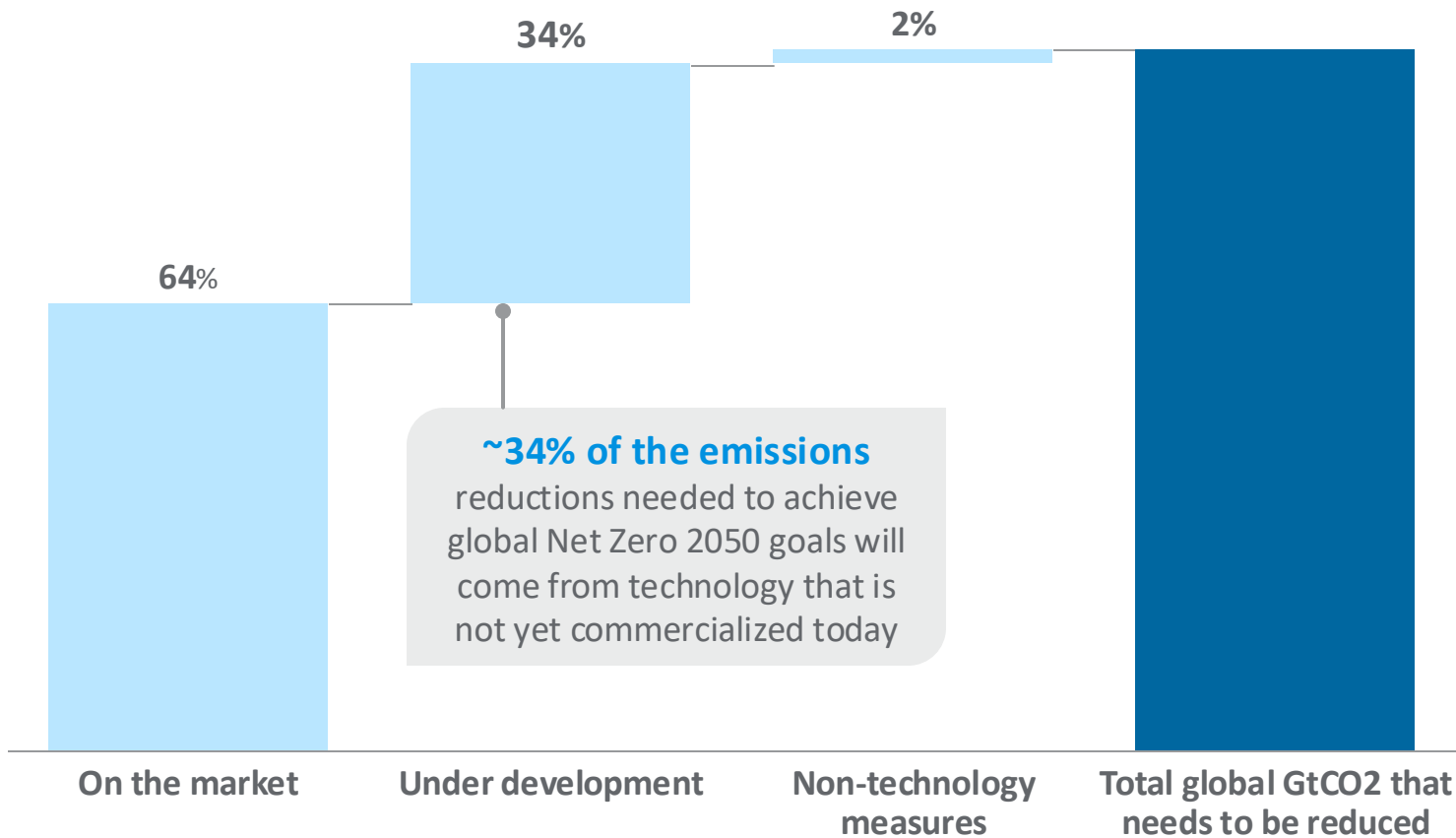
Adaption & Resilience

Implementing climate-smart planning, strengthening infrastructure, and promoting nature-based solutions to reduce vulnerability to climate change with a focus on equity

BREAKTHROUGH TECHNOLOGIES ARE NEEDED

to achieve climate goals on a global and state-level

Stages of development for technology required to reach global 2050 net zero goals (2024)



Massachusetts' innovation ecosystem can catalyze these technologies' maturing and scaling¹.

Climatetech advancements will play a crucial role in Massachusetts reducing its GHG emissions from ~64 million metric tons of CO₂ equivalent to its net zero GHG emissions goal by 2050².

1. International Energy Agency: Net Zero Roadmap; 2. Massachusetts Clean Energy and Climate Metrics

WE RECEIVED INPUT FROM ACROSS THE CLIMATECH ECOSYSTEM

100+ individuals have provided input into this strategy (e.g., through interviews) from several dozen organizations, including...

Climatetech Companies & Investors



Higher Education & Research Institutions



MA State Agencies & Partners



Key Ecosystem Players



Not Exhaustive



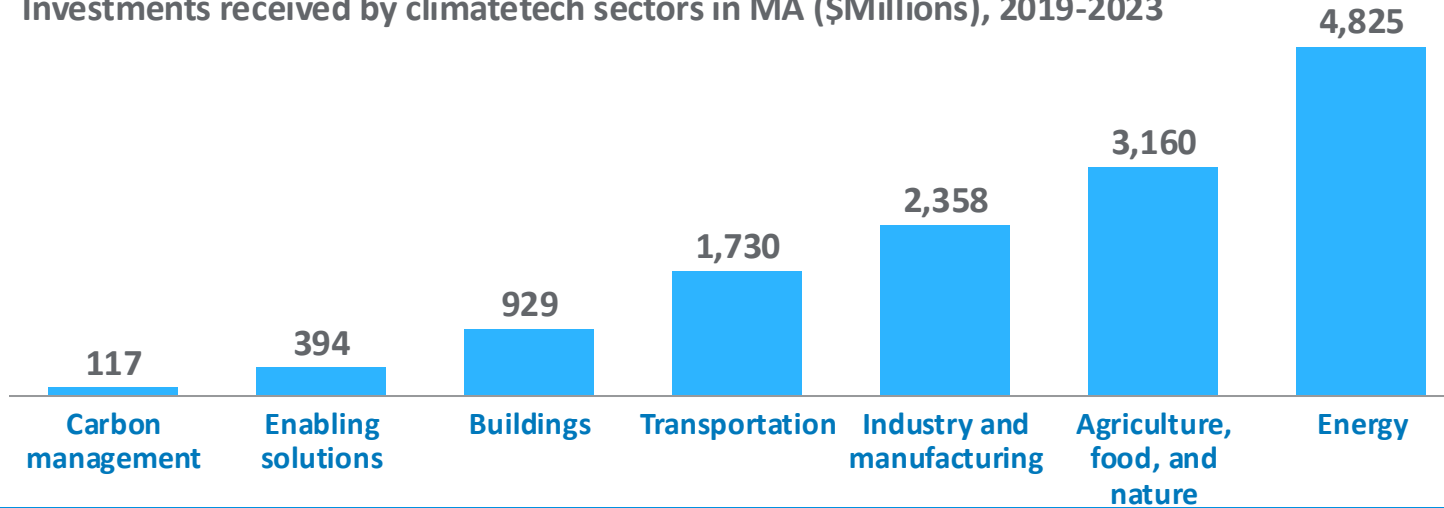
CURRENT STATE

OF CLIMATE TECH IN MASSACHUSETTS

MASSACHUSETTS RANKS IN TOP 3 STATES

across 5 of 7 sectors for total investment in climatetech

Investments received by climatetech sectors in MA (\$Millions), 2019-2023



MA state rank	5	4	2	2	1	2	3
% of total US \$	6%	5%	11%	6%	16%	15%	12%
% of MA emissions	N/A	N/A	30%	37%	10%	<2%	20%
Example subsectors of strength in MA	Marine carbon dioxide removal	Measurement, reporting, & verification tech	Sustainable materials (e.g., concrete)	EV charging infrastructure	Recycling & regeneration	Alternative proteins	Grid modernization technologies

The majority of climatetech investment in Massachusetts since 2019 has focused on energy and agriculture, food, and nature sectors.

Massachusetts has captured more than 10% of total US investment in four of seven sectors.

Massachusetts is a leader in several sectors central to its own decarbonization pathway, key subsectors of which represent growth opportunities for the state (e.g., EV charging, grid modernization).

Note: while there is not yet measurable, dedicated investment in adaptation & resilience technologies in MA, some carbon management and enabling solutions (e.g., MRV) likely have A&R applications. Source: BCG Greentech Portal informed by natural language processing of United States Patent and Trademark Office filing data; Massachusetts Clean Energy and Climate Plan for 2025 and 2030



SCALING CLIMATETECH SOLUTIONS

Climatetech firms look different and have different needs depending on their stage of development

	Research & Development	Prototype Validation	Pilot & Launch	Scaling	Full Scale Deployment
Definition	Prove technology concept in laboratory setting	Prototype & first demonstration in a relevant environment	Pilot & demonstration in real-world conditions, sell to first customers <i>(e.g., first-of-a-kind facility)</i>	Scale manufacturing footprint & ramp commercial sales <i>(e.g., facility #2)</i>	Scale & transform markets, iterate on tech, & continue to scale footprint
Scale (approx.)	Technology Readiness Level (TRL)¹ 1-3 ~1-5 employees	TRL 4-6 ~5-50 employees	TRL 7-8 ~25-250 employees	TRL 9+ ~250-1k employees, ~100k+ ft ²	Largest scale operations 500+ employees, ~1M+ ft ²
Illustrative Firms					
	▲ Technology Valley of Death	▲ Commercialization Valley of Death	▲ Profitability Valley of Death		

1. Technology Readiness Levels (TRL) are used to understand the maturity of a technology (more information [here](#))

MASSACHUSETTS EXCELS ACROSS EARLY-STAGE INNOVATION

but struggles to consistently retain firms as they progress towards commercialization

	Existing leadership	Highest economic development potential for MA			Prioritize selectively
	Research & Development	Prototype Validation	Pilot & Launch	Scaling	Full Scale Deployment
Strengths	World-renowned R&D & innovation ecosystem drives leadership in climatetech research and robust innovation clusters of high-tech startups with roots in the Commonwealth	Foundation of assets for testing and demonstration, high-skilled talent, and proximity to existing research partners make Massachusetts a strong piloting and prototyping ecosystem	In addition to advantages of proximity to existing operations and partners, talent pools across degree profiles and ample supply chain networks make the state a compelling host for first-of-a-kind facilities	Beyond workforce & ecosystem benefits that apply across stages, in particular for advanced manufacturing, MA is bought in on climate action leading to higher adoption rates in key sectors	MA is a strong fit to host R&D and HQ for large firms, and should pursue full-scale deployment only in targeted cases where MA has a clear advantage (e.g., in select sectors like offshore wind)
Challenges	Awareness & navigation of resources across agencies and MassCEC is complex and labor-intensive for all firms, particularly early-stage firms with limited capacity	While there is a strong foundation of testing assets, gaps remain across the state, and it is difficult to find the right sites & testing partners	Beyond high operating costs, complex siting processes and challenges connecting to the right partners lead to delays when speed to readiness is critical	High operating costs and constraints across land, labor, and electricity limit the feasible scale of manufacturing for many companies	Limited land availability and high costs constrain MA's capacity for the largest-scale operations and manufacturing, indicating need for more opportunistic focus on retaining companies at this stage
	▲	▲	▲		
	Technology Valley of Death	Commercialization Valley of Death	Profitability Valley of Death		



INNOVATIVE SOLUTIONS

IN OTHER STATES



INNOVATIVE APPROACHES

Several key state-led success factors emerged from analysis of climatetech ecosystems in other states and countries

Current State in Massachusetts

Invest

Direct incentives and non-dilutive funding: MA agencies offer many funding programs, particularly for early-stage companies, but most award amounts are modest (median MassCEC award was ~\$75K in FY23), and supports are more limited for firms at capital-intensive commercialization stages and beyond

Capital investments in infrastructure: While the state has a strong foundation of pilot-scale demonstration facilities & assets, navigation complexities, insufficient supply, and regional gaps pose challenges for firms maturing beyond R&D

Accelerate

Green procurement: While green procurement policies exist in MA, targets, mandates, and advanced commitments are less ambitious compared to other states (though proposals exist to this end, including for an embodied carbon reduction plan), and complex vendor requirements preclude earlier-stage companies from many opportunities

Connect

Navigation resources: Ample resources exist across MassCEC and other agencies, but finding them is complex and labor-intensive as navigation supports are fragmented and ad-hoc

Convening ecosystem partners: Boston held an inaugural ClimaTech Conference in 2024, but additional efforts are required to boost participation and awareness of the event, and to message the state's climatetech value proposition more broadly

Most Competitive Jurisdictions Provide

A robust continuum of funding supports across stages of maturity, including more generous award amounts and financing in targeted cases

✓ *e.g., California's Infrastructure & Economic Development Bank offers loan guarantees up to \$5M or 80% to de-risk lending to climatetech firms*

Capital investments in shared, flexible infrastructure that meet the needs of companies graduating from early-stage incubators as they scale and commercialize technology

✓ *e.g., NYC is building a \$100M Climate Innovation Hub for tech commercialization*

Ambitious green procurement targets & commitments that leverage the scale of state purchasing to create opportunities & market signals

✓ *e.g., California's green procurement policies set sector-specific GHG limits*

Dedicated contacts to provide concierge support to climatetech companies navigating regional agencies and resources, including asset maps

✓ *e.g., Canada's Clean Growth Hub provides resources across 18 federal agencies*

High-profile conferences bringing together ecosystem players, and **partner-matching events** tailored to startups' stages (e.g., testing & demonstration, first-customer matching for commercializing firms)

✓ *e.g., Climate Week NYC reaches 6.5+ million people*



THE STATE OF NEW YORK

provides a range of navigation supports and runs proactive outreach campaigns to climatetech companies

Impactful Programs and Services

Invest

Direct support for climatetech companies: New York has higher levels of flexible funding to accelerate clean energy market opportunities through a \$7.6B Clean Energy Fund, including \$600M+ dedicated to driving business growth

Ambitious infrastructure investments: New York City is building a premier \$100M Climate Innovation Hub at the Brooklyn Army Terminal for business development, incubation, and research commercialization

Accelerate

Decreasing frictions in securing sites: NYSERDA's Build-Ready program identifies under-utilized land in partnership with communities and readies it for private renewable energy developers

Incentives for state procurement: Buy Clean Concrete legislation will be implemented in 2025 for state agencies and the department of transportation with bid credits to encourage use of low carbon concrete and mandated Environmental Product Declarations

Connect

Tailored relationship management: NYSERDA connects businesses to local points of contact, potential sites, municipal utilities that offer incentives for manufacturing, etc.

High-profile conferences: Media from Climate Week NYC, which coincides with the UN General Assembly, reaches 6.5+ million people and connects 50+ companies and individuals from 100+ countries

Opportunities for Massachusetts

Increase total envelope of grants and loans for startups across stages of tech maturity, including commercialization stages and beyond

Make targeted investments in shared innovation infrastructure around regional climatetech hubs

Prioritize development of "build ready" sites for manufacturers (e.g., identify attractive existing unused facilities and secure permitting for range of operations)

Progress green procurement reform to drive state activity as a customer, particularly for sectors reliant on public procurement (e.g., buildings)

Provide white-glove navigation services, facilitating access to relevant agency and regional resources for climatetech companies

Host and amplify climatetech convening and connection events, bringing together entrepreneurs, investors, and policymakers to highlight the state as climatetech hub



THE STATE OF CALIFORNIA

makes aggressive climatetech investments and provides a robust testing and demonstration network

Impactful Programs and Services

Invest

Success leveraging federal funds: California's Electric Program Investment Charge (EPIC) cost-share program matches up to 50% of project cost for specific federal funding opportunities up to \$7.5M

Funding tech demonstrations: EPIC funded 22 demonstration projects which have led to 4,000+ deployments; EPIC directed \$75M to tech demonstration and deployment and \$16M to market facilitation in 2021

Robust network of state-wide testing and demonstration sites: CalTestBed provides ~\$2.7M annually in vouchers (up to \$300K per award) to use at one of 70+ testing facilities at University of California campuses; an online directory outlines technology supported at each site

Accelerate

Sector-specific incentives: California's green procurement policies enable market development through central procurement mechanisms, state fleet EV mandates, and sector-specific GHG limits for procuring concrete

Connect

City-hosted climate conferences: SF Climate Week is organized by Climatebase in collaboration with the City of San Francisco, drawing 18.5k attendees and featuring 300+ events for organizations to deepen industry connections, hear from subject matter experts, and explore new technology

Map of assets across the state: CA's Empower Innovation Network has a searchable directory of resources, databases, and testing facilities

Opportunities for Massachusetts

Provide technical assistance for federal funding applications to increase competitiveness

Expand match funding and cost-sharing supports to satisfy requirements for federal grants

Make targeted capital investments in testing, demonstration, and incubation facility needs (e.g., advanced manufacturing equipment)

Expand competitive grants, including through expanded voucher program to facilitate access to universities and private labs

Progress green procurement reform to drive state activity as a customer, particularly for sectors reliant on public procurement (e.g., buildings)

Increase the frequency of partner matching and industry networking across startups, investors, and out of state venture capital firms

Create a system to manage inbound requests from climatetech firms with package of relevant supports

Offer a map of state assets including a repository of R&D, education, infrastructure, and natural assets



MASSACHUSETTS' NEW

CLIMATE TECH STRATEGY



Invest

MassCEC will lead state efforts to...

Fund companies and infrastructure to support climatetech growth in MA

Key programs will require additional funding beyond FY25 levels

- 1 Provide funding supports to climatetech firms** across stages, including grants and tax incentives
 - **Maintain R&D grants and venture investments to foster early-stage climatetech** in MA to translate research into commercially viable technologies
 - **Increase direct funding** to support firms as they prototype and pilot lab-proven technologies, including funding testing and demonstration projects
 - **Create new tax incentives** targeted at climatetech firms as they scale operations in Massachusetts, tied to job creation and economic development
- 2 Invest in shared infrastructure & equipment** to build a testing & demonstration network grounded in regional clusters and support targeted deployment efforts
 - **Invest in a statewide testing and demonstration network** by making capital investments across the state to address gaps in current needs, in partnership with other agencies (e.g., MassDevelopment)
 - **Strengthen access to existing assets**, including by setting up directories of existing resources (organized by type and relevant sector) and expanding the existing voucher program giving small and medium-sized enterprises access to testing and research facilities at UMass campuses
 - **Facilitate testing & demonstration on public assets** at the state and local level (e.g., pursue options to exempt small-scale pilots from standard procurement processes to increase accessibility)
- 3 Provide funding supports to installation, maintenance, and supply chain** partners involved in the climatetech ecosystem, particularly MWBEs¹
 - **Coordinate a continuum of financing supports to installation and maintenance partners** (e.g., HVAC, construction, and electricians), including grants and loans, in partnership with other MA agencies (e.g., Massachusetts Growth Capital Corporation)
 - **Coordinate funding supports for manufacturing partners** involved in the climatetech supply chain, in partnership with other MA agencies (e.g., Massachusetts Technology Collaborative)

1. Minority and Women Owned Business Enterprises



Accelerate

MassCEC will lead state efforts to...

Make Massachusetts the best place for climatetech companies to do business

- 4 Drive equitable training and career advancement** to meet evolving climatetech workforce needs and foster inclusive economic opportunity
 - **Meet growing climatetech manufacturing and deployment workforce needs** (e.g., technicians & electricians) by scaling existing career awareness and workforce development initiatives (e.g., internship & grant programs, directories) to deliver expanded programming in coordination with key systems (e.g., MassHire, Labor, Career and Technical Education, Post-secondary)
 - **Build on innovative practices** such as free community college tuition, equity-focused workforce development funding, and public-private partnerships to develop a robust, inclusive workforce able to advance through access to expanded free and low-cost training with wrap-around support
 - **Enhance job seekers' and employers' abilities to navigate and benefit** from workforce development efforts through strategic marketing, alignment in program design, and a comprehensive data platform solution to maximize ecosystem coordination

Note that MassCEC is engaged in a complementary, aligned effort to develop a dedicated workforce strategy

- 5 Build markets for emerging tech** including by stimulating demand among early customers (e.g., #1-100), facilitating early-customer matching, and supporting green procurement
 - **Expand programs demonstrating the viability and cost-effectiveness of emerging technologies or business models** (e.g., through pilots or challenges) to send market signals and drive growth
 - **Continue catalyzing climatetech adoption in environmental justice communities** and other nontraditional markets through pilots and incentive programs geared at addressing unique needs
 - **Facilitate early-customer matching to catalyze commercialization**, including by leveraging Climatetech Concierge and targeted convenings
 - **Progress green procurement** across state and local level, including option to simplify smaller-scale pilot efforts, particularly for small and medium-sized businesses
- 6 Coordinate the development of move-in ready spaces & manufacturing sites** for climatetech to help firms expand quickly, in partnership with other Massachusetts agencies (e.g., MassDevelopment), including by conducting assessments to understand what climatetech companies need and interfacing with state partners to fill gaps



Connect

MassCEC will lead state efforts to...

Enhance and promote the MA climatetech ecosystem on a statewide and global scale

- 7 Provide hands-on concierge supports** to connect companies with the resources & partners they need to scale
 - **Establish a Climatetech Concierge** to provide support to help firms address barriers, navigate state resources, connect with partners, and successfully scale in Massachusetts
 - **Provide federal funding application support** to eligible MA applicants (e.g., companies, municipalities, other stakeholders) to increase awareness of opportunities and assist with strengthening high-priority applications (e.g., advise on submissions, provide letters of support)
 - **Conduct proactive outreach** to attract fast-growing climatetech firms, prioritizing earlier stages of company development (e.g., testing & demonstration) where the state's edge is strongest

- 8 Convene & strengthen networks** at the regional and statewide level to build a Climate Corridor leveraging the full strength of the Commonwealth
 - **Host statewide convenings and connection events** to build inclusive networks, address shared challenges, and strengthen ecosystems to attract outside firms and talent
 - **Continue to fund ecosystem players** (e.g., incubators, accelerators) who support a range of climatetech firms – across a range of stages, subsectors, and diverse founders & teams – and play an anchor role in regional clusters
 - **Support regional efforts to drive climatetech growth** through convenings, regional investments, and other capacity-building supports (e.g., provide sample permitting frameworks to municipalities, amplify climatetech-ready communities)

- 9 Amplify awareness** of state supports, develop MassCEC's brand as the home for climatetech in MA, and tell the story of the Commonwealth's national and global brand as a climatetech leader through robust marketing, communications, and events

SYSTEMIC BARRIERS

Some communities have historically been excluded from gains across entrepreneurship, workforce development, and adoption & resilience

		Climatetech Entrepreneurship		Workforce Development & Job Creation	Community Climatetech Adoption & Climate Resilience
		Researchers & Startups	Supply Chain & Installation MWBEs ¹		
Networks & awareness		Women and Black & Hispanic Americans are underrepresented in key STEM fields – particularly physical, engineering, and computer sciences that underpin climatetech – constraining networks & access to information	MWBEs often lack access to traditional business networks & resources, and require more intentionality to engage	Early awareness of climatetech industries and opportunities varies across identities and geographies, impacting early talent pipelines	Factors including language barriers and inclusion in standard communication channels limit equitable access to participate in energy transition and strengthen climate resilience
	Entry & advancement	Women and founders of color receive a disproportionately low share of VC funding <i>E.g., Black and all-female founded startups received 0.5% and 2% of US VC funding in '23, respectively</i>	Systemic biases and other factors make securing capital & resources (e.g., loans, technical assistance, project contracts) more challenging for MWBEs <i>E.g., In 2020, Boston spent less than 0.5% on Black-owned businesses in its procurement</i>	Unequal access to training and high-quality job placements, along with other systemic factors limit job entry and advancement <i>E.g., Black & Latinx MA residents more likely to report barriers to entry into clean energy across every category in MassCEC survey</i>	Cost barriers and other socio-economic factors, including ltd. availability of culturally competent services, constrain adoption <i>E.g., low-income households are significantly less likely to adopt solar, but spend higher share of income on energy</i>

1. Minority and Women Owned Business Enterprises. Sources: PitchBook, 2020 City of Boston Disparity Study, MassCEC 2023 Clean Energy Workforce Needs Assessment

EQUITY APPROACH

Economic development has historically failed to provide opportunities equally, exacerbating exclusion based on race & ethnicity, gender, income, region, and other factors.

To support historically underserved communities, equity will be embedded throughout the strategy through eight program-level and cross-cutting approaches.

1	Improve awareness & navigation	Conduct dedicated, culturally competent outreach to strengthen program awareness among key communities <i>(e.g., by engaging community networks & organizations, in partnership with MassCEC Workforce and EmPower teams and the EEA Office of Environmental Justice & Equity, or OEJE)</i>
2	Strengthen program accessibility	Continue to provide application supports and other assistance to increase access, iterating on existing DEI & EJ best practice frameworks to codify practices <i>(e.g., application assistance & feedback, dedicated office hours, translation services,)</i>
3	Embed equity in selection process	Take steps to explicitly include DEI considerations to ensure a fair, inclusive application review process <i>(e.g., bias training, diverse review panels, continue practice of giving optional place for applicants to share equity strategies when applying for MassCEC grants)</i>
4	Expand dedicated equity programs & supports	Expand or establish programs with the central aim of strengthening equity <i>(e.g., existing Equity Workforce Development, DICES, Act4All, and EmPower programs; work with OEJE to engage the climatetech industry to embed equity in operations)</i>
5	Measure & report equity metrics	Measure progress supporting entrepreneurs, communities, and members of the climatetech workforce from underrepresented groups <i>(e.g., continue tracking applicant & beneficiary diversity with participant consent, track community impact of programs)</i>
6	Set and track clear targets	Establish specific, measurable goals to enable program delivery with a strong equity lens and define what meaningful progress looks like
7	Continuously engage stakeholders	Solicit continuous feedback and input from program participants, equity organizations, and other stakeholders through strong communication systems to drive progressive improvement <i>(e.g., through working groups, surveys)</i>
8	Operating model adjustments	Continue to embed diversity, equity, and inclusion into organizational values, day-to-day practices, and program design <i>(e.g., trainings, hiring practices)</i>

CLIMATE CORRIDOR

integrates unique regional strengths to leverage MA's full potential and ensure that all regions benefit from climatetech leadership

1 Berkshires

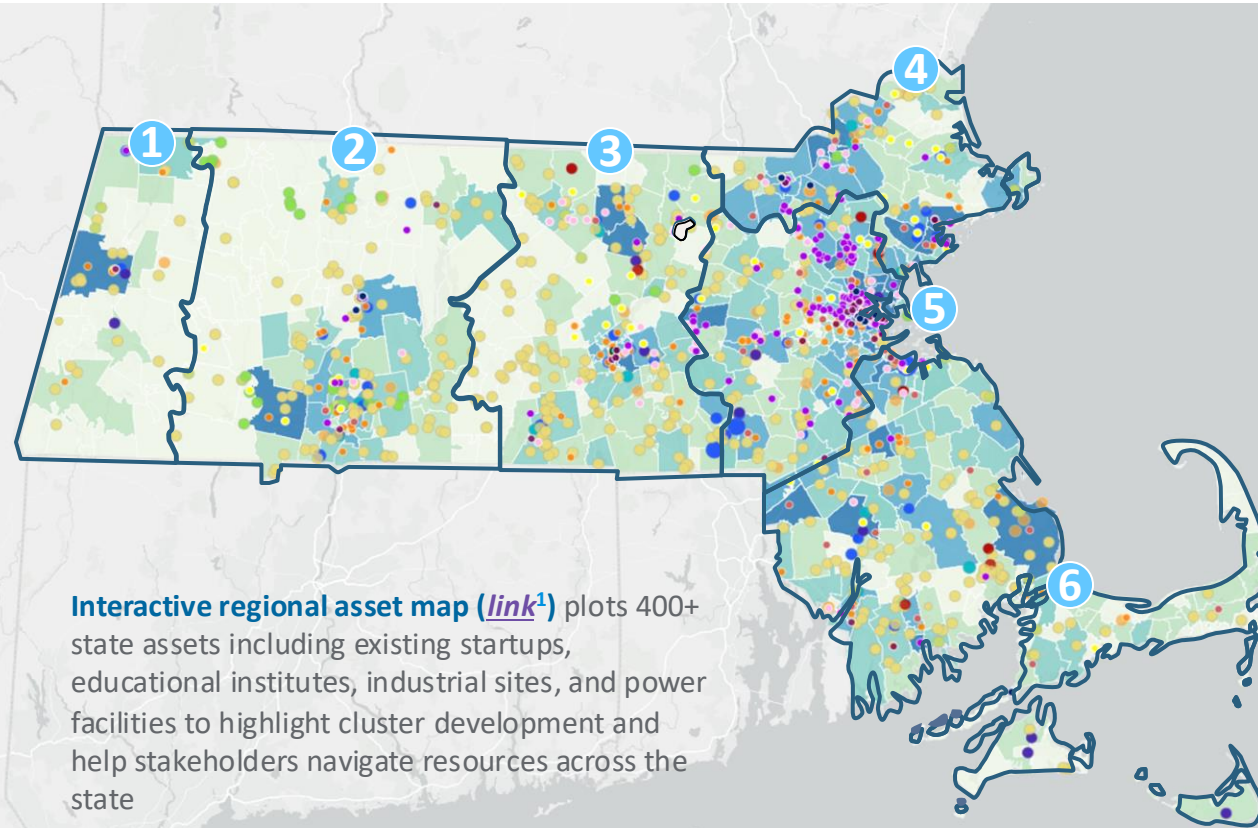
Near-term opportunity to **contribute to climatetech supply chain and AgTech leadership**, with opportunity to develop brownfield sites for **larger-scale manufacturing** particularly in long-term

2 Pioneer Valley

Strongest opportunities for scaled industrial climatetech manufacturing, due to cheap renewables, site avail., and base of industrial talent & innovation

3 Central

Innovation hub driving leadership in advanced climatetech manufacturing with particular focus on energy storage, bio-manufacturing, and industrial decarbonization



4 Northeast

Leader in **advanced climatetech manufacturing requiring high-skilled labor**, and leadership in key elements of the offshore wind ecosystem

5 Greater Boston

Most dense cluster in the Massachusetts climatetech innovation ecosystem, generating R&D and startup activity across sectors and serving as 'HQ epicenter' of the state

6 Southeast & Cape

Leader in national blue economy, building on deep research & deployment assets and legacy as first mover in offshore wind

1. <https://www.masscec.com/resources/making-massachusetts-climate-lab-world>

ASSETS & PARTNERS

A wealth of climatetech players exist across regions of Massachusetts

Climatetech companies

Ecosystem players (e.g., incubators, accelerators, investors)

Research, higher ed. & training institutions

	Climatetech companies	Ecosystem players (e.g., incubators, accelerators, investors)	Research, higher ed. & training institutions
Berkshires			
Pioneer Valley			
Central MA			
Northeast MA			
Greater Boston			
Southeast & Cape			

MANY MORE ASSETS AND PARTNERS TRACKED THROUGH INTERACTIVE ASSET MAP ([LINK¹](#))

1. <https://www.masscec.com/resources/making-massachusetts-climate-lab-world>



KEY REGIONAL STRENGTHS AND CLUSTERS

of climatetech activity within each region drive distinct value propositions

Berkshires

Pittsfield

- **Robust network of manufacturing partners** with potential to plug into localized supply chains of climatetech players
- **Ample low-cost land availability** including 52-acre redeveloped GE site and agricultural land to drive AgTech leadership
- **High quality of life** draws later-career talent, and network of vocational schools able to support technical skill development

Pioneer Valley

Holyoke, Springfield, Amherst

- **Low-cost renewable electricity** in Holyoke a key advantage for energy-intensive climatetech manufacturing
- **Base of industrial talent, supply chain, and brownfield sites** (e.g., former mills) a foundation for scaled manufacturing
- **Innovation strengths in AgTech, water tech, advanced materials**, and beyond, rooted in UMass Amherst's leadership

Central

Worcester, Devens

- **Growing innovation hub** particularly across WPI-led focus areas of recycling, regeneration, and recovery technologies
- **Low operating costs** vs. Boston while being able to collaborate closely and draw on partnerships & resources
- **Strong industrial site availability** and efficient permitting processes in municipalities like Devens streamlines siting

Northeast

Salem (wind), Lowell

- **Skilled workforce** rooted in robust higher education network (e.g., UMass Lowell, North Shore Community College)
- **Foundation of manufacturing & innovation assets** (e.g., wet lab space) and leadership in sectors like energy storage & recycling
- **Strong offshore wind fundamentals** can drive leadership in both deployment and supply chain activities

Greater Boston

- **World-class climatetech innovation cluster** across research institutions, accelerators & incubators, and companies
- **Wealth of high-skilled talent** and education & training institutions (40+ colleges & universities; joint apprentice training centers)
- **Strong access to capital** vs. other states, including several dedicated climatetech investors (\$12B+ invested since 2017)

Southeast & Cape

New Bedford

- **Existing center of the offshore wind industry**, including activity and infrastructure (e.g., first-in-nation offshore wind port)
- **Nation-leading ocean innovation** through institutions like Woods Hole and UMass Dartmouth
- **Deep maritime talent and training** resources (e.g., Maritime Academy, 30+ vocational and technical schools)



MASSCEC PLAN

TO FUND & EXECUTE THIS STRATEGY





MASSCEC WILL LEVERAGE

its unique climatetech experience and network to drive this strategy



Extensive climatetech expertise & thought leadership

~15 years growing the climatetech economy in Massachusetts with a history of adapting to drive leadership in new climatetech sectors as they emerge (e.g., offshore wind)



Strong relationships across the climatetech ecosystem

Deep relationships with a wide range of players including companies, investors, incubators & accelerators, higher education & research institutions, and beyond



Unique ability to bridge between economic development & climate stakeholders

MA agency most deeply embedded at the intersection of climate & economic development (e.g., EEA, EOED, and EOLWD represented on board), resulting in expertise across priorities



Proven track record executing diverse range of programs central to this strategy

History driving impactful programs & investments (\$650M+ awarded since 2010, attracting \$2.6B+ in private & federal capital) across workforce, innovation, deployment, and market building efforts that will form the building blocks of MA's climatetech future

MASSCEC WILL PARTNER

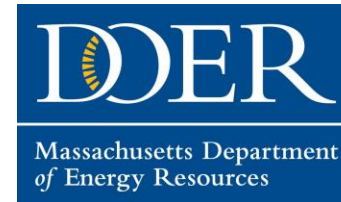
with a team of Massachusetts state agencies across climate and economic development



Commonwealth of Massachusetts
Executive Office of Economic Development



MASSACHUSETTS DEPARTMENT OF
ELEMENTARY AND SECONDARY
EDUCATION



MASSACHUSETTS EXECUTIVE OFFICE OF
LABOR & WORKFORCE DEVELOPMENT



**Office of Business
Development**



**Massachusetts Executive
Office of Education**



MOITI
Massachusetts Office of International Trade & Investment



**Department of
Public Utilities**



**Office of Coastal Zone
Management**



**Office of Climate
Innovation & Resilience**



**Office of Environmental
Justice & Equity**



**Department of
Revenue**

SOURCES OF REVENUE

Many of MassCEC's current funding streams are either restricted or non-recurring, significantly limiting the organization's ability to execute its vision

Share of FY25 budget	MassCEC funding source	Strategic alignment & challenges
77%	<p>State / Federal Program Administration Funding for specific programs administered by MassCEC (e.g., American Rescue Plan Act)</p>	Most of MassCEC's funding is designated to fund administration of specific programs assigned to the center, with no flexibility to deploy for other strategic priorities (e.g., ARPA funding for port construction)
15%	<p>Systems Benefit Charge (SBC)¹ Proceeds from modest fee charged to electric utility customers based on usage</p>	While the SBC is among MassCEC's most flexible and recurring sources of funding, the rate has not adjusted, even for inflation, since it was established ~15 years ago (vs. NY where NYSERDA is able to bring rate cases and increase associated SBC funding)
8%	<p>Earned Income¹ Funds earned directly from MassCEC activities, including investment income and facility revenue (e.g., from WTTC and Marine Commerce Terminal)</p>	Earned program income makes up a small share of MassCEC funding and levels are unpredictable (particularly investment income which is highly subject to change)
	<p>Massachusetts State Budget State budget subject to approval by legislature annually (MassCEC funding began in 2023)</p>	State budget appropriations are non-recurring and subject to annual approval, and most are restricted funds designated for a specific program assigned to MassCEC, limiting flexibility

Most of MassCEC's largest funding sources are...

Restricted to specific purposes, limiting flexibility to adapt to the rapidly evolving nature of climatetech industry needs

Non-recurring and fluctuate significantly from year to year, creating uncertainty around multi-year planning and strategy

- “ We need to find MassCEC a funding source that's less fickle
- “ These days, companies can go anywhere, and other jurisdictions are giving big incentives

1. SBC and earned program income both flow into trusts to fund MassCEC budget items. Most funds in the trust come from the SBC.



MASSCEC NEEDS THREE TYPES OF ADDITIONAL FUNDING

to meet the needs of the industry, along with more consistent sources of revenue that allow for multi-year planning and signal stability to climatetech firms

Flexible Operating Funding

Most core elements of this strategy require additional staff to administer programs or provide hands-on support to climatetech firms, and flexibility is critical given the dynamic and rapidly evolving needs of the climatetech industry and rapidly changing market conditions

Capital Funding









Capital investments in shared infrastructure to support testing & demonstration and targeted deployment efforts (e.g., in offshore wind) are critical to drive growth and bring technologies from the lab to the field

Scale-up Funding *E.g., incentives, tax credits*

To support firms on capital-intensive scaling journeys, MA must offer a spectrum of funding opportunities suitable for firms across growth stages from early commercialization to full scale deployment (e.g., refundable tax credits claimable by small and large companies)

ANTICIPATED FUNDING NEEDS ACROSS PROGRAMS

Looking forward, MassCEC has a significant need for increased flexible funding to operationalize strategy

Strategy Category	Suggested Needs Going Forward Relative to Current Level of Funding	Potential Source(s) of Funds
Invest	<p>Provide a range of funding supports </p> <p>Early-stage programming (e.g., Catalyst/DICES) is meeting industry needs; however, there is demand to expand later-stage programs to support companies scaling, including through potential future climatetech tax credit incentives</p>	<p>Currently funded through state & federal transfers and MassCEC trusts; expansion requires flexible, operating dollars, and potential tax credits require legislative approval</p>
	<p>Build a statewide testing and demonstration network </p> <p>New capital investment programs in testing equipment and infrastructure will require significant incremental funding</p>	<p>Operating dollars will need to come from state budget or MassCEC trusts; MassCEC requires additional capital funding to make equipment and infrastructure investments</p>
Accelerate	<p>Drive equitable career & workforce development </p> <p>Expansions of current programming, in coordination with statewide workforce ecosystem, will require some additional investment</p>	<p>Requires flexible, operating dollars (either from state budget or MassCEC trusts)</p>
	<p>Build markets for emerging tech </p> <p>Need to de-risk early-tech will continue to remain material, but potential shift of later-stage adoption to other agencies may decrease funding needs over time</p>	<p>Funded through mix of state / federal transfers, and flexible operating dollars from state budget or MassCEC trusts</p>
	<p>Coordinate the development of move-in ready sites & spaces </p> <p>MassCEC will play a coordinating role, in partnership with MassDevelopment and other state agencies</p>	<p>Requires flexible, operating dollars (either from state budget or MassCEC trusts)</p>
Connect	<p>Provide hands-on concierge supports </p> <p>Additional staff and resources are required to support new and expanded navigation supports</p>	
	<p>Convene & strengthen networks </p> <p>New resources are required to add and expand convenings and network-building activities</p>	<p>Requires flexible, operating dollars (either from state budget or MassCEC trusts)</p>
	<p>Amplify awareness </p> <p>New capabilities and staff are needed to expand communications and platform building</p>	

MAJOR MILESTONES FOR MASSCEC TO EXECUTE NEW CLIMATETECH STRATEGY

	FY 2025	FY2026	Team MA Partners
Invest	Review and refresh portfolio of legacy programs and re-launch new portfolio based on this strategy to support startups as they prototype and pilot lab-proven technologies (e.g., Innovate Mass, Critical Mass)	Launch program, releasing RFPs and identifying recipients (if Mass Leads Act funding is available) and roll out changes to application and award processes for current MassCEC programs	<ul style="list-style-type: none"> • Department of Revenue • Executive Office of Economic Development • MA Technology Collaborative (MassTech) • MassDevelopment • MassVentures • Office of Business Development
	Identify capital sources and mechanisms for (1) shared testing and capital investments, and (2) tax credits for companies scaling in MA	RFPs launched and recipients selected for new tax credit incentives and capital investments (if funding is available)	<ul style="list-style-type: none"> • N/A
	Create directory of available testing and demonstration facilities in Massachusetts, sponsoring a voucher program for streamlining access	Curate a pipeline of capital investment opportunities for testing and demonstration networks, administering grants (if funding is available)	<ul style="list-style-type: none"> • Executive Office of Economic Development • MA Technology Collaborative (MassTech) • MassDevelopment • MassVentures
Accelerate	Release statewide workforce development plan to expand and build on existing career and workforce programs	Expand statewide awareness of climate-critical jobs and related training by bolstering marketing and coordinating with MassTalent and career awareness initiatives	<ul style="list-style-type: none"> • Dept. of Elementary & Secondary Education • Executive Office of Economic Development • Executive Office of Education • Executive Office of Labor and Workforce Development, including MassHire
	Early and mixed-stage market development programs expanded, and new sources of future funding identified	RFPs developed and administered for expanding early and mixed-stage market programs	<ul style="list-style-type: none"> • Department of Energy Resources
	Coordinate on initial needs-assessment and site prioritization of potential build-ready sites and clusters for climatetech firms	Support development of first build-ready sites and clusters, including connecting climatetech companies with highest potential opportunities	<ul style="list-style-type: none"> • Executive Office of Economic Development • Exec. Office of Energy and Environmental Affairs • MassEcon • MassDevelopment • Office of Business Development
Connect	Kick-off climatetech concierge program, including establishing connection to state-wide EOED-led "Business Front Door" and begin serving first climatetech companies (e.g., scale-up federal grant application support)	Refine and scale climatetech concierge service based on 2024 feedback; add outbound function to actively pursue new companies that are a good fit for MA; refine services & supports for MWBEs & underrepresented founders	<ul style="list-style-type: none"> • Executive Office of Economic Development (incl. Team MA Business Front Door)
	Refresh MA and MassCEC climatetech brand to raise profile of MA climatetech ecosystem and support regional climatetech efforts and host first customer matching events	Expand convening, communications, and marketing activities based on 2024 feedback, including hosting first major state-sponsored climatetech convening	<ul style="list-style-type: none"> • Executive Office of Economic Development • Exec. Office of Energy and Environmental Affairs • Office of International Trade & Investment
	Establish regional Climate Corridor steering committees to guide strategy, begin scoping capacity-building programs (e.g., potential climatetech-ready communities program), engage EJ communities, and begin holding convenings	Build on Climate Corridor through investments and convenings, and consider deeper supports (e.g., regional grants, technical assistance, open office space at innovation centers (e.g. Amherst, Lowell, BIC))	<ul style="list-style-type: none"> • Executive Office of Economic Development • Regional Economic Development partners



ANTICIPATED IMPACT

This climatetech strategy has potential to create significant economic impact in Massachusetts over the next ten years

1.3k

Companies supported¹

MassCEC is expected to directly fund **300+** companies and support **1,000+** additional companies⁴

35k

Jobs created²
+25k individuals trained

MassCEC funding to companies is expected to create **15k+** new jobs; additional support to climatetech ecosystem enables the creation of **20k+** more in the next ten years

7x

Additional funds attracted³

Every \$1 invested by MassCEC catalyzes **\$7** in additional public and private investment into climatetech, leading to **\$14B** in incremental investment over next 10 years

Beyond economic impact, this strategy will reduce statewide GHG emissions, improve health and wellbeing across the state (especially in environmental justice communities), and create more affordable energy for Massachusetts residents.

1. Total companies directly funded by MassCEC, supported by MassCEC-funded incubators/accelerators, or receiving non-financial supports and services from MassCEC. 2. New jobs created in next ten years (assuming an increase in FY26 funding maintained annually). 3. Additional private and federal investment received by MassCEC awardees. Note: Estimates based on historic MassCEC program data on program participants, jobs created, and leveraged funds, as well as third-party analyses (e.g., from the Donahue Institute) and benchmark examples (e.g., MLSC tax incentive outcomes). As estimates are drawn from historic averages, actual impact of FY25 MassCEC spend may slightly differ due to different ecosystem and macroeconomic conditions; values shown here are intended to be approximate and directional. This estimate includes repeat companies often seen across both tech to market and investment programs.

THE MASSACHUSETTS CLEAN ENERGY CENTER (MASSCEC) is a state economic development agency dedicated to accelerating the growth of the climatetech sector across the Commonwealth to spur job creation, deliver statewide environmental benefits, and to secure long-term economic growth for the people of Massachusetts

To learn more about MassCEC's program and funding opportunities, visit [MassCEC.com](https://www.masscec.com)

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