

BUILDINGENERGY BOSTON

The New Face of Energy Efficiency

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Curated by Jennifer Hatch (ReVision Energy)

Northeast Sustainable Energy Association (NESEA)

March 1, 2022

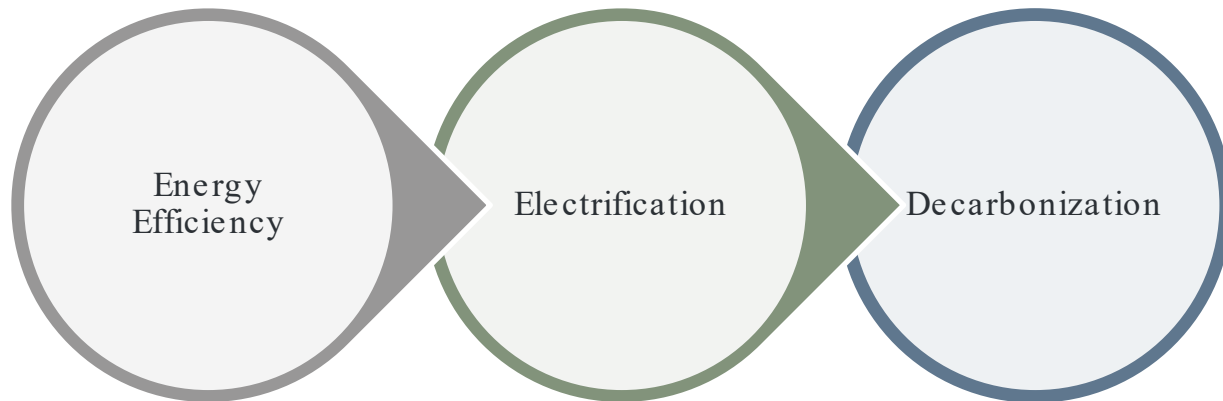
Dave Boettcher

Founder and President

February 2022



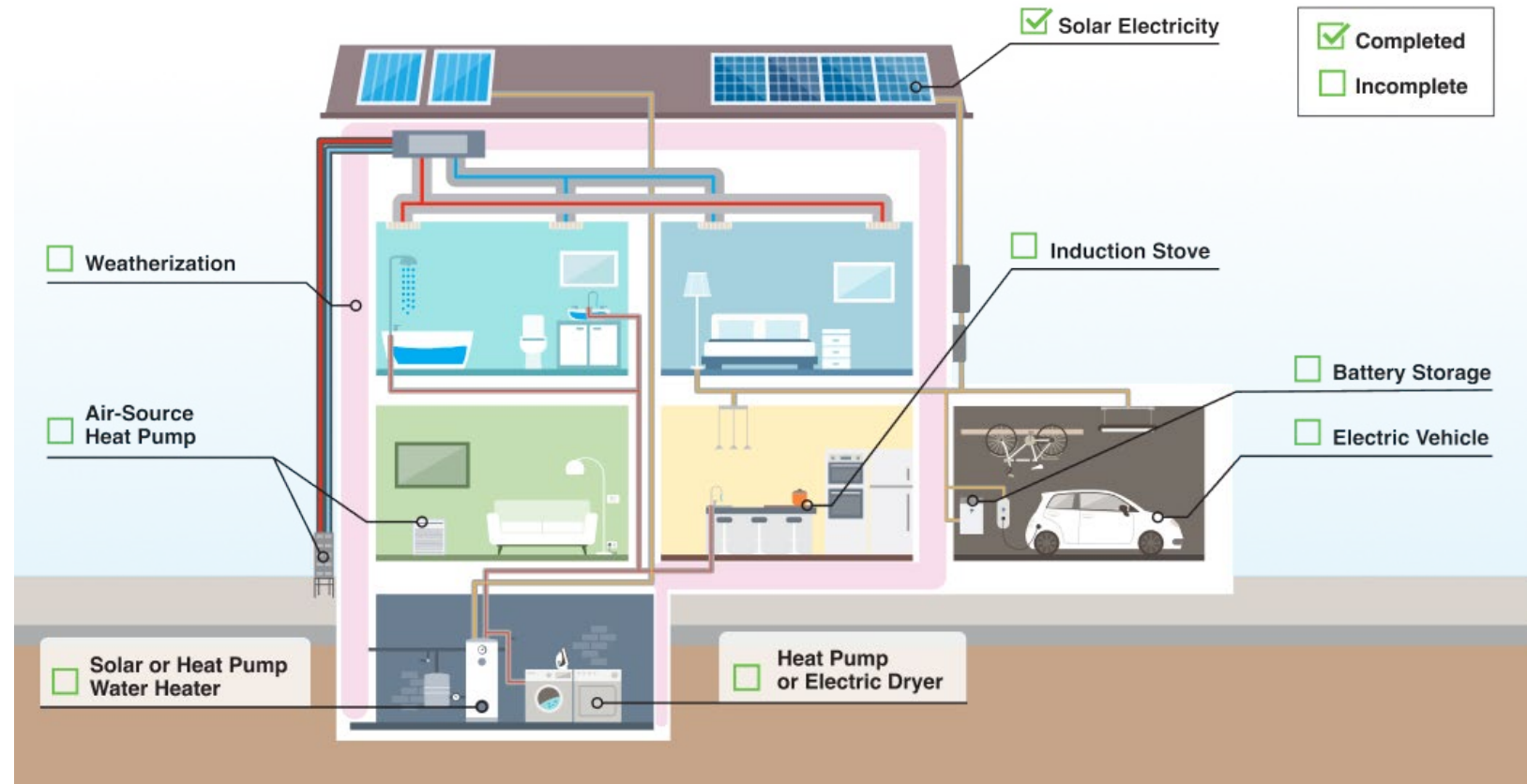
EVOLVING FOCUS— MASS SAVE OVER TIME



Carbon neutrality is the future, and the Massachusetts Program Administrators are all in.

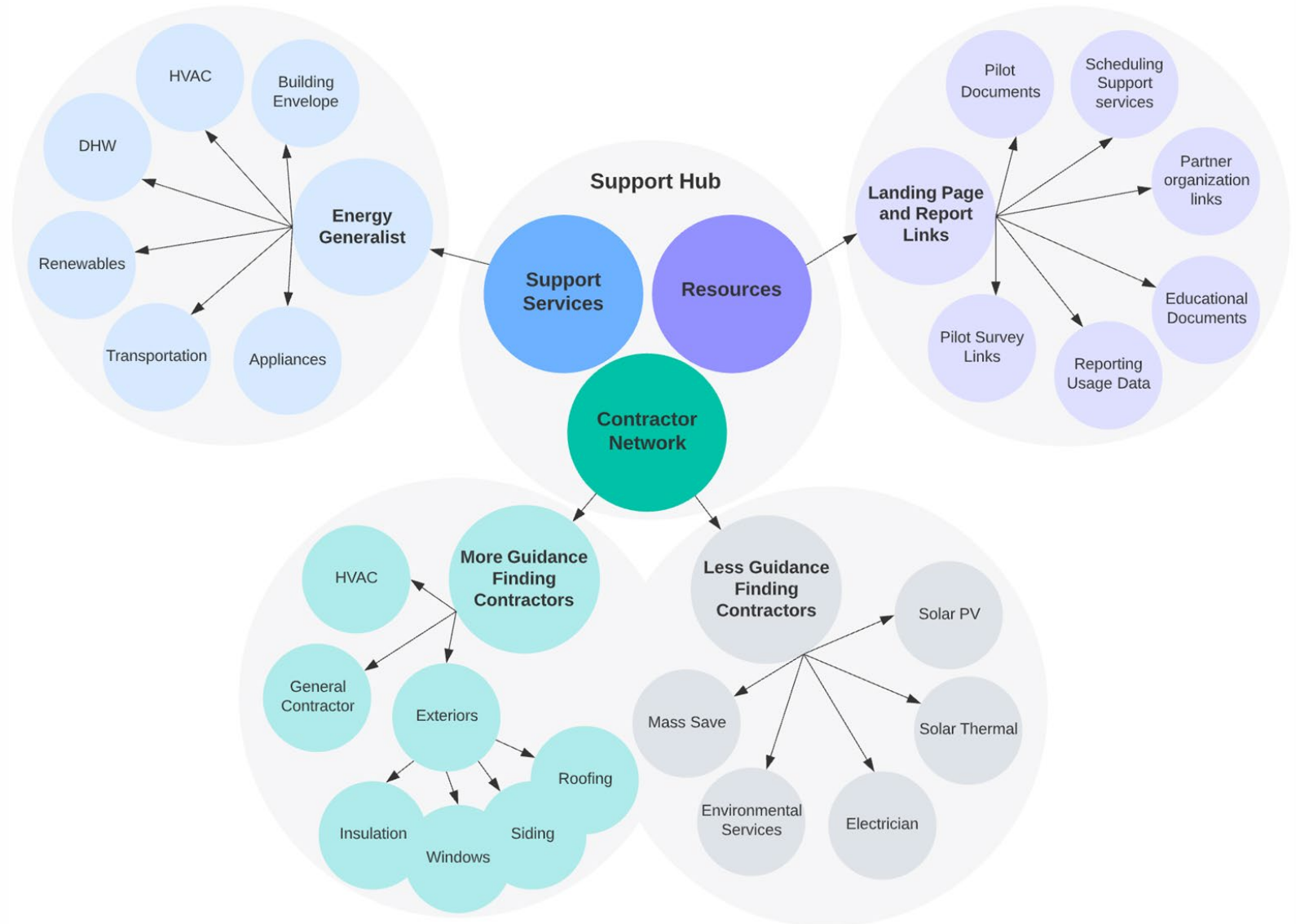
AREAS OF KNOWLEDGE- DECARBONIZATION

- Deeper envelope measures
- Efficient electric heating/cooling
- Transportation
- Cooking
- Water heating
- Renewable energy/battery storage
- Power supply
- Health/IAQ
- Resiliency
- Outdoor power equipment



SUPPORT SERVICES

- Project specific guidance when it's needed
- Reduced customer burden of being their own GC
- Centralized resources
- More targeted contractor networks where it matters most



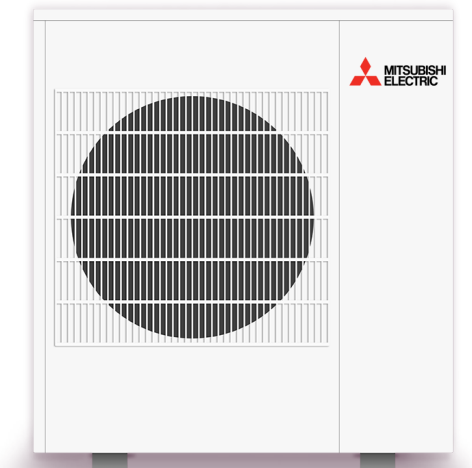
BROADER VS. DEEPER KNOWLEDGE

Energy Generalist – Broader Knowledge

- More systems (HVAC, Water Heating, Solar, Battery Storage)
- Air Quality/Ventilation
- Resiliency
- Supply options
- Deeper Weatherization
- Maximize Incentives

Energy Specialist – Deeper Knowledge

- Design options
- Interdependencies of measures
- Differences between brands
- Fuels
- Economics
- Incentives
- Industry/New products



ROLE OF ENERGY GENERALIST



EFFICIENCY FIRST



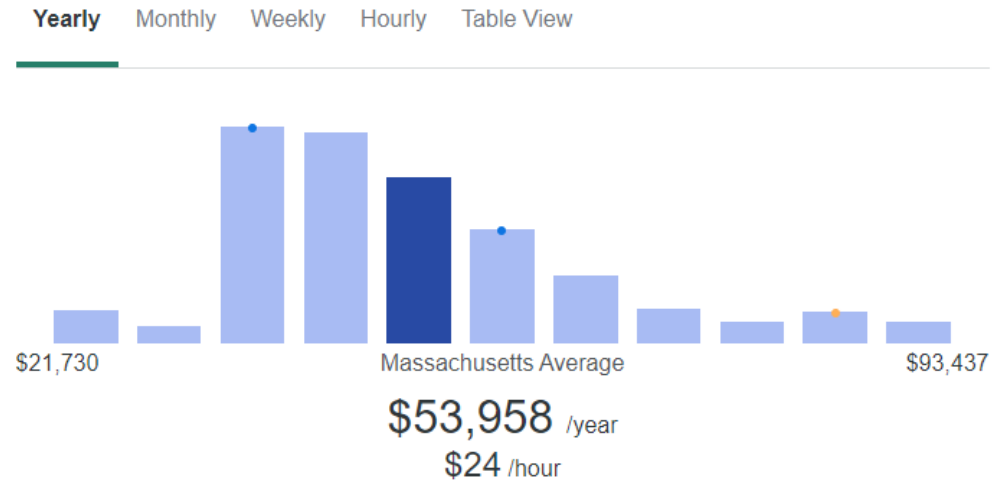
EDUCATE



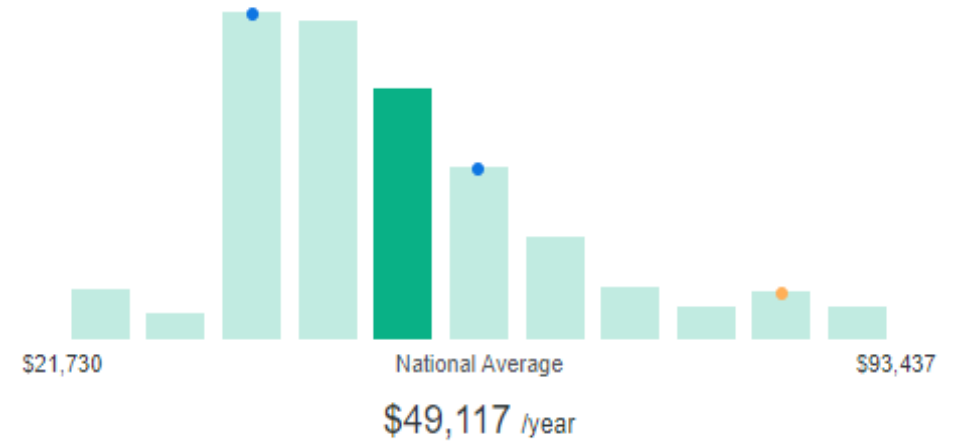
QUARTERBACK

INCOME POTENTIAL

Energy Auditor Salary in Massachusetts



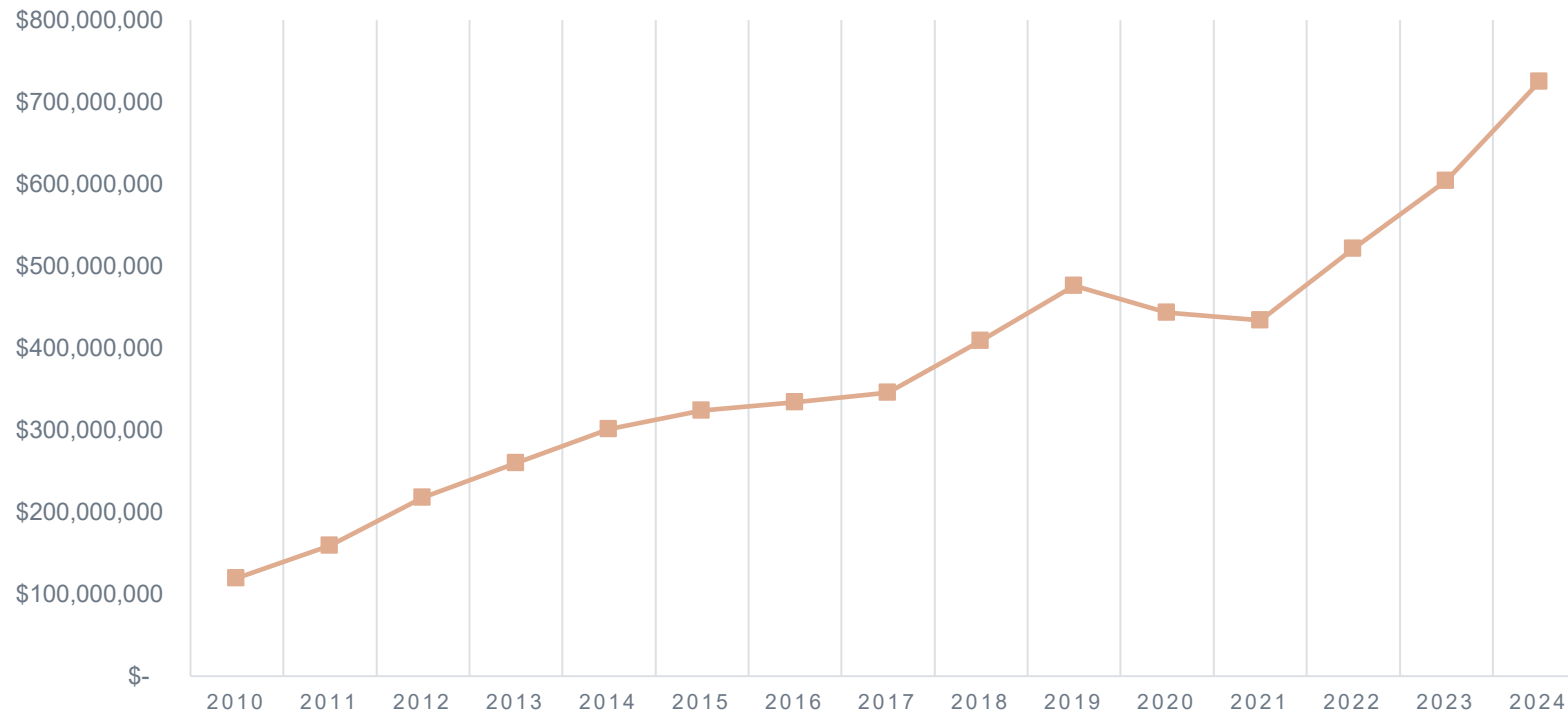
How Much Do Energy Auditor Jobs Pay per Year in Massachusetts?



Ziprecruiter/ADP

PROGRAM FUNDING

ANNUAL MASS SAVE SPENDING/BUDGET - RESIDENTIAL

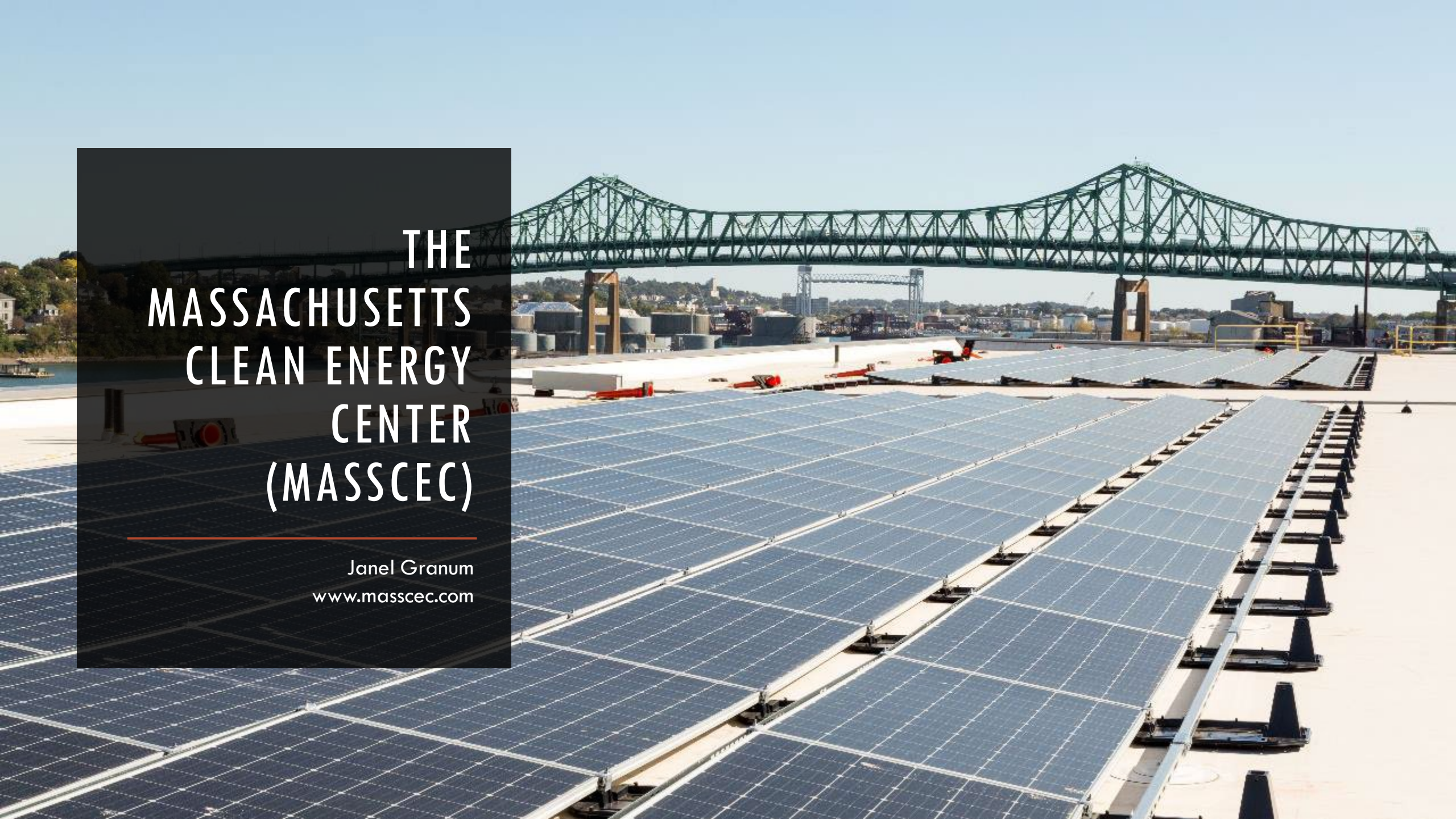


Source: EEAC 2022-2024 is budget \$'s

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Thank You!

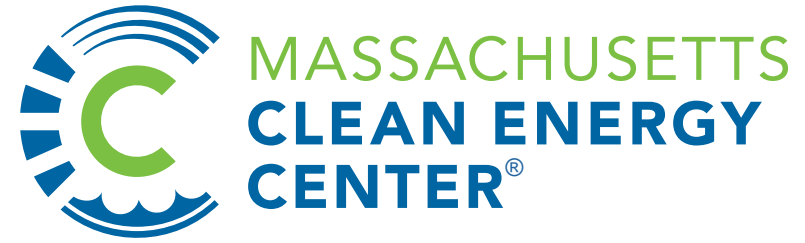




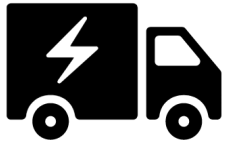
THE
MASSACHUSETTS
CLEAN ENERGY
CENTER
(MASSCEC)

Janel Granum
www.masscec.com

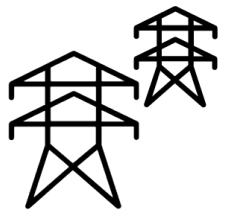
MassCEC Focus Areas



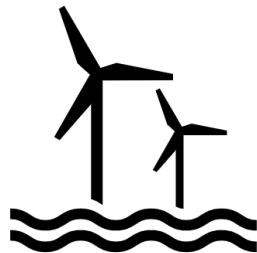
High Performance Buildings



Clean Transportation



Net Zero Grid



Offshore Wind

WORKFORCE DEVELOPMENT

Prepare and support a diverse clean energy and climate solution workforce needed for Massachusetts to reach its 2050 net zero greenhouse gas emission goal



Raising awareness of industry



Support career pathways that lead to economic stability



Prepare workers to meet needs of industry



Support diverse clean energy & climate solution businesses



Cultivate a diverse pipeline of workers

TOTAL CLEAN ENERGY JOBS

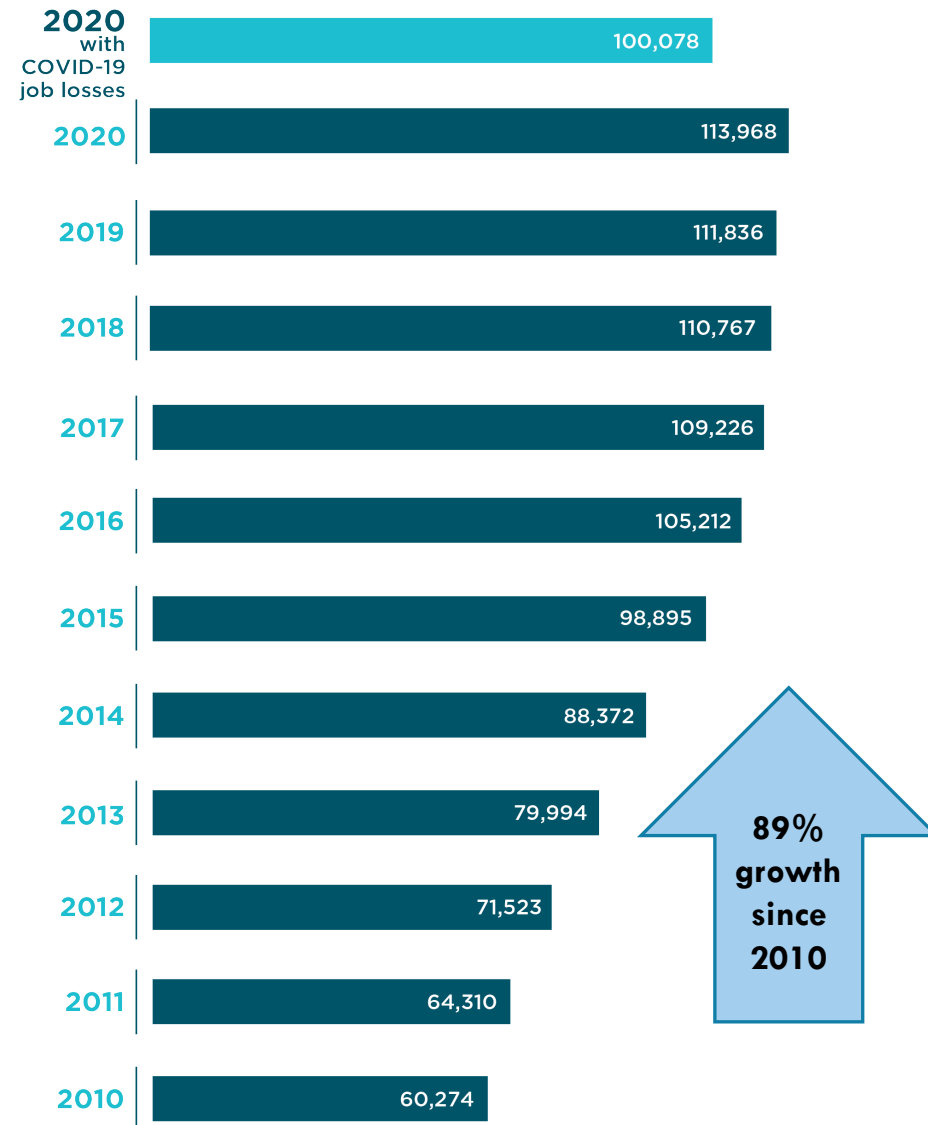
Clean energy worker is defined here as a person who spends some portion of their time working in renewable energy, energy efficiency, alternative transportation, or other carbon management technologies.

The clean energy industry in Massachusetts has added almost **54,000** jobs since 2010, which accounts for **10.3%** of all jobs created in the state during that same time.

The economic impact of COVID-19 has been significant, with a **12.2%** reduction of clean energy jobs in MA, as well as a **17.7%** reduction in overall jobs in the state.¹

From: MassCEC 2020 Industry Report

TOTAL CLEAN ENERGY EMPLOYMENT 2010-2020



¹ The 2020 job numbers reflect data from December 2019. The “2020 with COVID-19 job losses” numbers reflect net job losses from March through September 2020.

CLEAN ENERGY WORKERS IN MASS

Workers by demographic group remained roughly unchanged from the 2019 to 2020 reports.

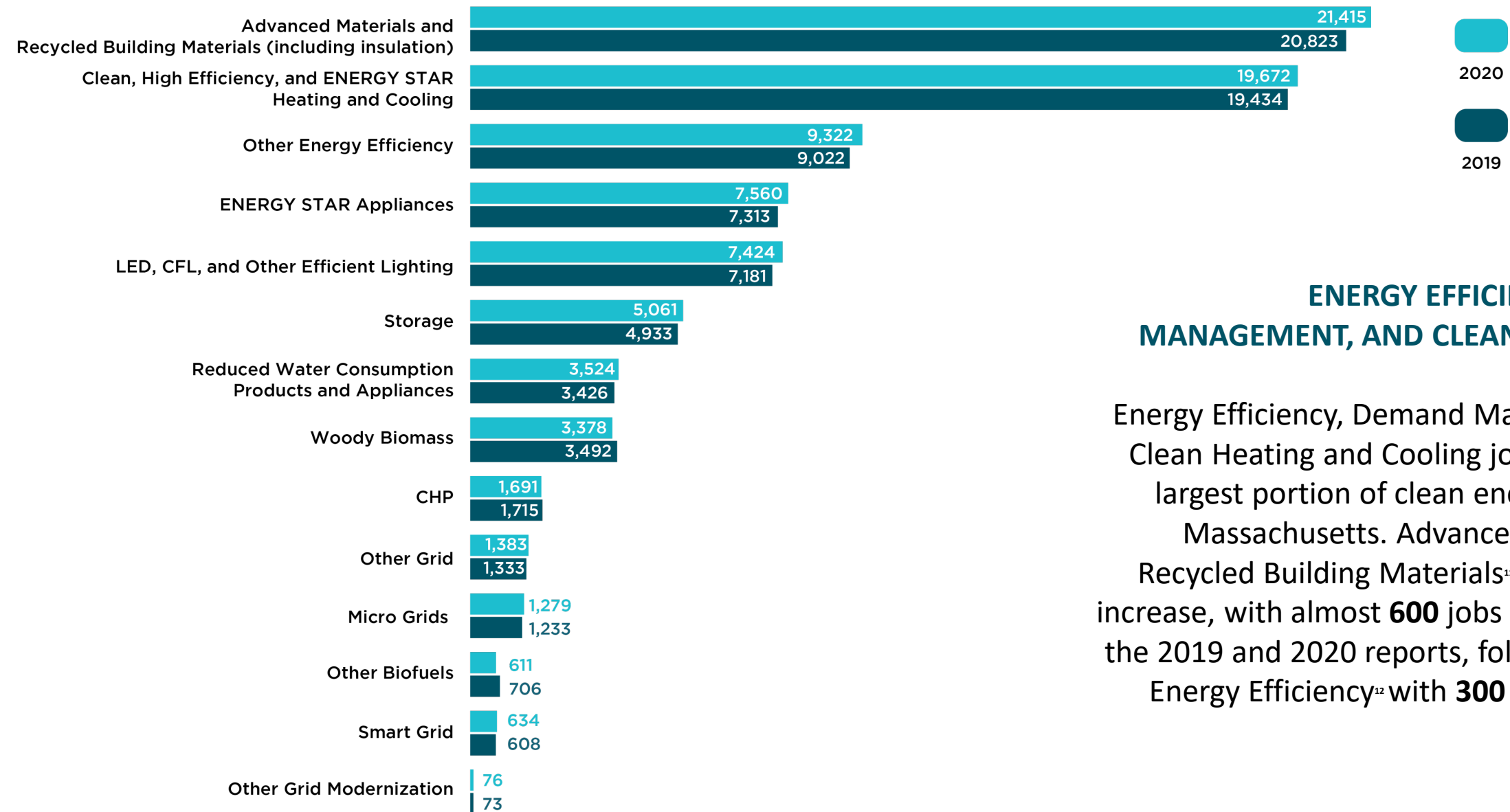
The industry must continue to provide and support opportunities for women and people of color.^{1,2,3}

¹ Emsi data for age, race, ethnicity, gender.

² Union employment rate: <https://www.bls.gov/news.release/union2.t05.htm>.

³ Veterans employment: <https://www.bls.gov/news.release/vet.t06a.htm>.

	2020 Clean Energy Report Employment	Percent of 2020 Report Clean Energy Workforce	Percent of 2019 MA Overall Workforce
Hispanic or Latinx	19,027	16.7%	11.9%
Black or African American	8,869	7.8%	8.8%
Asian	10,037	8.8%	6.9%
Two or more races	9,974	8.8%	2.4%
Women	33,865	29.7%	51.5%
Veterans	12,039	10.6%	3.5%
Workers over the age of 55	15,567	13.7%	30.5%
Union	7,933	7.0%	12.0%



ENERGY EFFICIENCY, DEMAND MANAGEMENT, AND CLEAN HEATING AND COOLING JOBS

Energy Efficiency, Demand Management, and Clean Heating and Cooling jobs make up the largest portion of clean energy jobs within Massachusetts. Advanced Materials and Recycled Building Materials¹¹ saw the largest increase, with almost **600** jobs added between the 2019 and 2020 reports, followed by Other Energy Efficiency¹² with **300** additional jobs.

¹¹ Advanced Materials and Recycled Building Materials includes doors, windows, air sealing, floor, wall, or piping insulation and any additional building envelope materials that represent advances in efficiency over traditional materials.

¹² Other Energy Efficiency includes variable speed pumps, other design services, software, energy auditing, rating, monitoring, metering, leak detection, LEED certification, phase-change materials, or all other activities not specific to a detailed technology.

A grayscale photograph of four construction workers on a job site. One worker in the foreground is kneeling and using a power drill on a wooden frame. Three other workers stand around him, observing. They are all wearing hard hats and work clothes. The background shows trees and a fence.

EMPLOYER INTERVIEWS: WORKFORCE NEEDS

21 Employers Interviewed so far:

- 6 Mass Save Weatherization/Home Performance Contractors (HPC)
- 5 Heating, Ventilation, Air Conditioning (HVAC)
- 3 Solar and Battery Storage Installers
- 4 High Performance Construction
- 1 Electrical Contractor
- 1 Transportation Electrification
- 1 Oil Dealer

Five minority-owned companies

IBEW Local 103

HVAC CAREER

- 1) Increase heat pump expertise and whole home retrofit skills are needed.
- 2) Working with experienced technicians is important when starting out.

HVAC Career Pathway

1. Apprentice
2. Helper
3. Installer
4. Mechanics
5. Lead Technician
6. Supervisor
7. Business Owner

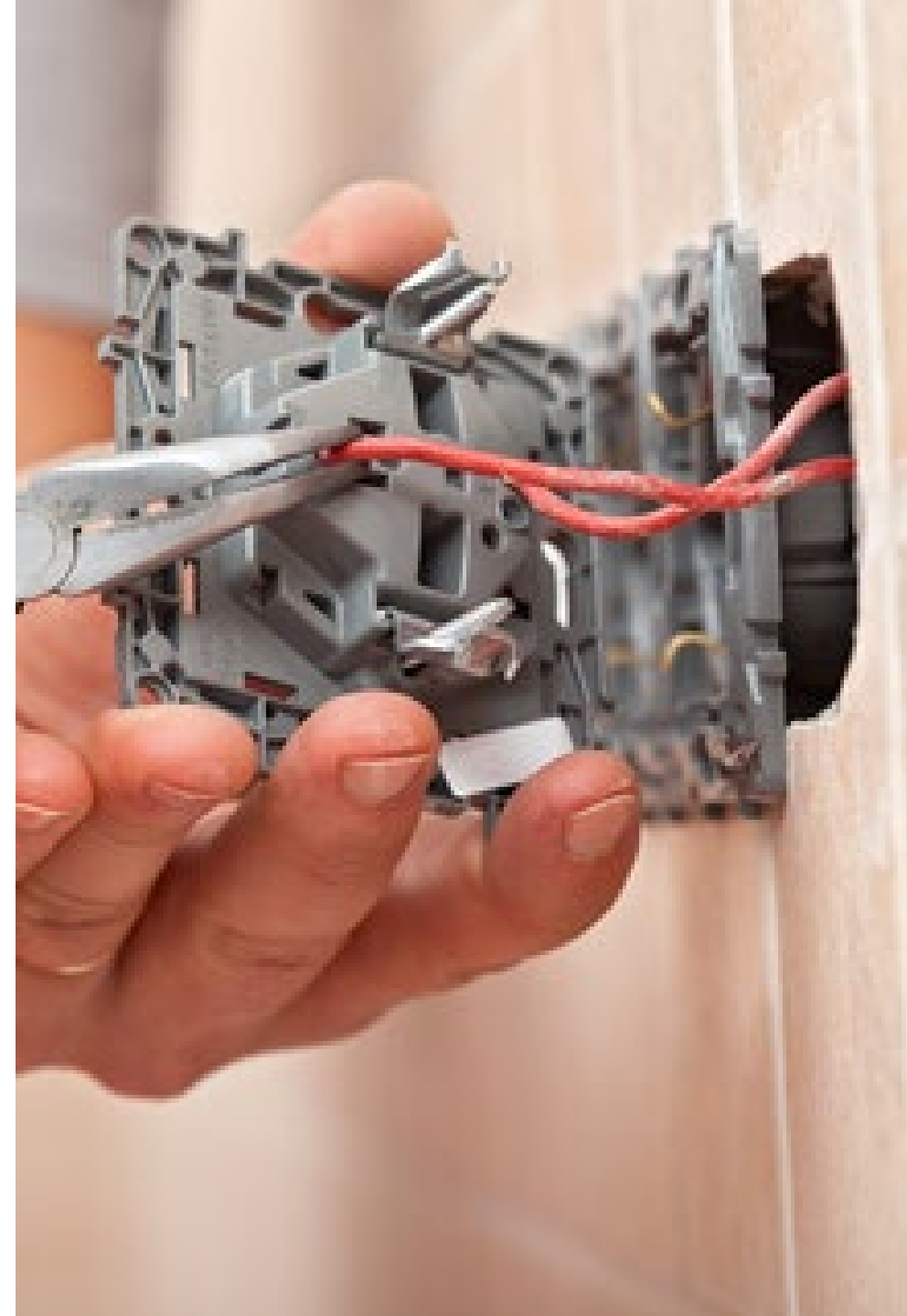


ELECTRICIAN CAREER MAP

- 1) High demand for building service upgrades, heat pump retrofits, offshore wind including operational, EV infrastructure, solar, storage, grid upgrades.
- 2) A long training period to become an electrician.

Electrical Career Pathway

1. Apprentice
2. Electrician
3. Electrical Contractor
4. Master Electrician
5. Supervisor
6. Project Manager



HIGH PERFORMANCE CONSTRUCTION/RETROFIT

- 1) There are major labor shortages, particularly in general carpentry, framing, and envelope/waterproofing specialists.
- 2) Subcontractor positions are better for new entrants.

Construction Career Pathway

1. Framing Carpenter
2. Envelope/Waterproofing Specialist
3. High Performance Window/Storefront Installer
4. Sustainable Construction Supervisor
5. Project Manager



HOW TO ENGAGE WORKERS TO JOIN CLEAN ENERGY CAREERS?

Marketing effort are necessary to show specific efficiency and clean energy trades are a good career path.

Job shadowing to help people understand what clean energy jobs entail

Support services (ex. childcare, driver's license, customer service training etc.). On-the-Job Training is needed in almost all job categories

Mentoring is important to help connect new entrants to a career..

Methods are needed to help lower the risk for employers to hire new entrants.

Community based organizations need to increase capacity to recruit EJ neighborhood residents

More outreach to women and people of color is necessary.

All sectors have sales and marketing positions which are great positions to increase awareness of the field.

- By summer 2022, MassCEC hopes to award multi-year grants to organizations that will support MWBEs, help with certifications, and create new companies



SUPPORT FOR MINORITY AND WOMEN OWNED BUSINESS ENTERPRISES

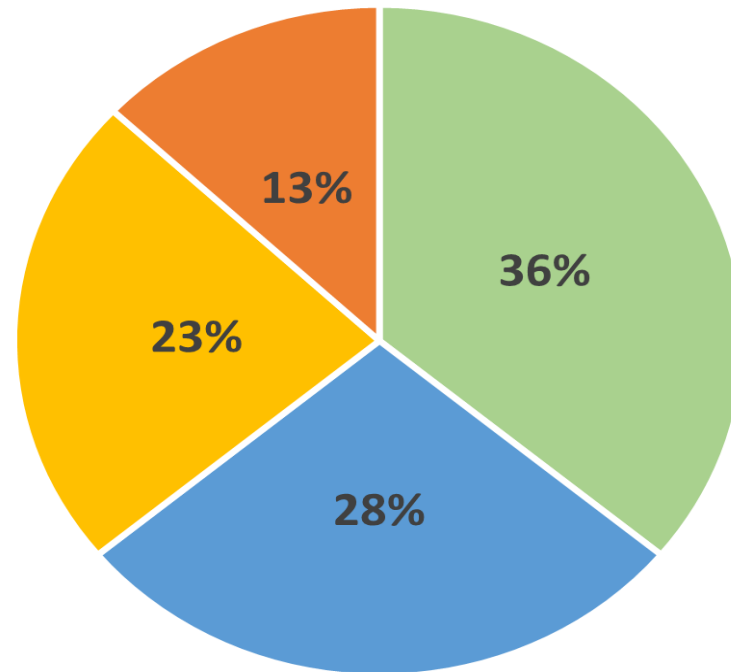
TARGETED INTERNSHIP PROGRAM FOR STUDENTS OF COLOR

- Expose students to a career path in high performance buildings
- Provide assistance finding minority candidates for 2022 summer internships
- Students are supported with career development workshops, mentoring, and peer cohort
- Diversity, Equity, & Inclusion Training for supervisor and student



Summer intern working for Building Envelope Materials

Race/Ethnicity of Participants, Summer 2021



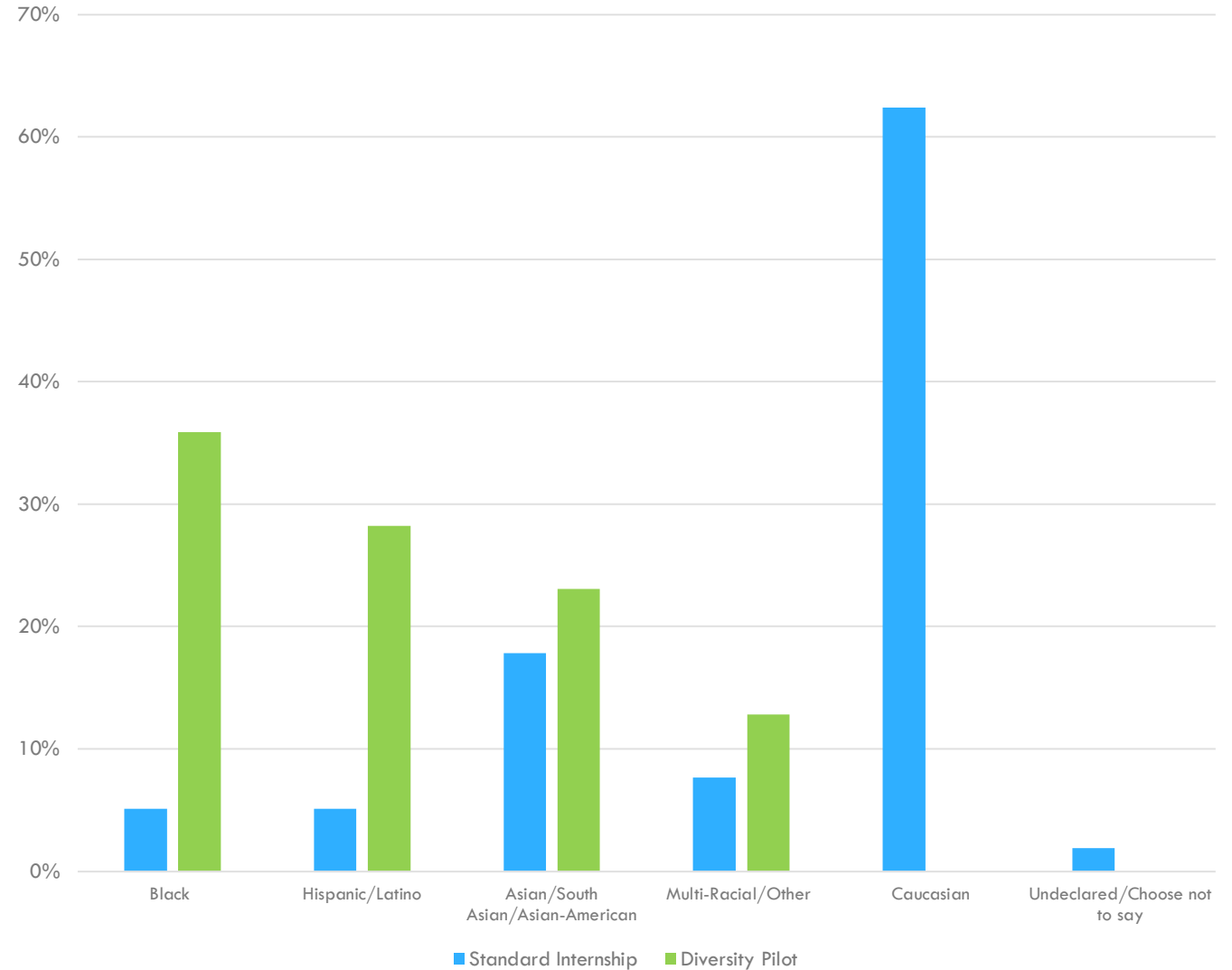
■ Black/African/African-American ■ Hispanic/Latino
■ Asian/South Asian/Asian-American ■ Multi-Racial/Other

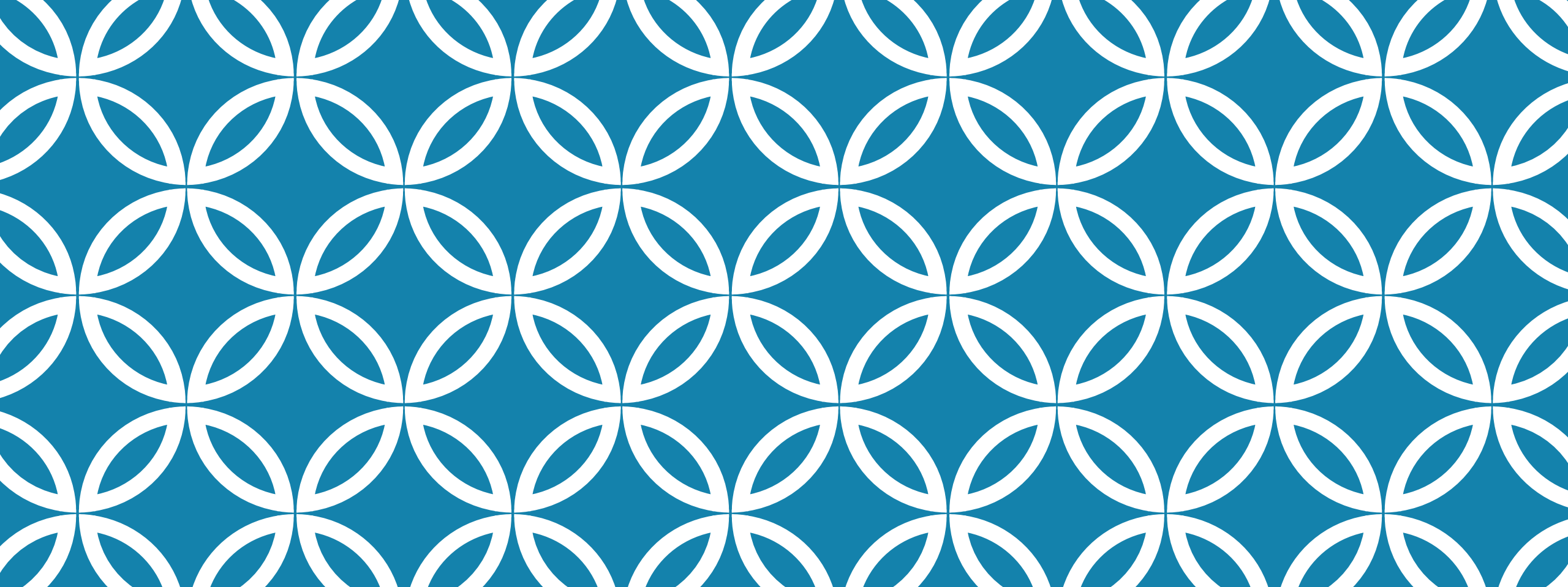
TAKEAWAYS FROM 2021 TARGET INTERN PARTICIPANTS

- *Request from employers to run the program in the fall and spring*
- *Students gained awareness of the clean energy sector*
- *8 students hired after internship period ended.*
- *25 students have returned for the summer*

DEMOGRAPHICS COMPARISON - RACE

Summer 2021 - Standard Summer Internship and Pilot by Race





JANEL GRANUM

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Clean Energy Workforce

Today > 2030

Pat Stanton, Director of Policy

February 2022

Looking at the Data

- Today's workforce
- Workforce needed for 2030 and beyond
- Challenges of bringing new workers into the field

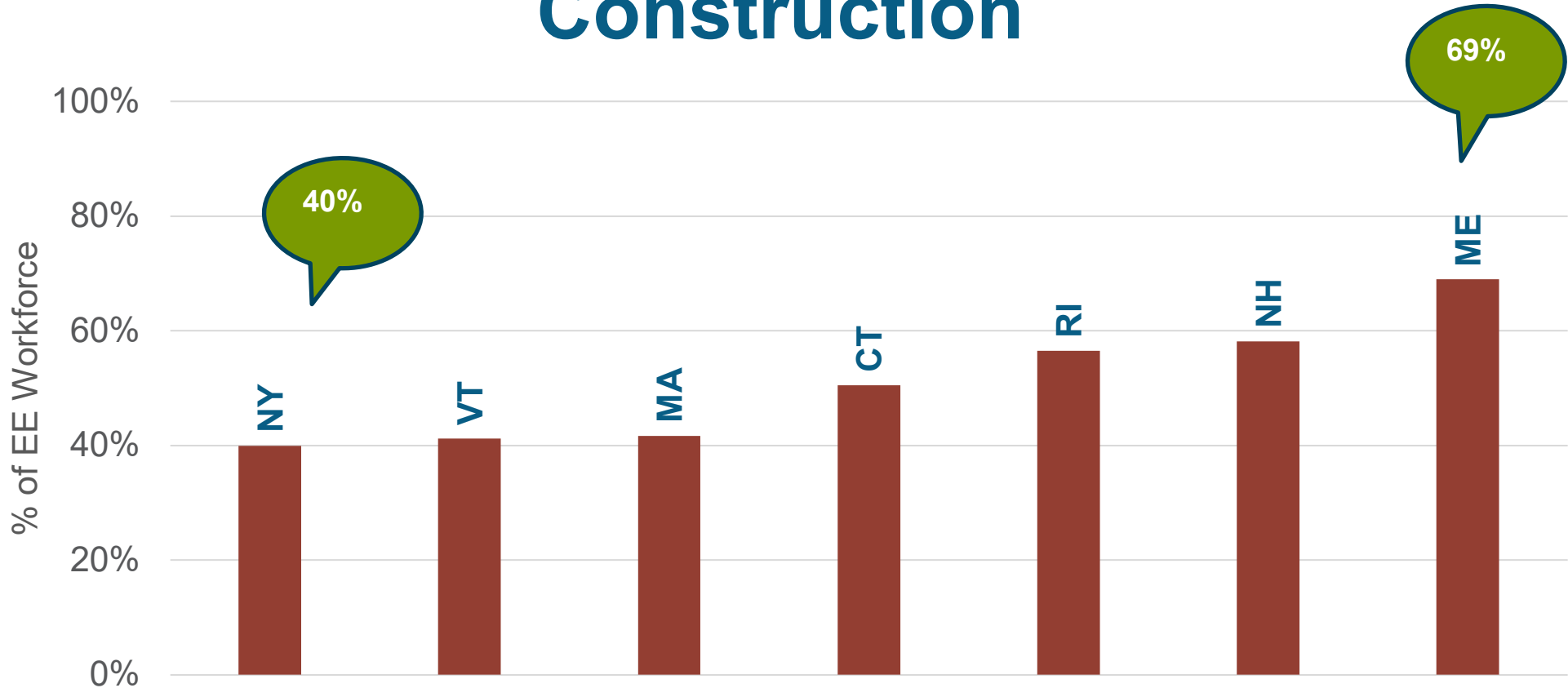
Clean Energy Workforce Today



- U.S. Dept. of Energy / OMB standard protocol for counting energy jobs
- Annual trends data since calendar year 2015
- State & county breakdowns

Today's EE Workforce Profile is Local

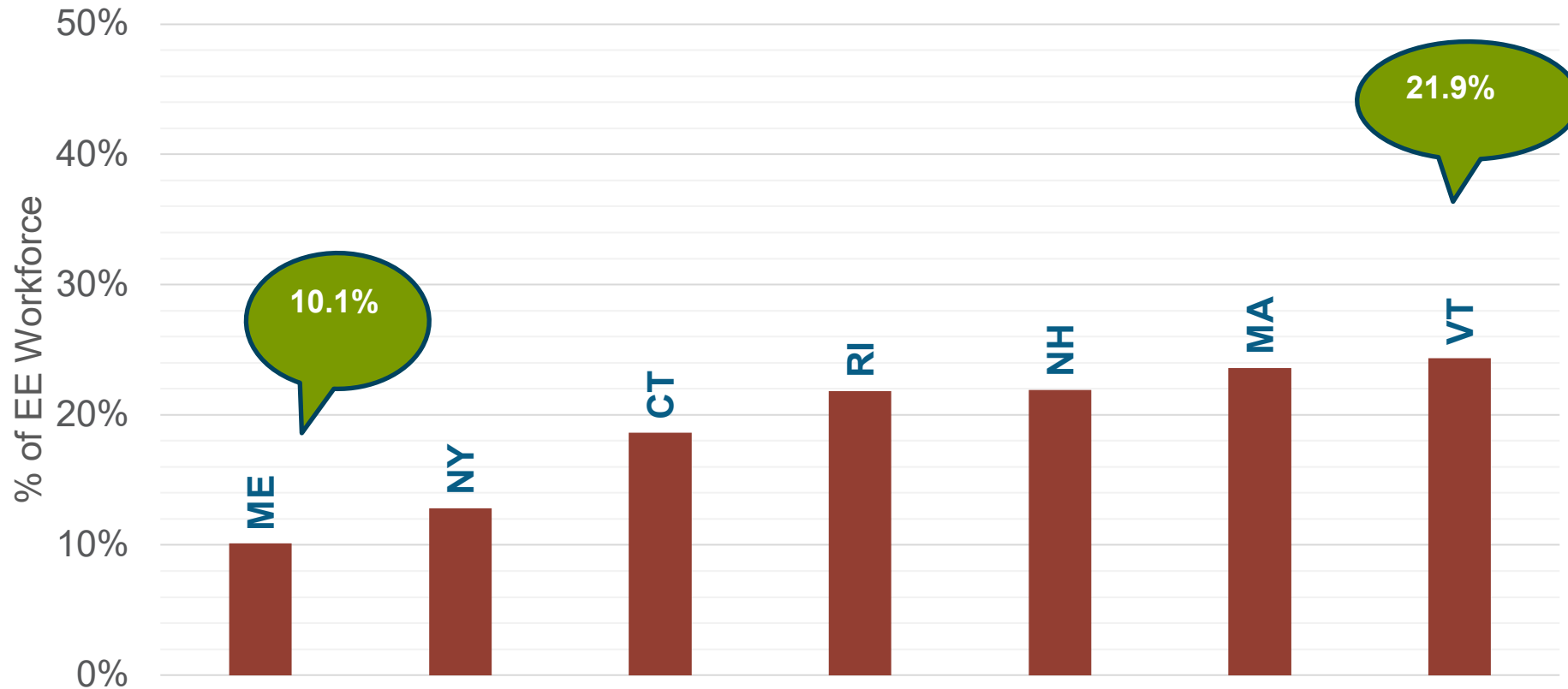
Construction



In metro and rural areas, and in-between, EE construction workers are employed everywhere buildings exist. About 16% of total construction workers nationwide spend at least 50% of their time on energy efficiency.

Today's EE Workforce Beyond Construction

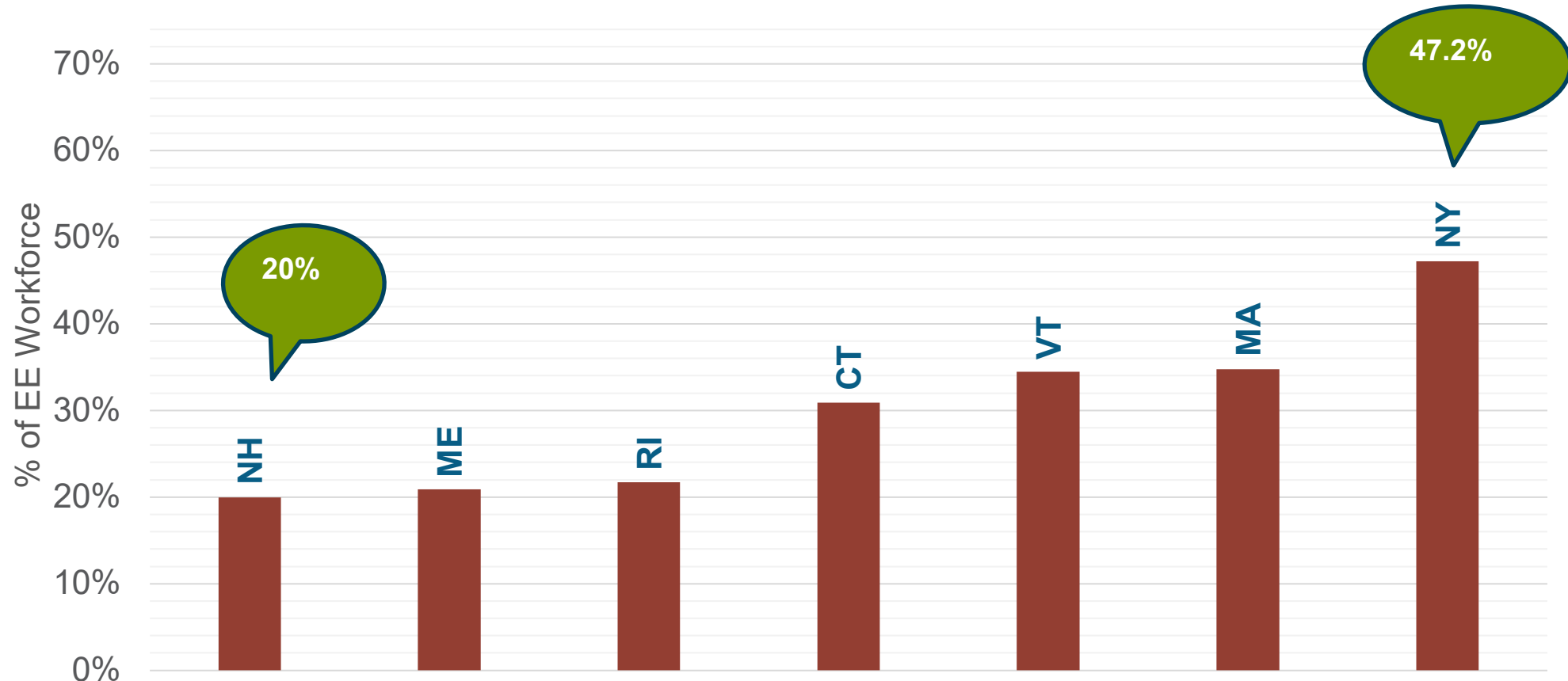
Manufacturing and Trade



A robust domestic manufacturing industry creates energy efficient products then installed and maintained by trained professionals in your community.

Today's EE Workforce Beyond Construction

Professional and Other Services



Engineers, designers, architects, financial services, and legal professionals create concepts and plans, and finance EE products and projects

Good News: Business opportunities are HUGE.



More Good News

1+ million
full-time jobs
for a decade



...to complete EE
retrofits on 80% of
U.S. homes built
before 2000

Why Change is Essential



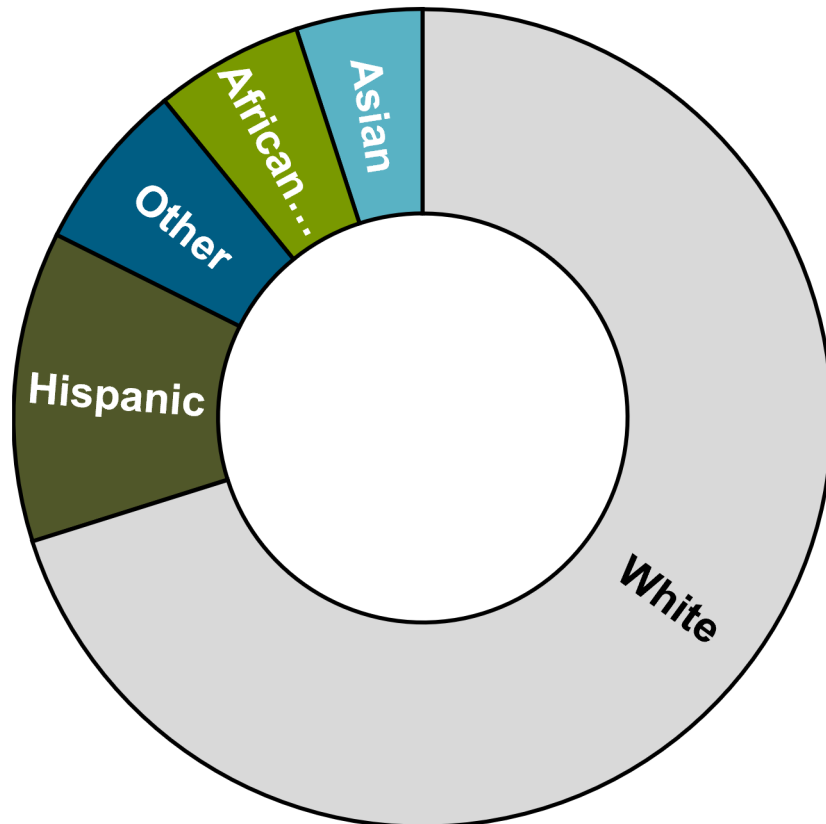
- Education
- Training
- Recruiting
- Workplace culture

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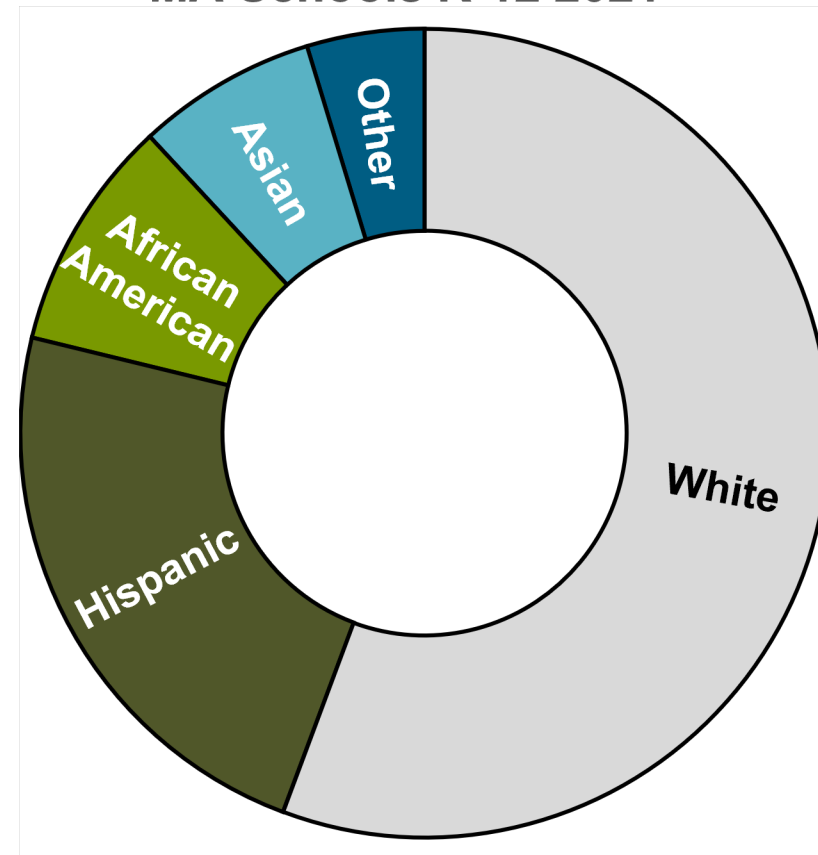
How to Meet the Moment

#1 Be aware of demographics.

MA EE Workforce 2020

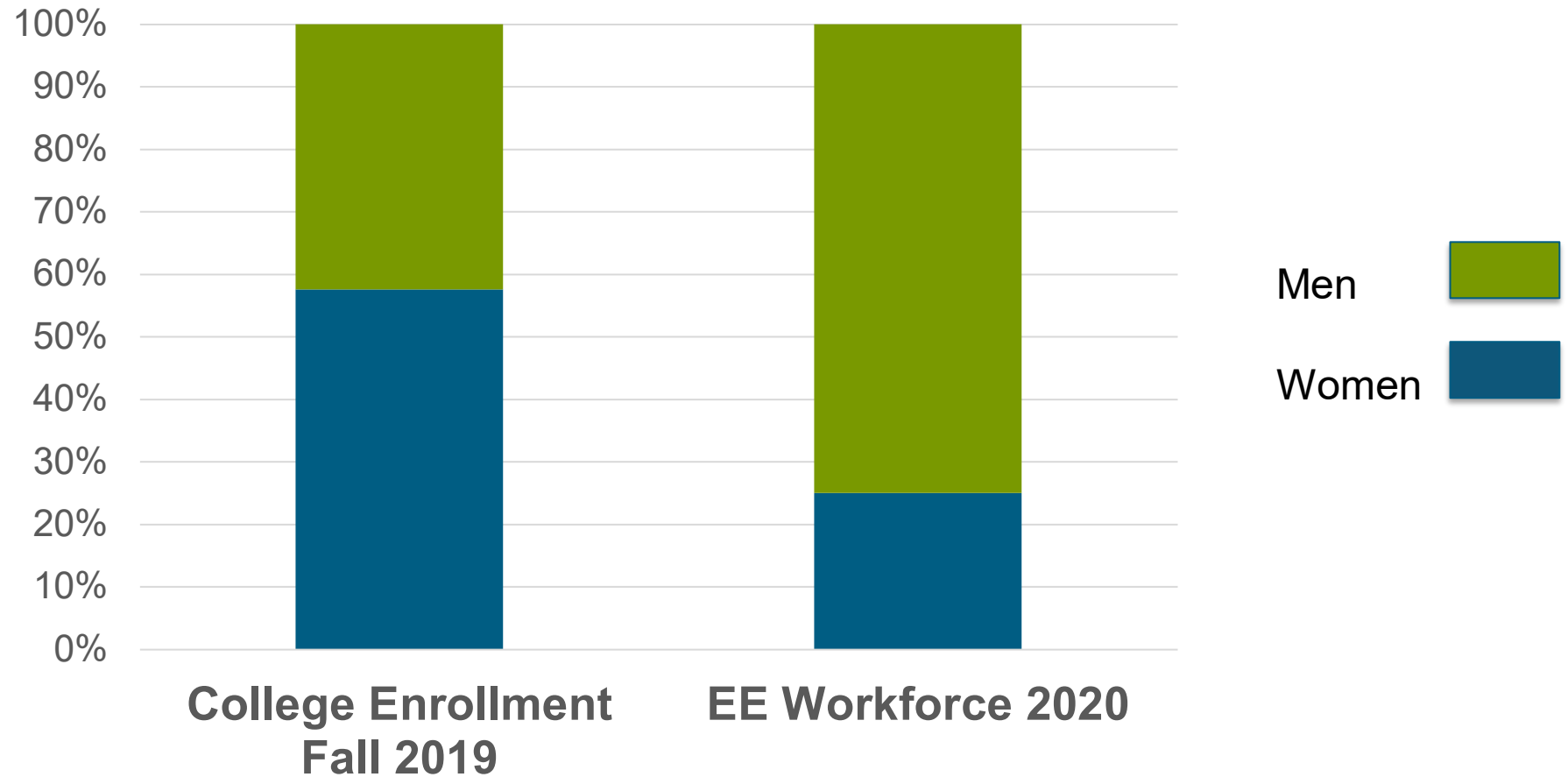


MA Schools K-12 2021



How to Meet the Moment

#2 Address gender disparity.



How to Meet the Moment

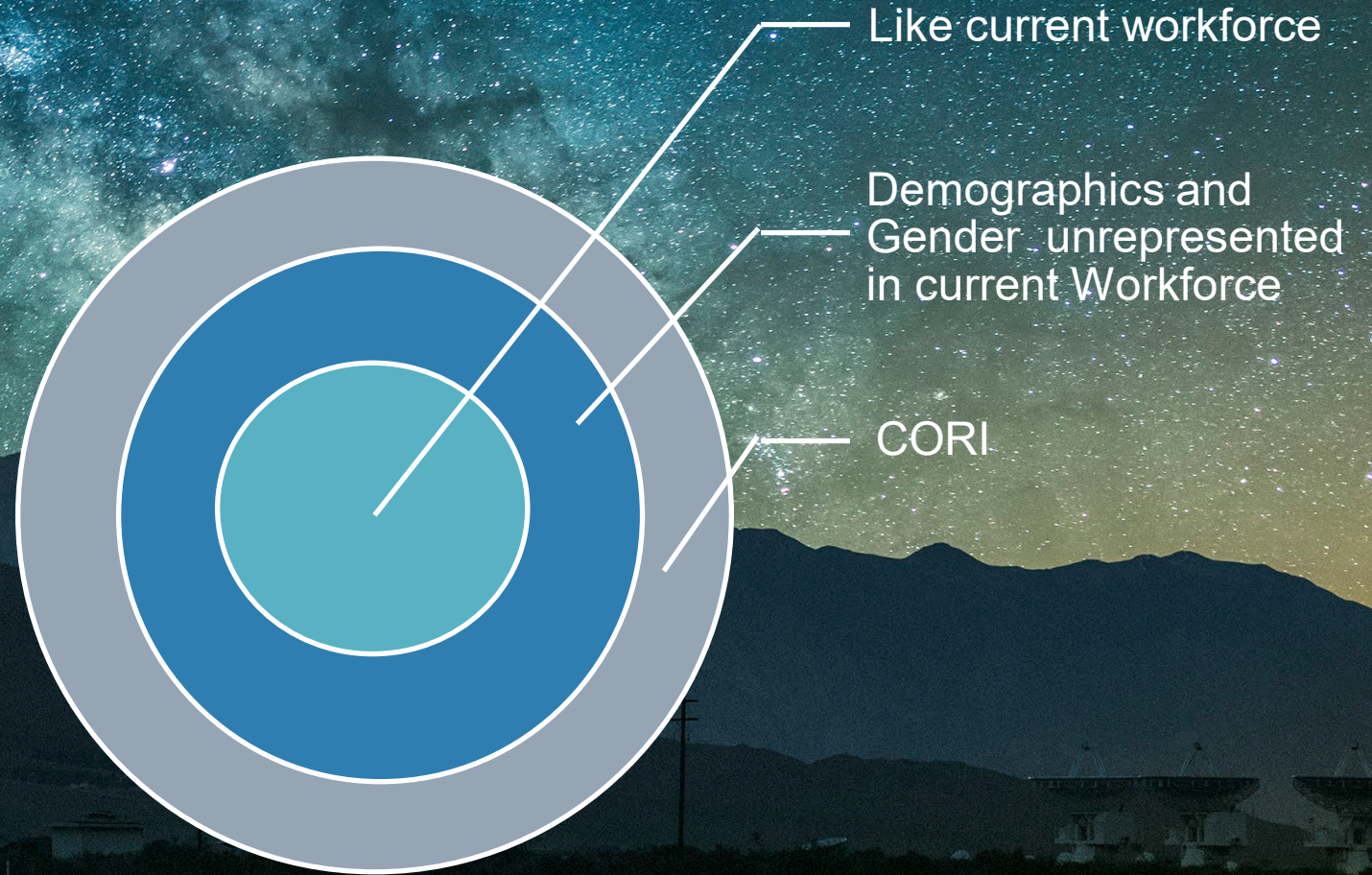
#3 Structural reform is needed RE: criminal records.

Just Facts: As Many Americans Have Criminal Records as College Diplomas

- Today, nearly **one-third** of the adult working age population has a criminal record. In fact, so many Americans have a criminal record that counting them all is nearly impossible.
- Nearly **half of black males and almost 40 percent of white males** are arrested by the age 23.

**BRENNAN
CENTER**
FOR JUSTICE

Smart Businesses Need to Plan Today to Recruit for 2030 Workforce



Thank You



Pat Stanton
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Energy Efficiency Jobs in America
<https://ee.e4thefuture.org>