

# Workforce Development in Vermont's Thermal Sector

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EAN 2021 Summer Internship



**ENERGY ACTION NETWORK**



# About me





# Workforce Context

Vermont ranks 4<sup>th</sup> in nation with highest share of population at retirement age

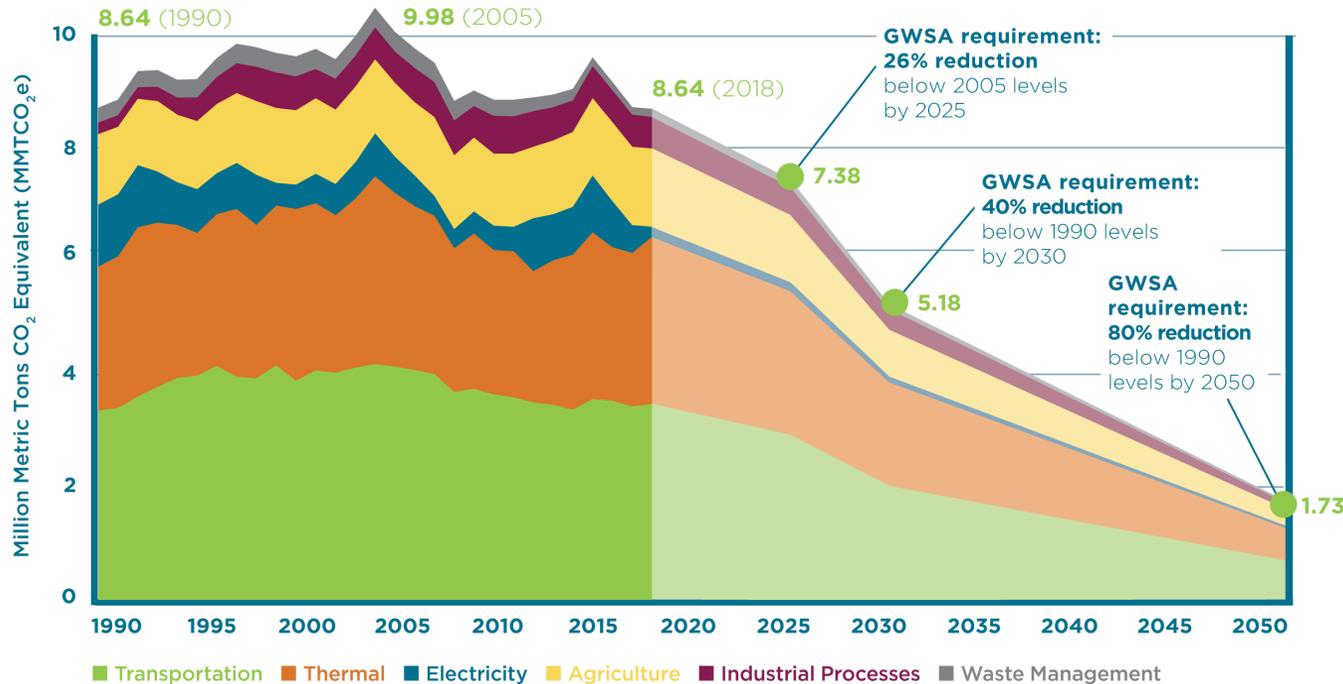
Vermont lost 11,500 workers between 2007 and 2020

4,000 more households moved out of Vermont than moved into Vermont between 2012 and 2016



# Vermont's Energy Goals

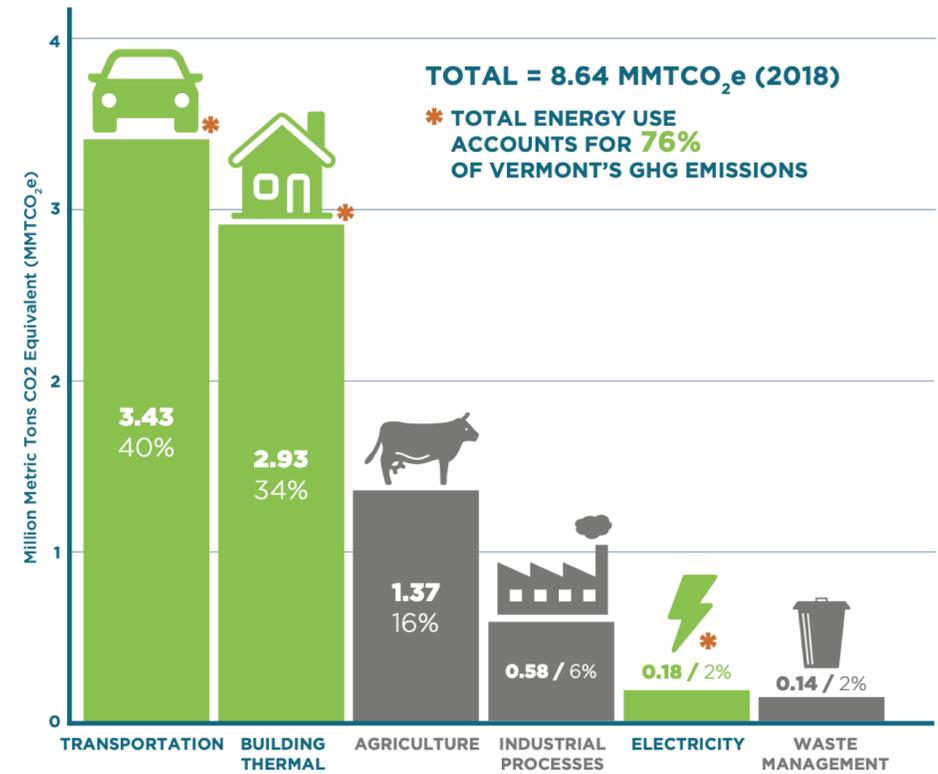
## Vermont's historical GHG emissions and future requirements



Source: Vermont Agency of Natural Resources, Vermont GHG Emissions Inventory and Forecast (1990-2017), 2021.



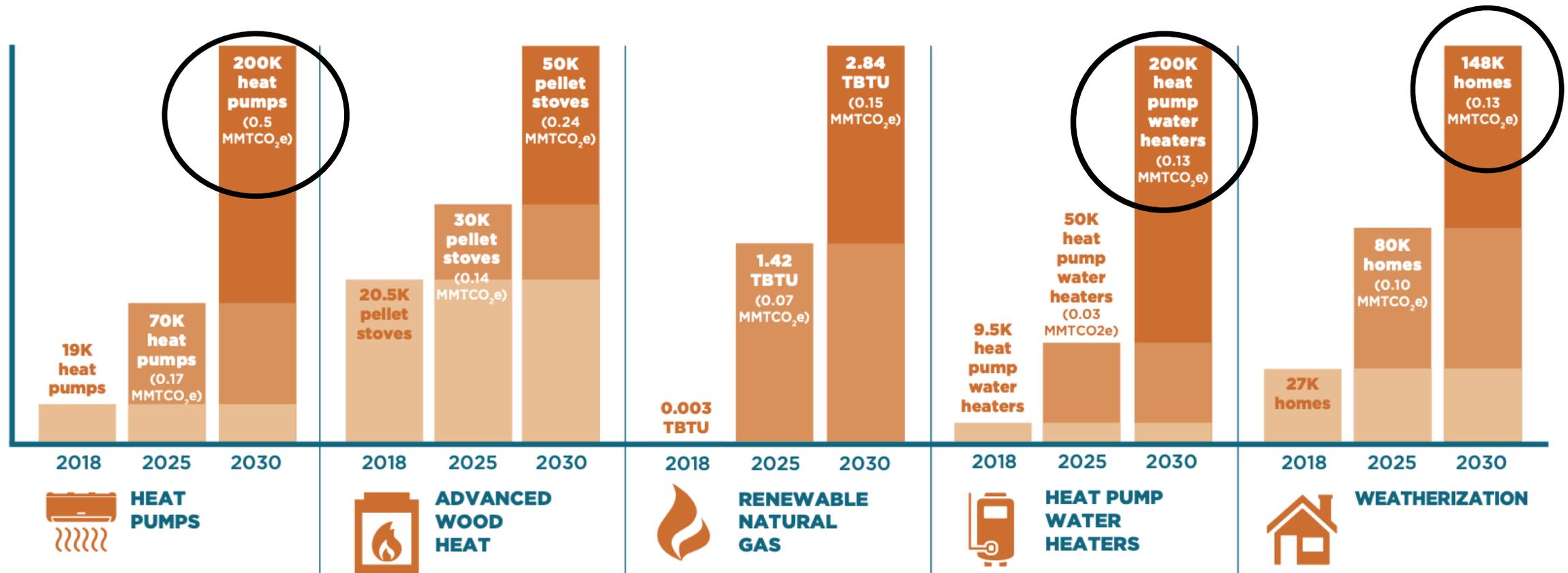
## Vermont's GHG emissions by sector, 2018





# EAN Emissions Reduction Pathways Model

## Highest impact thermal measures in EAN Pathways Model





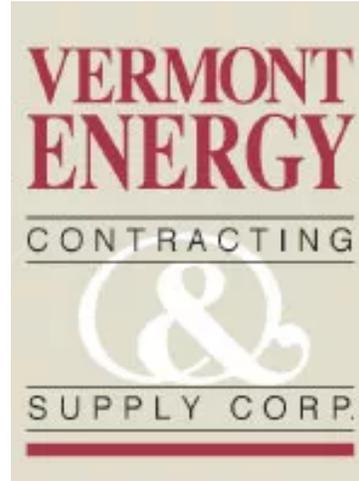
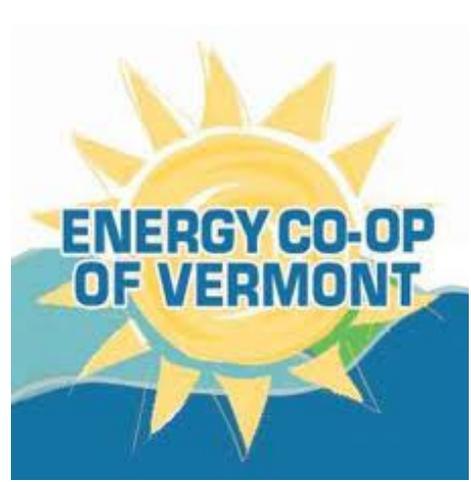
# Objectives

How many workers can we expect to need in order to meet 2030 goals?

How should we structure our career and technical education (CTE) programs?

How can we improve upon and increase recruitment?

Where can we be recruiting from?





## **How many workers can we expect to need in order to meet 2030 goals?**



Single-zone cold-climate heat pumps

Multi-zone cold climate heat pumps

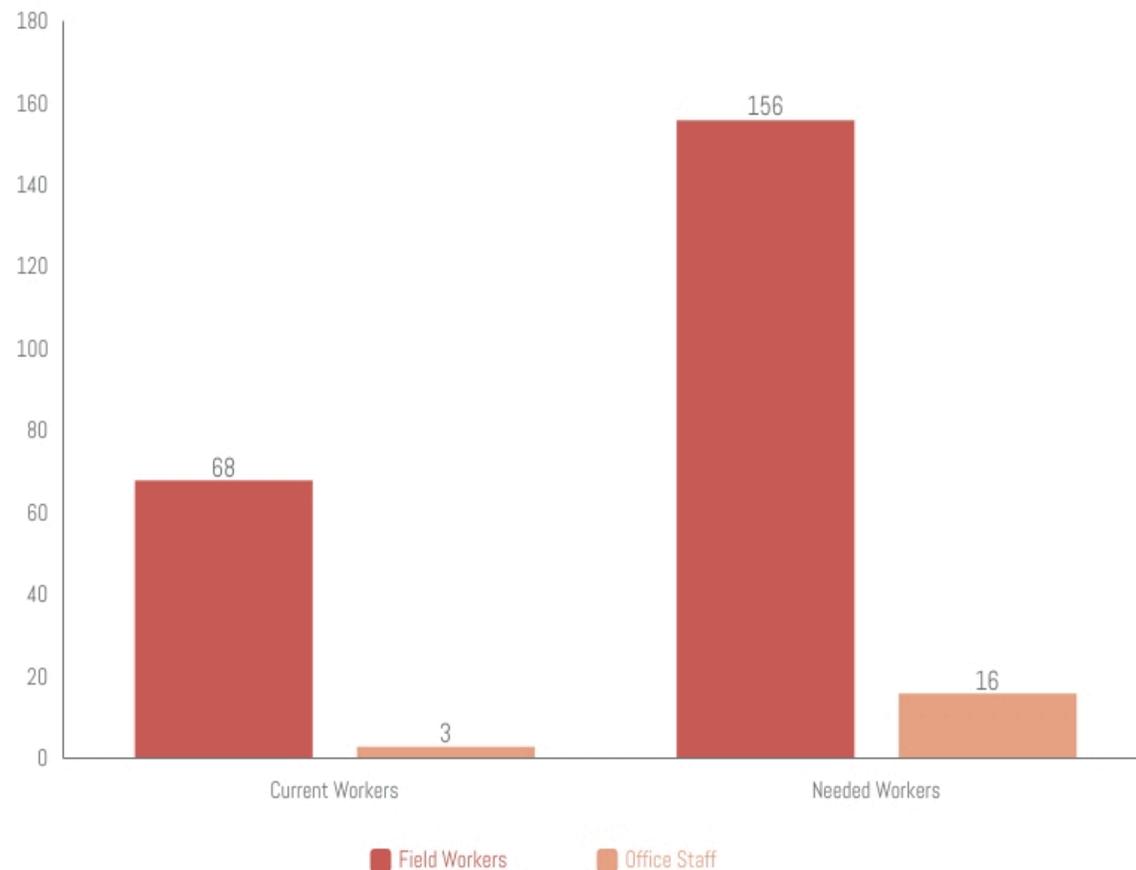
Heat pump water heaters

Weatherization



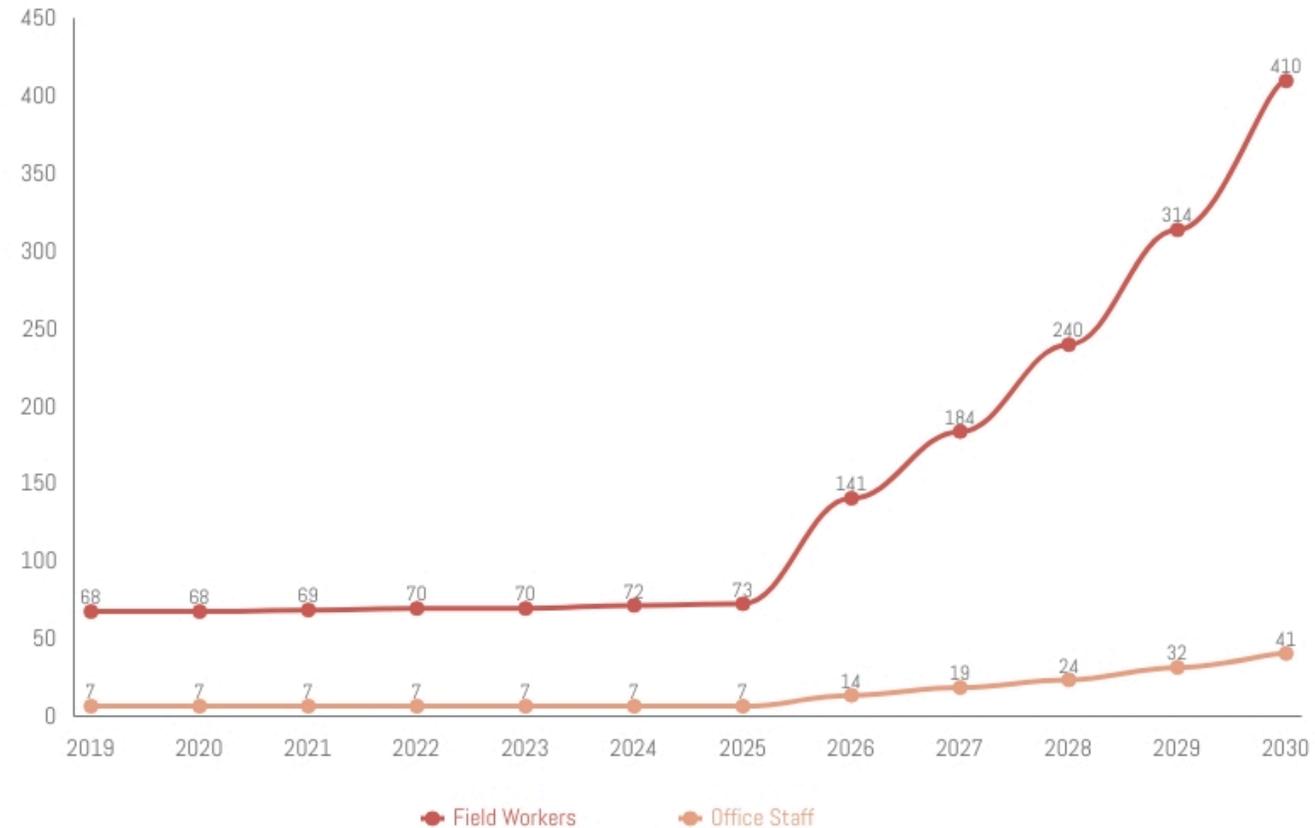
# Single-zone cold-climate heat pumps

Single-Zone Cold-Climate Heat Pump Worker Estimates Using Yearly Average



Yearly Change in Single-Zone Cold-Climate Heat Pump Workers

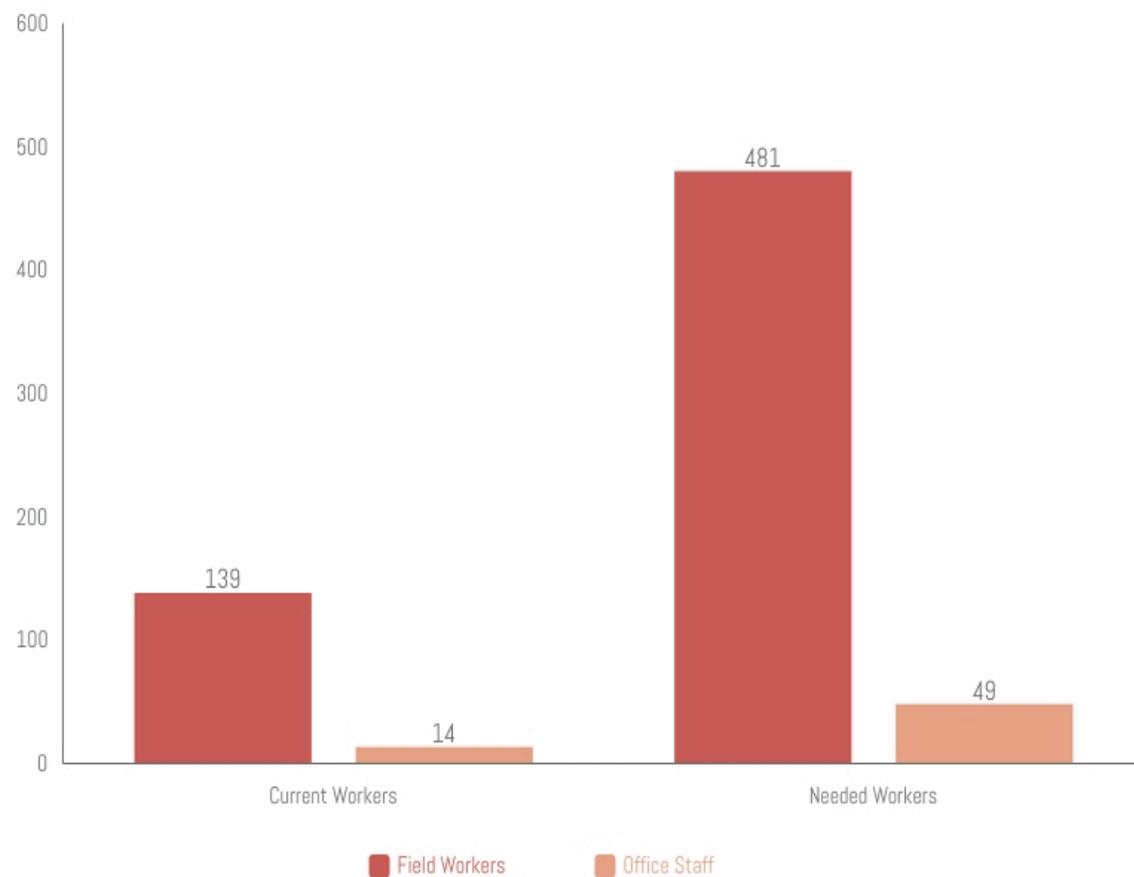
One Ramp-Up Example Using EAN's Emissions Reduction Pathways Model





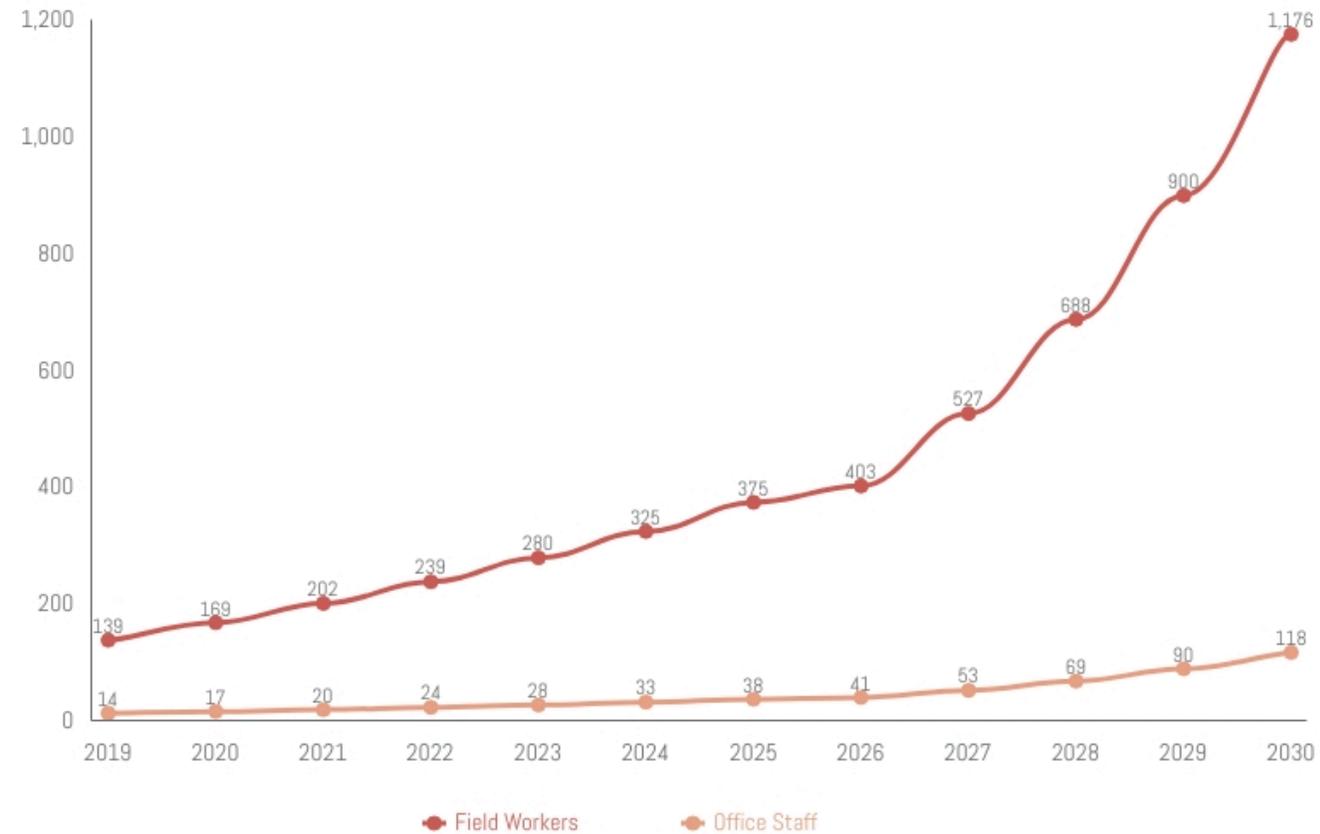
# Multi-zone cold-climate heat pumps

Multi-Zone Cold Climate Heat Pump Worker Estimates Using Yearly Average



Yearly Change in Multi-Zone Cold-Climate Heat Pump Workers

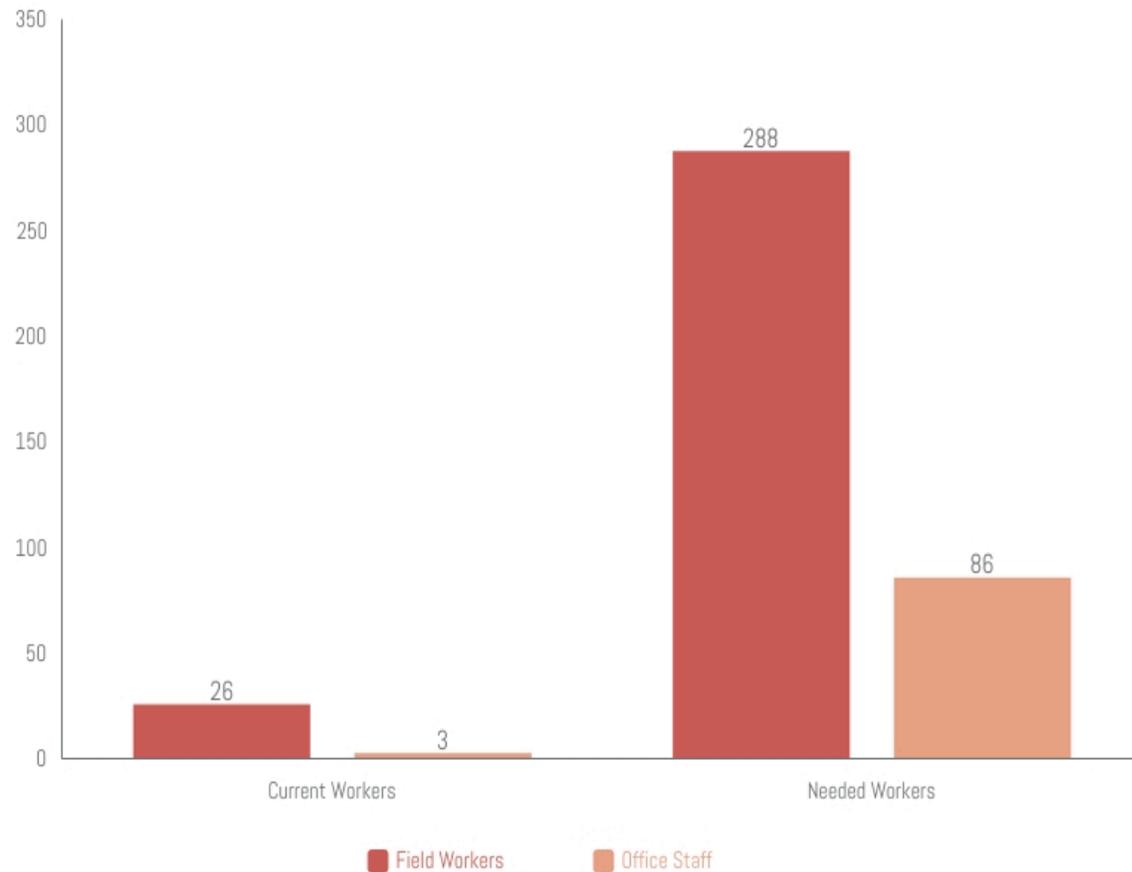
One Ramp-Up Example Using EAN's Emissions Reduction Pathways Model



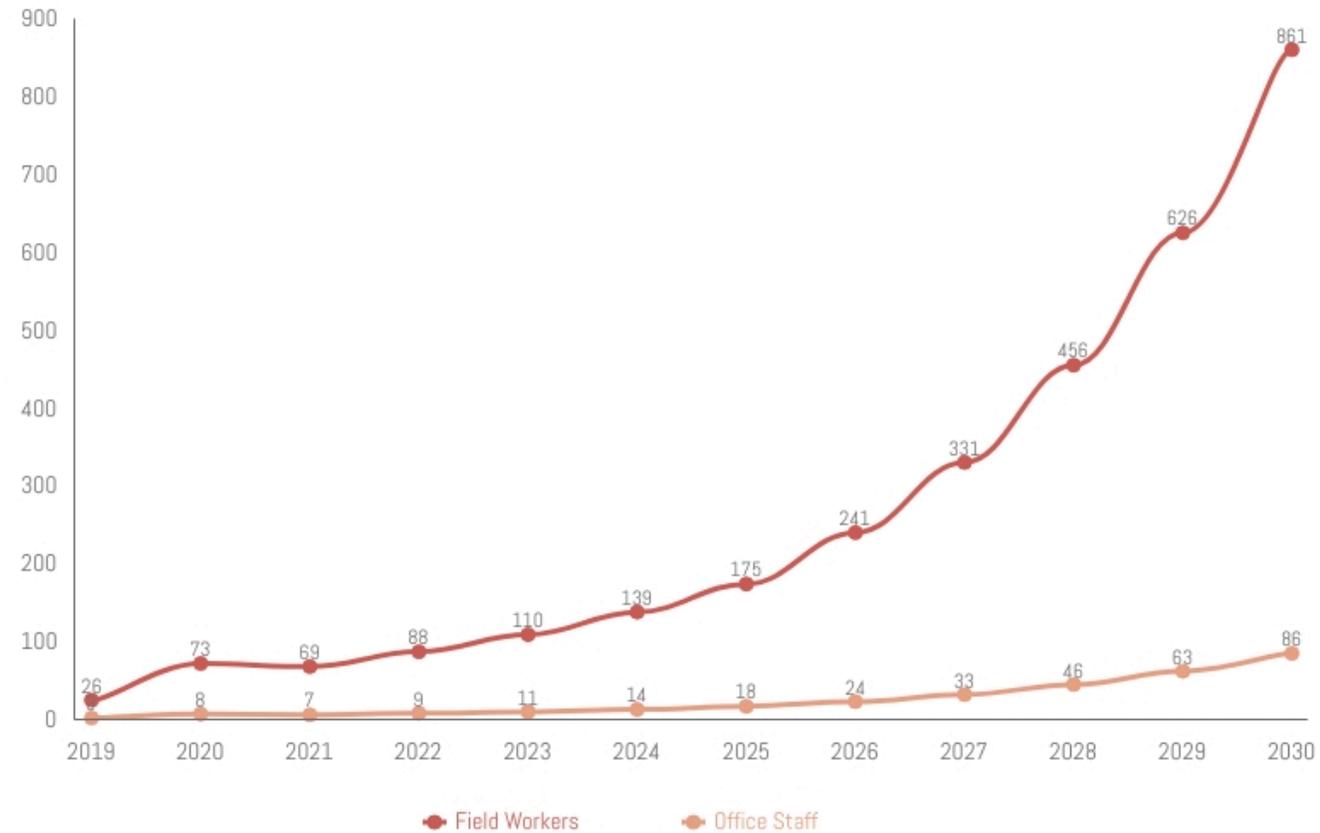


# Heat pump water heaters

Heat Pump Water Heaters Worker Estimates Using Yearly Average



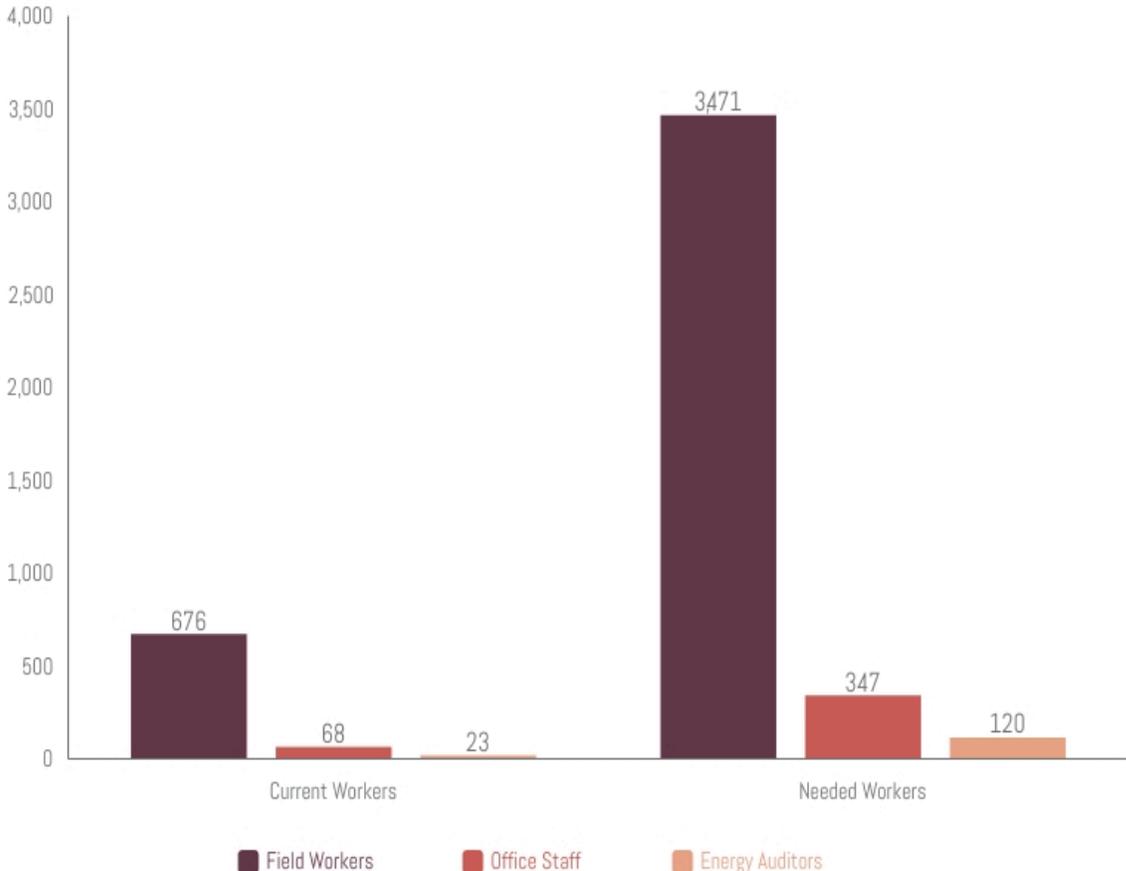
Yearly Change in Heat Pump Water Heater Workers  
One Ramp-Up Example Using EAN's Emissions Reduction Pathways Model



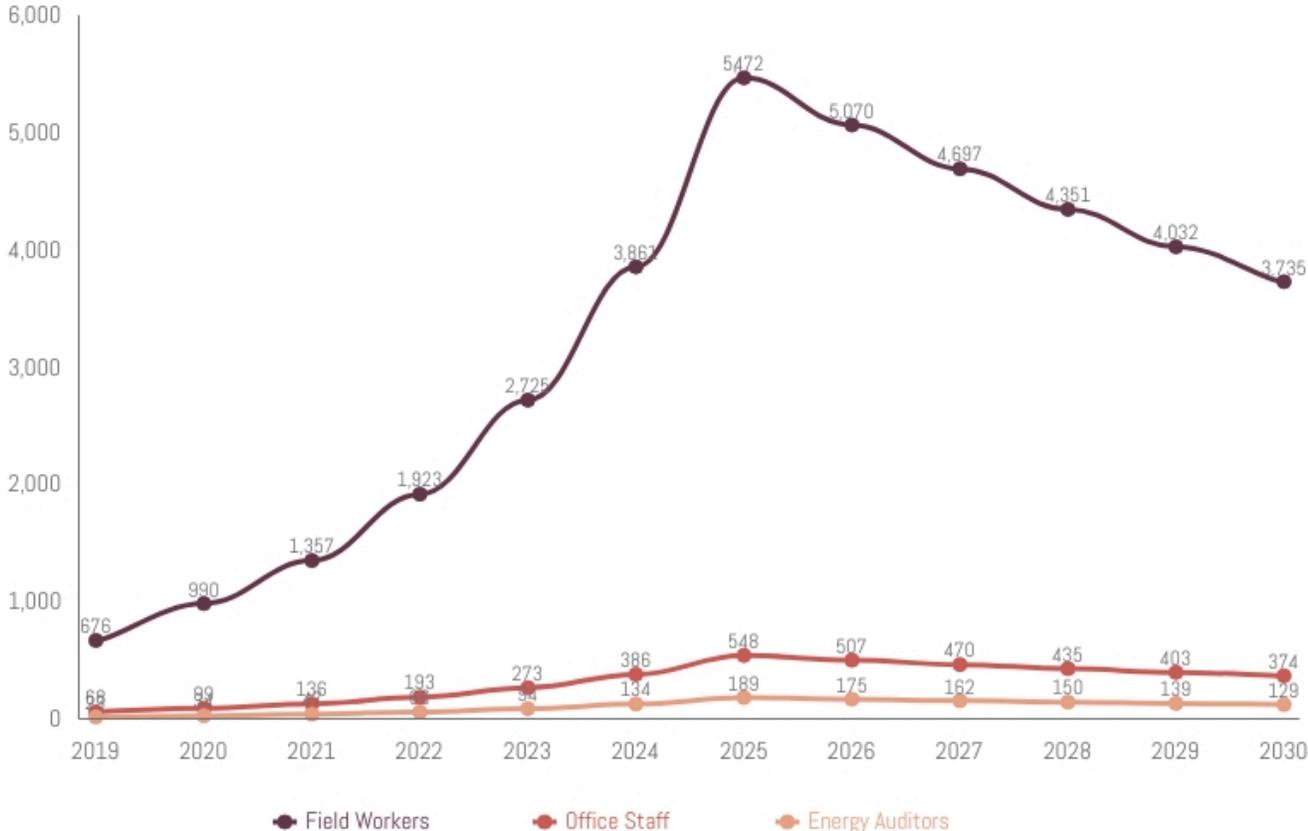


# Weatherization

Weatherization Worker Estimates Using Yearly Average



Yearly Change in Weatherization Workers  
One Ramp-Up Example Using EAN's Emissions Reduction Pathways Model



# Lessons Learned

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# How should we structure our career and technical education (CTE) programs?

Vermont has the lowest continuation rate to college among low-income students in New England

Vermont has the highest percentage of 18 to 24 year-olds living in poverty in New England

60% of high school students in Vermont go on to college or CTE, only 55% of those students complete their degrees or programs



# Lessons on Certification and Training Structure

1

Breaking down  
formal  
certifications

2

Building up  
supervisor  
capacity

3

Increasing on-  
the-job training

4

Managing  
expectations

5

Improving  
testing structure  
for certifications



# Lessons on training curriculum

Broad,  
transferable  
skill sets

Business skills

Soft skills



# How can we improve upon and increase training recruitment?

## Mindset

“It’s looked down upon to go to tech school as opposed to taking college credit courses”

- Brian Gray, Energy Co-op of VT

“People don’t realize the trades are a really good career”

- Russ Flanigan, Building Energy

“It’s not college or bust”

- Tom Cheney, Advance Vermont

## Affordability

“Changes in the perception of affordability can drive enrollment”

- Carolyn Weir, McClure Foundation

“Once somebody comes on board, we’re paying them to get licenses and training, and we’re giving them an automatic raise when they successfully complete the course”

- Mark Stephenson, VT Energy Contracting and Supply



# How can we improve upon and increase employment recruiting?

## Framing

Uncomfortable and physically demanding, but is important work that provides opportunities

## Culture

“Having a personal connection with someone who has persevered and demonstrated you can get through it, matters. Having that camaraderie is critical.”

- Paul Zabriskie, EnergySmart VT

## Retention

“We spend a bunch of time training somebody and then they’re off to the next thing”

- Russ Flanigan, Building Energy

# Partnerships

Symbiotic and collaborative relationship between training programs, employers, and students

# Mission

“You go home at the end of the day and you’ve accomplished a visible task”

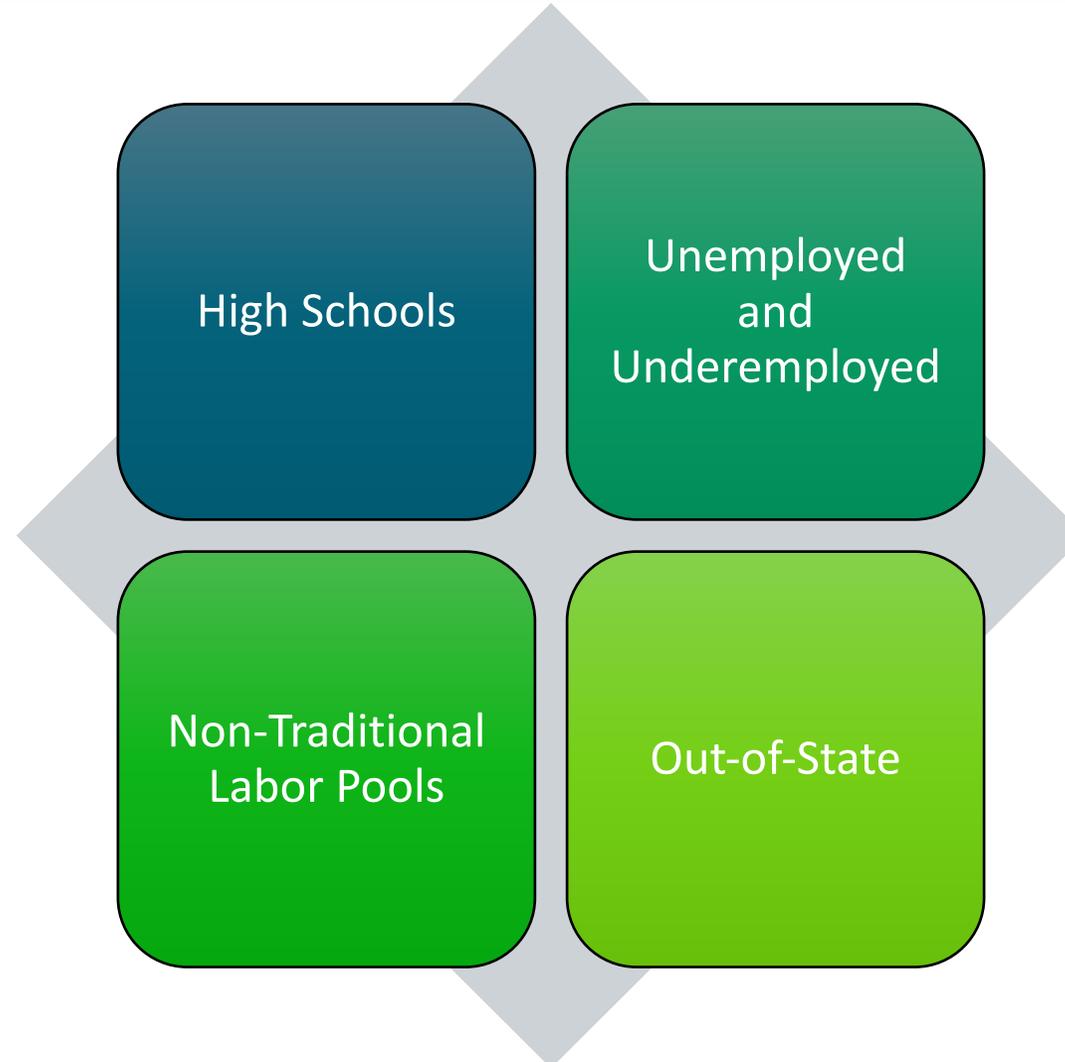
- Mark Stephenson, VT Energy Contracting and Supply

“When you go home at night, you may be tired and you may be dirty, but you can say to your kids, ‘I’m part of the solution for climate change’”

- Russ Flanigan, Building Energy



# Where can we be recruiting from?



# Further Research Opportunities

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*ENERGY ACTION NETWORK*

Develop partnership outreach program

Incorporate justice-based training programs into institutions that work with non-traditional labor pools

Develop mission-and-service-based volunteer programs

Incorporate do-it-yourself models into energy efficiency

Think creatively about ways to combine energy efficiency, workforce, and affordable housing

Cautiously prepare for possibility of 'traveling tradespeople' similar to health care's 'traveling nurses'

Look into already-existing or new corps programs related to energy efficiency





# For more information



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