



# Equitable Workforce Development in the Midwest

Midwest Air Source Heat Pump Collaborative  
July 20, 2023



ELEVATE



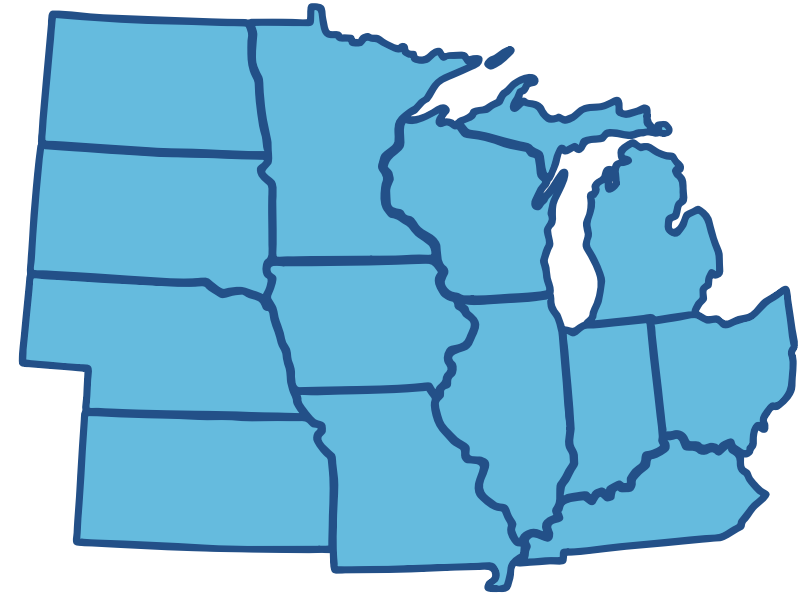
# Zoomkeeping

- This webinar is being recorded, and MEEA will be sending a link to view it along with the slide deck
- If you have any questions for the presenters, please put them in the Question box, not the chat, to make sure we see them
  - We have saved time at the end for discussion
- Feel free to provide input using the chat functionality

# Midwest Energy Efficiency Alliance

The Midwest Energy Efficiency Alliance (MEEA) is a collaborative network, promoting energy efficiency to optimize energy generation, reduce consumption, create jobs and decrease carbon emissions in all Midwest communities.

MEEA is a non-profit membership organization with 150+ members, including:



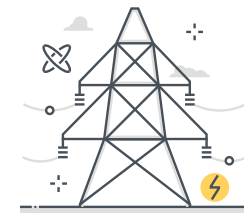
Energy service  
companies &  
contractors



State & local  
governments



Academic &  
Research institutions



Electric &  
gas utilities

## Speakers



**Abby Corso**  
Elevate

**Moderator**



**Sarah Northrup**  
Center for Energy  
and Environment



**Zak Paine**  
Slipstream



**Mila Turner**  
Slipstream

# Agenda

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Introduction & Background Info

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Project Overview

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HVAC Education/Training Status Quo

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Interview Insights

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Strategies Identified

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Next Steps

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Discussion (Q&A)

# Goals for today

01

Understand  
barriers that hinder  
equitable  
workforce  
development

02

Provide strategies,  
best practices, and  
ideas for  
collaboration and  
partnership

03

Drive further  
discussion and  
interest in  
collaboration



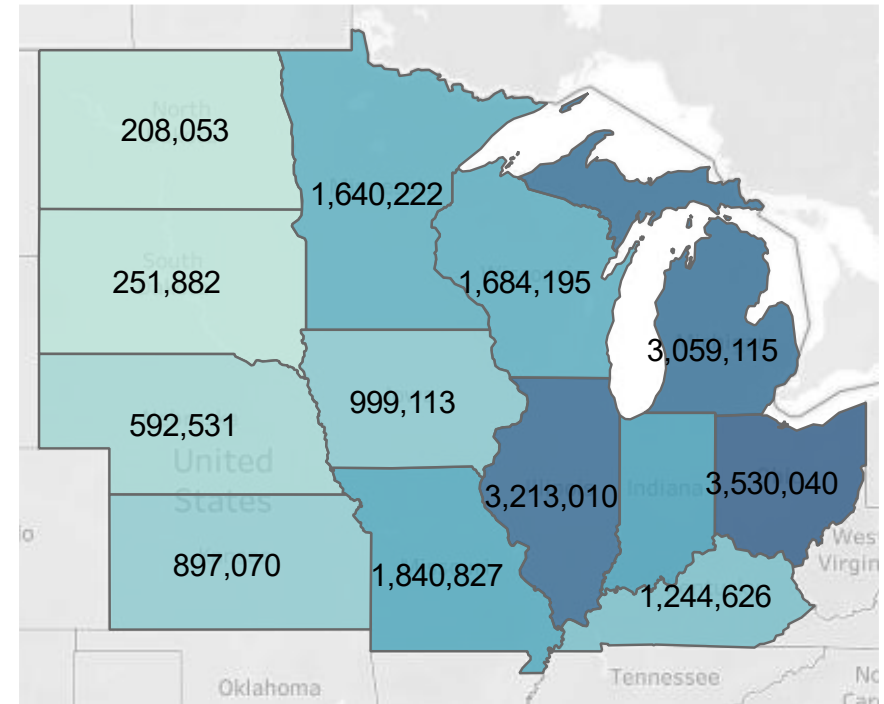
# Introduction

Abby Corso

# Midwest ASHP Collaborative

*Accelerating ASHP adoption faster and better, together*

- Delivered by **CEE** and **Slipstream**
  - In partnership with Midwest Energy Efficiency Alliance (**MEEA**) and **Elevate**
- 2022-2023 Objectives:
  - Cross pollinating program best practices
  - Rate design for heat pumps
  - Equitable workforce development
  - Regional market transformation strategy



*Number of SFH per state*



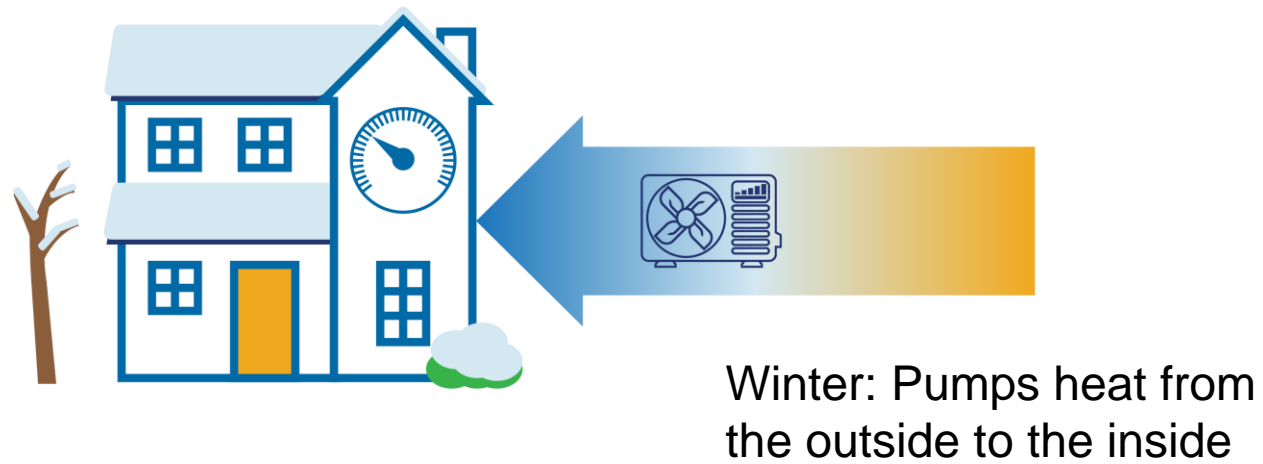
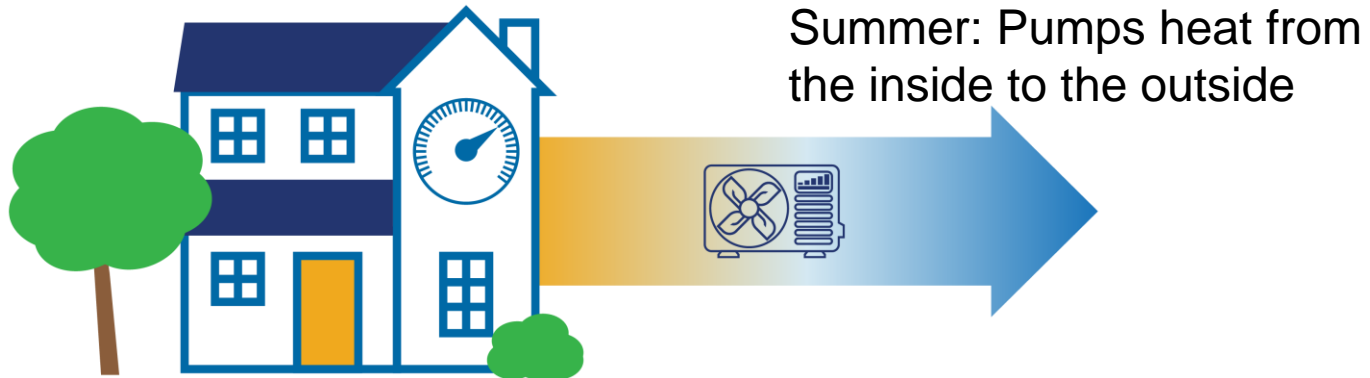
# Why do we need to act now?

“The mission of DOE’s Office of [Energy Efficiency and Renewable Energy](#) is to accelerate the research, development, demonstration, and deployment of technologies and solutions to equitably **transition America to net zero greenhouse gas emissions economy-wide by no later than 2050**”

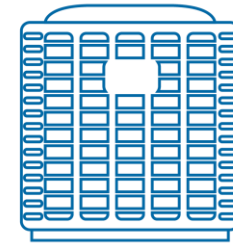
## Vision: The Future of Home Heating is Heat Pumps

**By 2030 air source heat pumps (ASHPs) are the first choice for contractors and homeowners replacing heating systems or air conditioners, optimized to provide heating as well as cooling.**

# What is a Heat Pump?



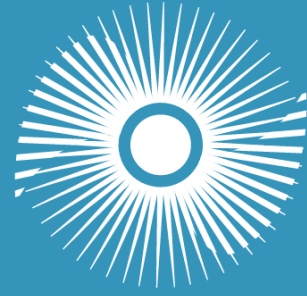
Same technology  
as:



Air Conditioner



Refrigerator



MIDWEST ASHP  
COLLABORATIVE

# Equitable Workforce Development Strategy

# Contents

## Overview

- Primary Goals
- Needs Assessment Process

## HVAC Education/Training Status Quo

- Description
- Career Maps
- Challenges Caused by Status Quo

## Interview Insights

- Interview Participants
- Market Actor Insights

## Strategies

- General Strategies
- Partner Collaboration Cycles

## Next Steps



# Overview

# Primary Goals



Develop strategy on how to tackle equitable workforce development (WD) at a local level that is replicable across Midwest communities



Connect existing workforce development organizations with ASHP training content and enable new partnerships for wider impact in Chicago and the Twin Cities



**Project Scope:** Identify workforce development partners (e.g., technical schools, workforce development nonprofit and governmental organizations, etc.), develop strategies, and plan for air source heat pump integration into curriculum and workforce plans of these partners.



# Needs Assessment Process

Compiled list of 55+ workforce development market actors throughout Midwest

Narrowed focus to Chicago and Twin Cities

Established priority rankings for outreach

Conducted virtual interviews covering programming, recruitment, retention, curriculum, and partnerships

Held small team discussions to share observations and interpret significance of findings



# Workforce Development Market Actors



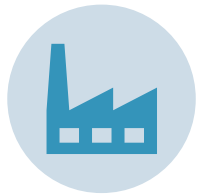
Community colleges



Technical institutes



Trade schools



Manufacturers



Distributors



Trade associations



Community-based organizations (CBOs)



Nonprofits



Contractors





# Guiding Question + Approach

How can we *equitably* empower individuals to enter the Heating, Ventilation, and Air Conditioning (HVAC) field and develop careers that serve the growing demand for qualified ASHP installers?

- Equity in the overall distribution of the benefits of clean and renewable energy policies
- Equitable access to careers that are high wage with comprehensive benefits
- Expand economic opportunities to underrepresented groups, frontline communities, and historically marginalized populations
- Identify which factors impact retention and advancement of workers from underrepresented groups and underserved communities



# **HVAC Education/Training Status Quo**

# Status Quo: HVAC Technician Education and Training



Numerous institutions offer programs to educate those new to HVAC service and installation



Many paths to choose from: installation technician, service technician, commercial refrigeration and more



Expected time to completion: 2 years



Two-year tuition costs average \$10,500 – \$15,000 (grants to cover some costs offered on occasion)



Compare to traditional university four-year education average costs of ~\$60,000



# Key Distinctions in Industry



ASHPs are regulated and supplied to HVAC / mechanical contractors with proper license(s)

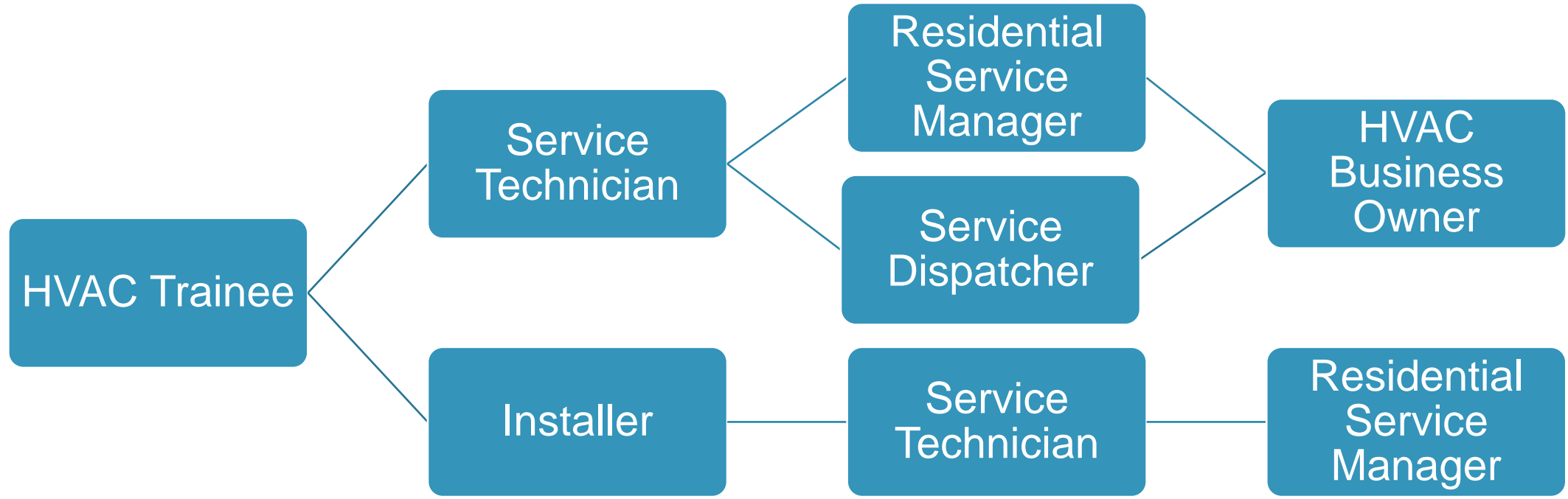


New entrants need *basic* skills and knowledge, not specific knowledge

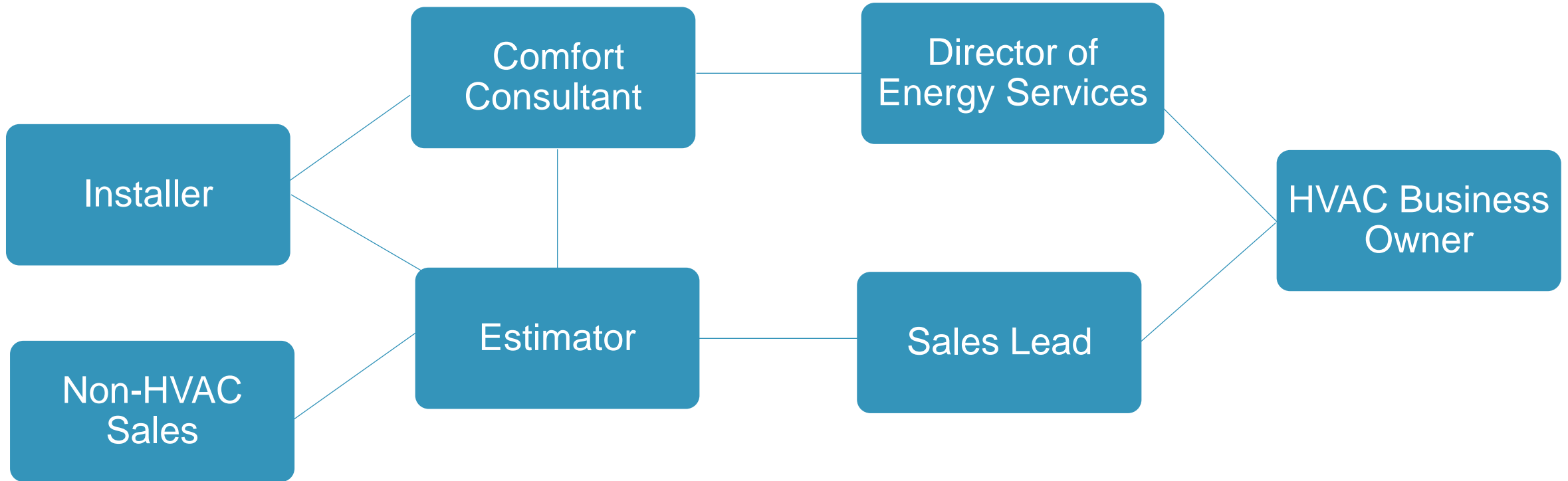


Continuing education should include specific knowledge

# Residential HVAC Contractor Service Career Map

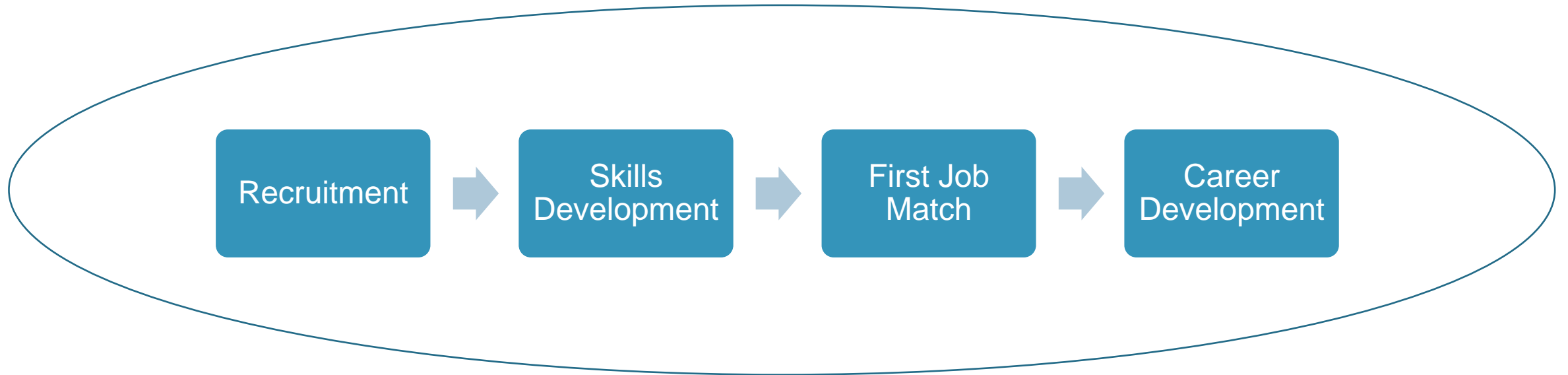


# Residential HVAC Contractor Sales Career Map



*A comfort consultant/advisor is responsible for the in-home sales process by creating load calculations, taking in information about the existing system, and designing a solution for the customer.*

# Standard HVAC Workforce Development Progression



Wraparound Services and Support

# Addressing Diverse Companies and Individual Roles

| HVAC Contractor Company Diversity |  |
|-----------------------------------|--|
| Large                             | Small                                    |
| Urban                             | Rural                                    |
| New Construction                  | Retrofits                                |
| Residential                       | Commercial                               |
| Single Trade                      | Multi-trade (e.g., Plumbing, Solar)      |
| Full Service                      | Emergency Replacement & Maintenance Only |
| Nationally Owned                  | Locally Owned                            |

## HVAC Contractors' Role Diversity:

- Owners
- Sales (i.e., comfort advisors)
- Service technicians
- Installing technicians





# Challenges Caused by Status Quo

## Recruitment Challenges

- Very few women in programs
- Late exposure to trades if waiting until after middle/high school
- Unpaid training internships

## Poor Retention

- Lack of collaboration between employers and skill developers
- Lack of support and wraparound services for training and/or transitioning to HVAC careers
- Opportunities for advancement not clearly expressed by employers

## Overwhelmed Contractors

- Lack of work-life balance due to busyness and shortage of technicians/installers
- Not sending technicians for continuing education
- Contractors rarely engage in recruitment efforts

## Diversity

- Diversity a priority at endpoints, but not at all stages of development
- Employers often unprepared to be safe and healthy places for women and POC



# Interview Insights

# With whom did we interview and engage?

| CBOs/Nonprofits   | Colleges/Technical Institutes             | Manufacturers & Distributors      | Contractors                      | Other                                       |
|---|---|-----------------------------------|----------------------------------|---|
| Elevate   | HVAC Technical Institute                  | Daikin                            | Perfection Heating & Cooling     | Faraday                                     |
| Hispanic American Construction Industry Association (HACIA) | HVAC Excellence                           | Mitsubishi Electric               | Metro                            | Join the Trades                             |
| Blacks in Green   | Minneapolis Community & Technical College | Temperature Equipment Corp. (TEC) | Erickson                         | Greenlink Energy Solutions                  |
| Illinois Green Alliance                                     | Dunwoody Technical College                | Able Distributors                 | Four Seasons Heating and Cooling | City of Minneapolis – Green Careers Program |
| Centre for Asian and Pacific Islanders (CAPI)               | HVAC U                                    |                                   | Hoekstra Heating and Air         |   |



# Skill Developer Insights



Programs linked to employers have higher success rates in retention, graduation, and placement



High school graduates have misconception about available careers and have a bias toward 4-year degree



Recruitment of women and individuals from historically marginalized groups benefits from CBO involvement



They are open to supplementing curriculum to be inclusive of heat pumps

# CBO and Nonprofit Insights



Effective recruiters because they have reputation and trust in communities



Partnerships are key for recruitment, program delivery, and provision of wraparound services



Membership networks provide referrals as well as train, sponsor, and hire graduates



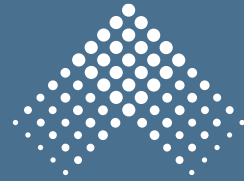
Typically offer multiple services ranging from job placement to business growth planning



# Spotlight on Elevate

Strong partnerships provide wraparound services and life skills training

Customizable training programs (4-16 weeks) lead to certifications



**ELEVATE**

Partnership network leveraged for job fairs, referrals, and apprenticeships

Projects and their required credentials identified before training begins



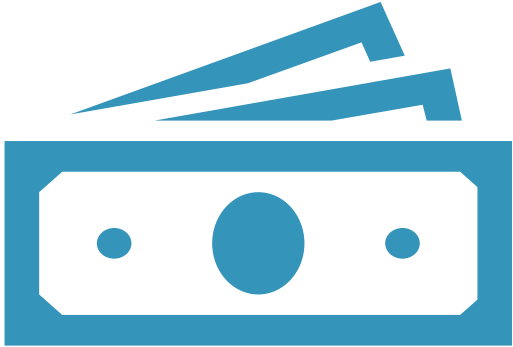
# Manufacturer Insights



Feel they are siloed;  
distributors are better  
positioned to impact WD



Interested in hosting a  
workshop to collaborate  
with partners



Interested in sponsoring  
scholarships



Often support CBOs and  
skill developers in their  
efforts



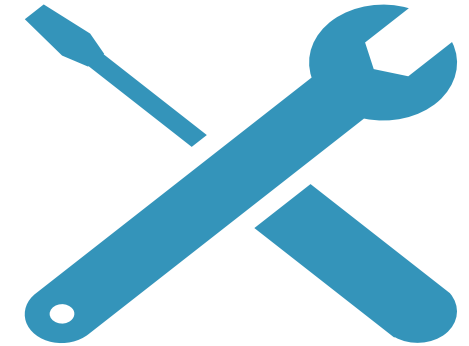
# Distributor Insights



Investing in contractor resources for training and hiring new entrants



Limited time to deliver introductory workshops so may only engage when contractors are too busy to train



Providing technical product training to support contractor success



# HVAC Contractor Insights



Prefer that a new entrant has some education, but are willing to train the right person who has mechanical inclination and good work ethic

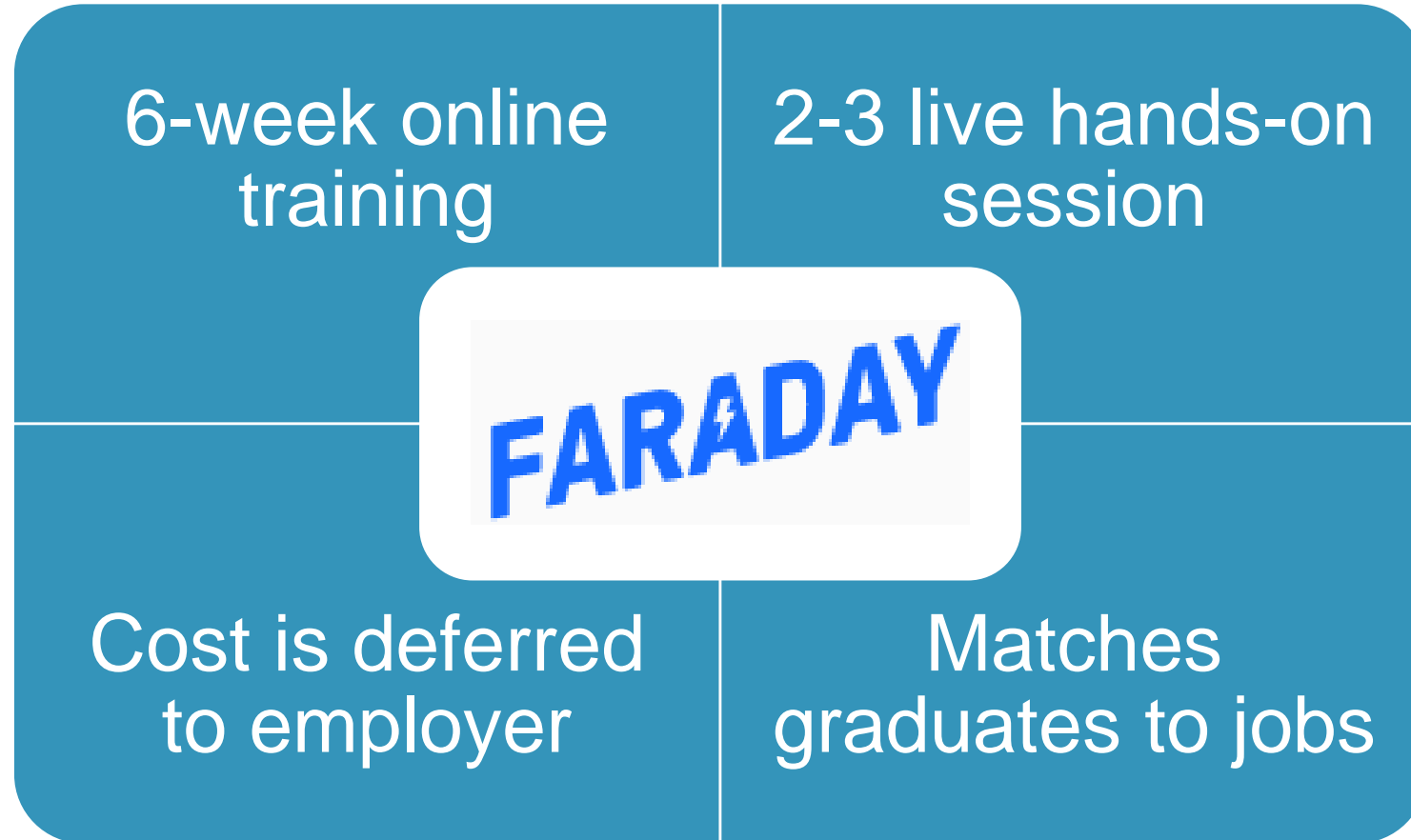


Certifications like NATE and ICE and employment ready testing are nice to have but not required



Feel equipped and up for the task of training for specific skills

# Non-traditional Pathway Insights: Faraday Careers



# Non-traditional Pathway Insights: Join the Trades

Hosts a variety of skilled trades

Innovative solution with focus on apprentice model

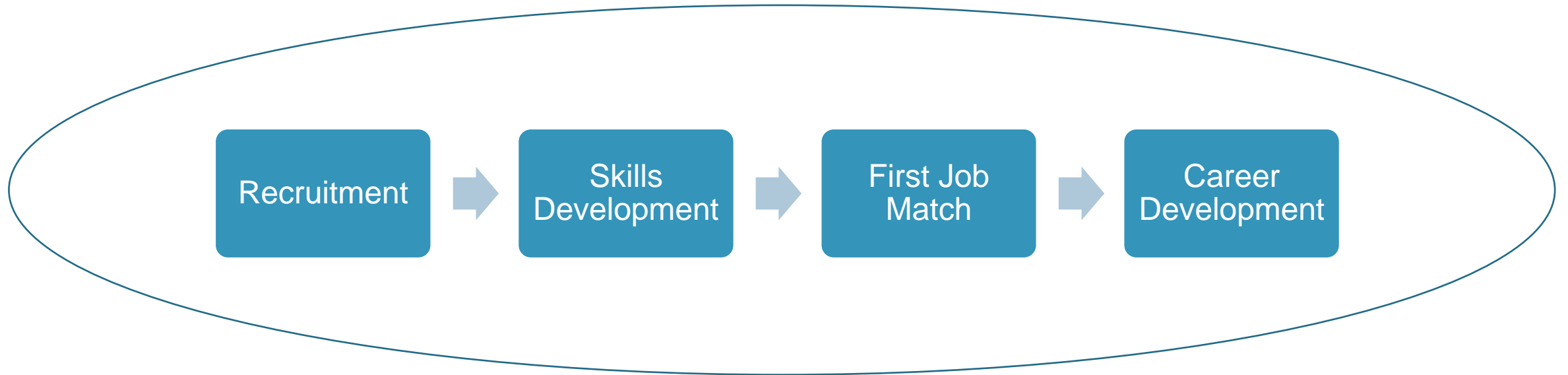


Provides recruit matching to employers and skill developers

Costs deferred to employers or skill developers

# Strategies

# Standard HVAC Workforce Development Progression



Wraparound Services and Support

# Prioritizing the Spheres of Influence

| Sphere of Influence | Installing or Maintenance Technician | Sales/Comfort Advisor | Owner/Business |
|---------------------|--------------------------------------|-----------------------|----------------|
| Recruitment         | Medium                               | High                  | N/A            |
| Skill Development   | Medium                               | High                  | High           |
| First Job Match     | High                                 | High                  | N/A            |
| Career Development  | High                                 | Medium                | High           |



# General Strategies to Develop Technician Workforce

Integrate real-world, hands-on training into traditional educational institutions like trade schools or community colleges

Accelerate community college/trade school programs

Leverage online-based companies (e.g., Faraday, Join The Trades, Interplay Learning)

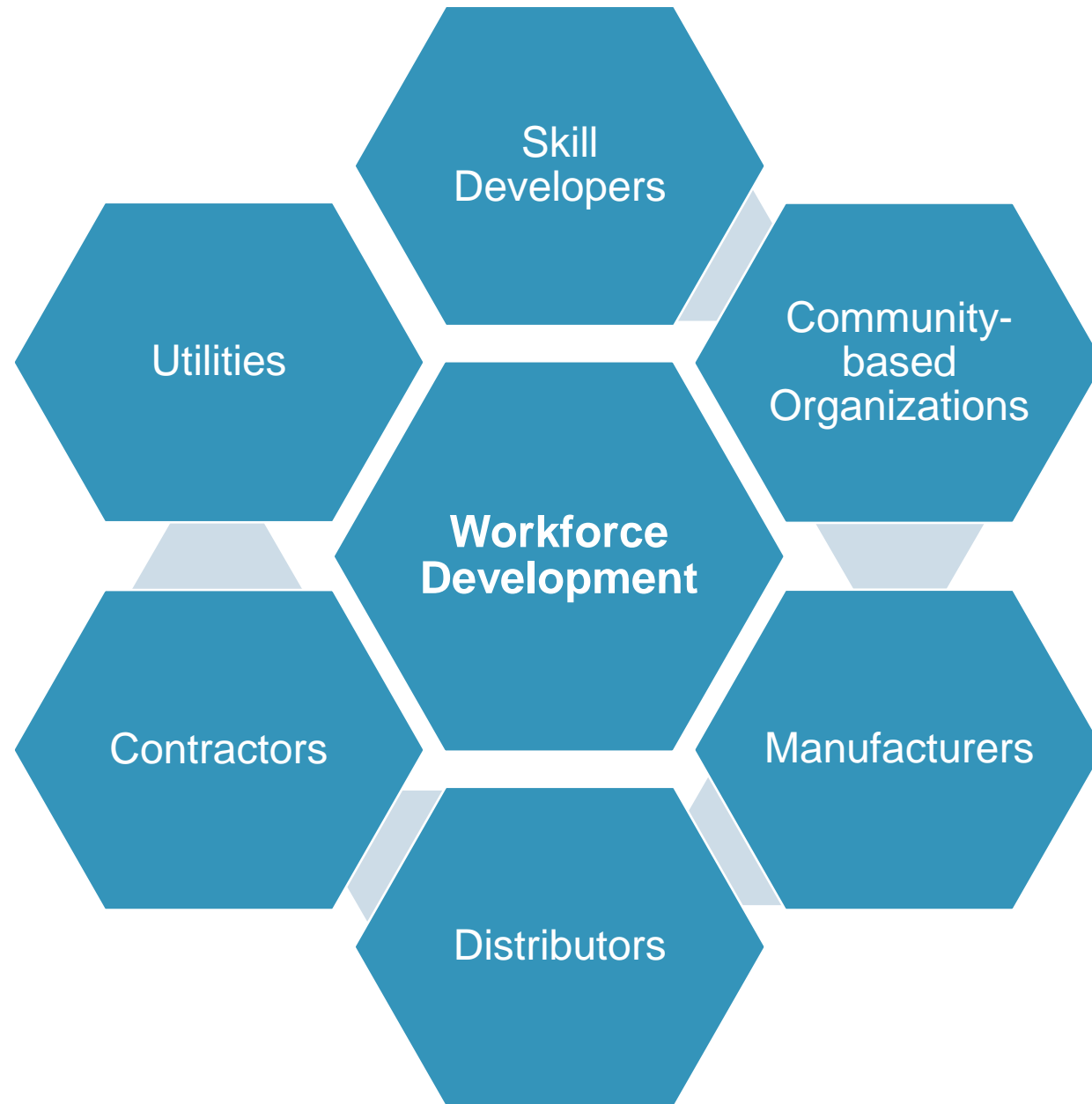
Leverage manufacturer and distributor relationships

Utilize freely accessible online curriculum and resources (e.g., Building Science Education Solution Center)

Implement programs that reveal pathways for higher-paying positions and address areas of bias that may affect promotions or hiring

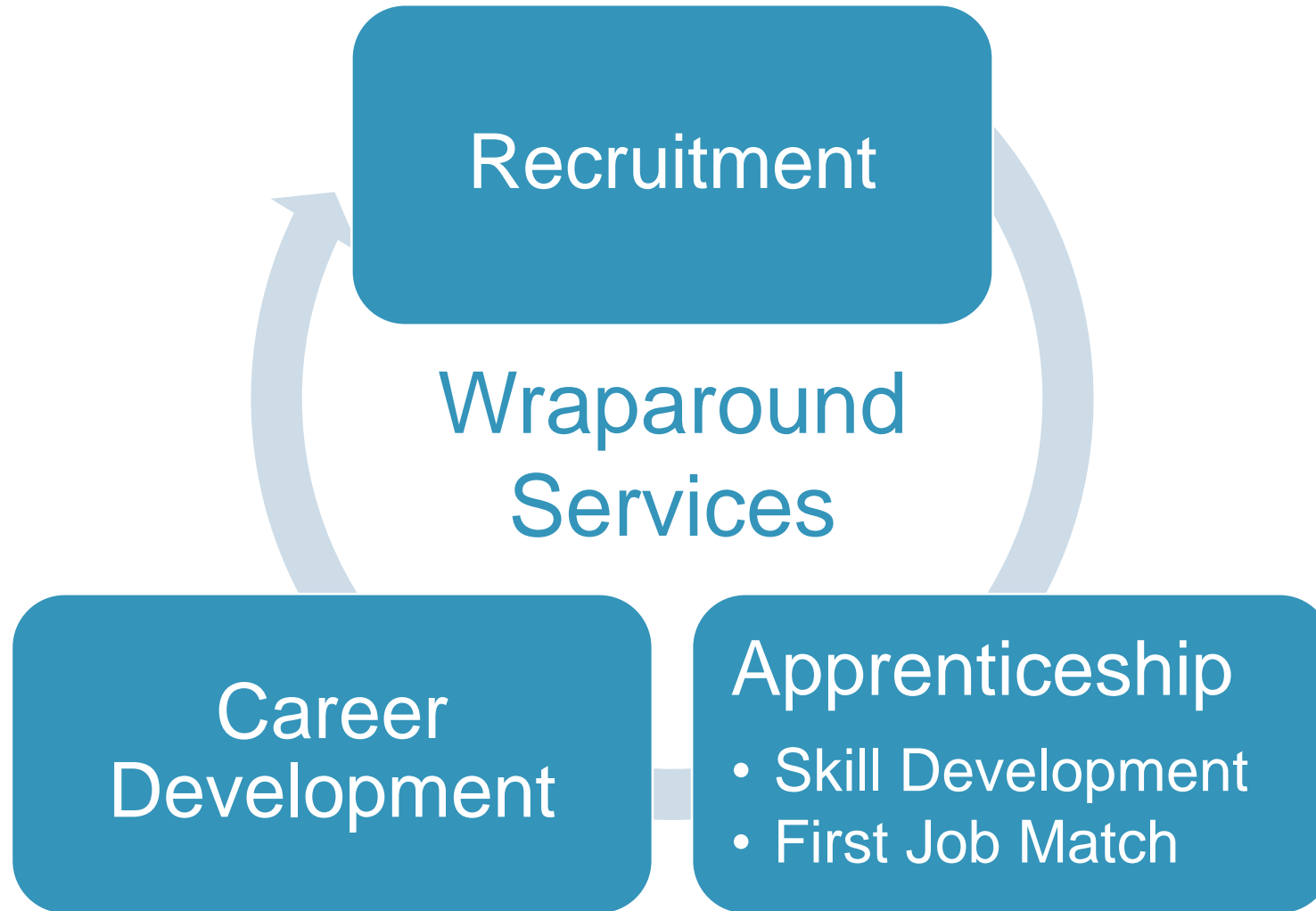


# Market Actors

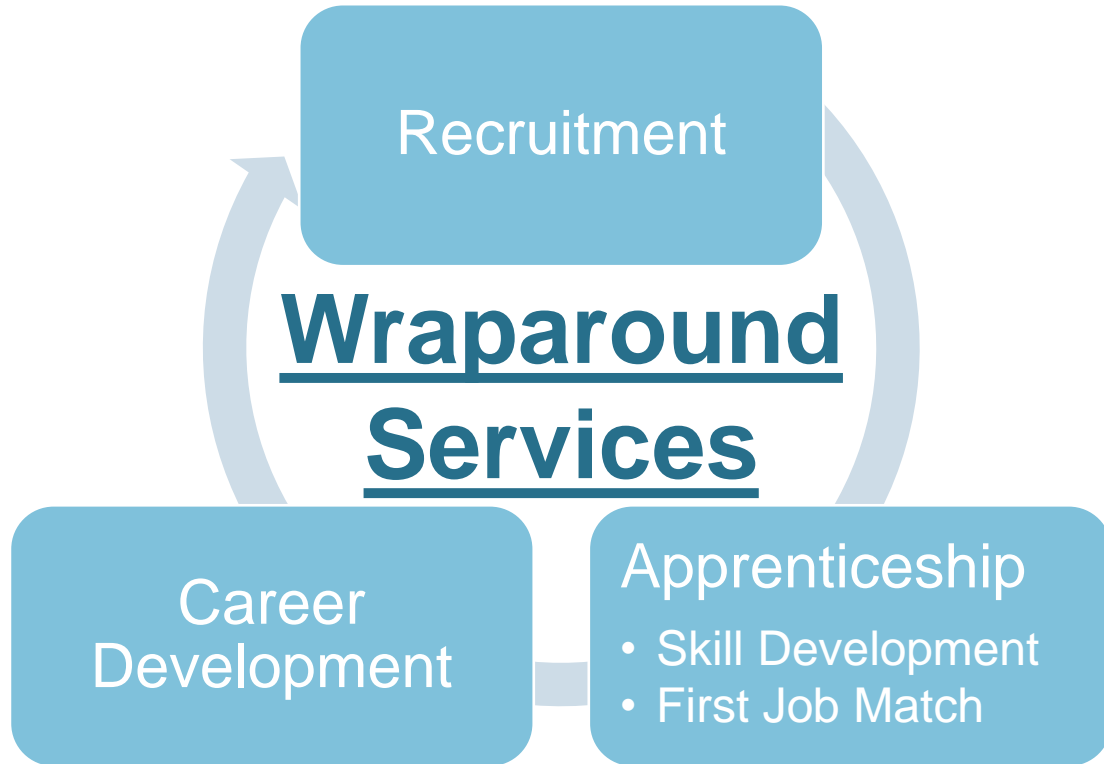




# Partner Collaboration Cycle

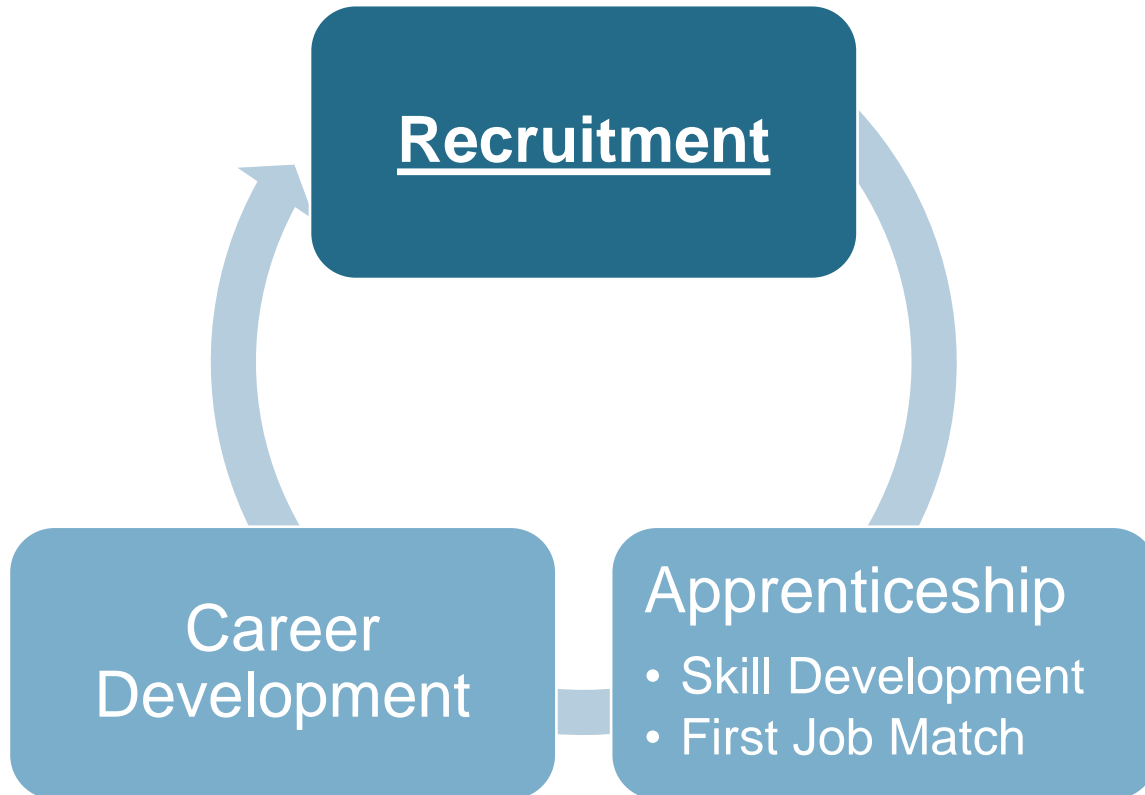


# Wraparound Services



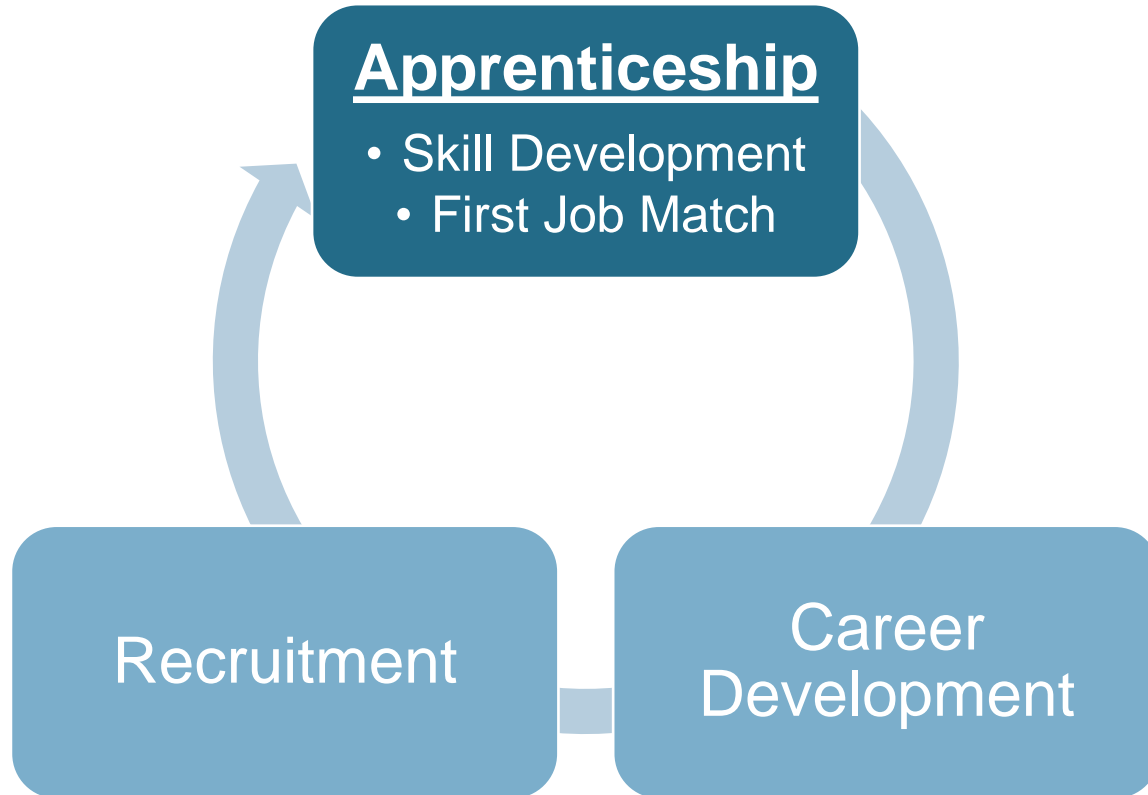
- Support services to be offered throughout entire WD process
  - Childcare
  - Paid training
  - Transportation
  - Mentoring
  - Financial assistance / support

# Early Recruitment



- Introductory HVAC Workshop
  - Weed out or strengthen interest
- Scholarships
- Examples of supporting wraparound services:
  - Introduction to tools
  - Tool Bank

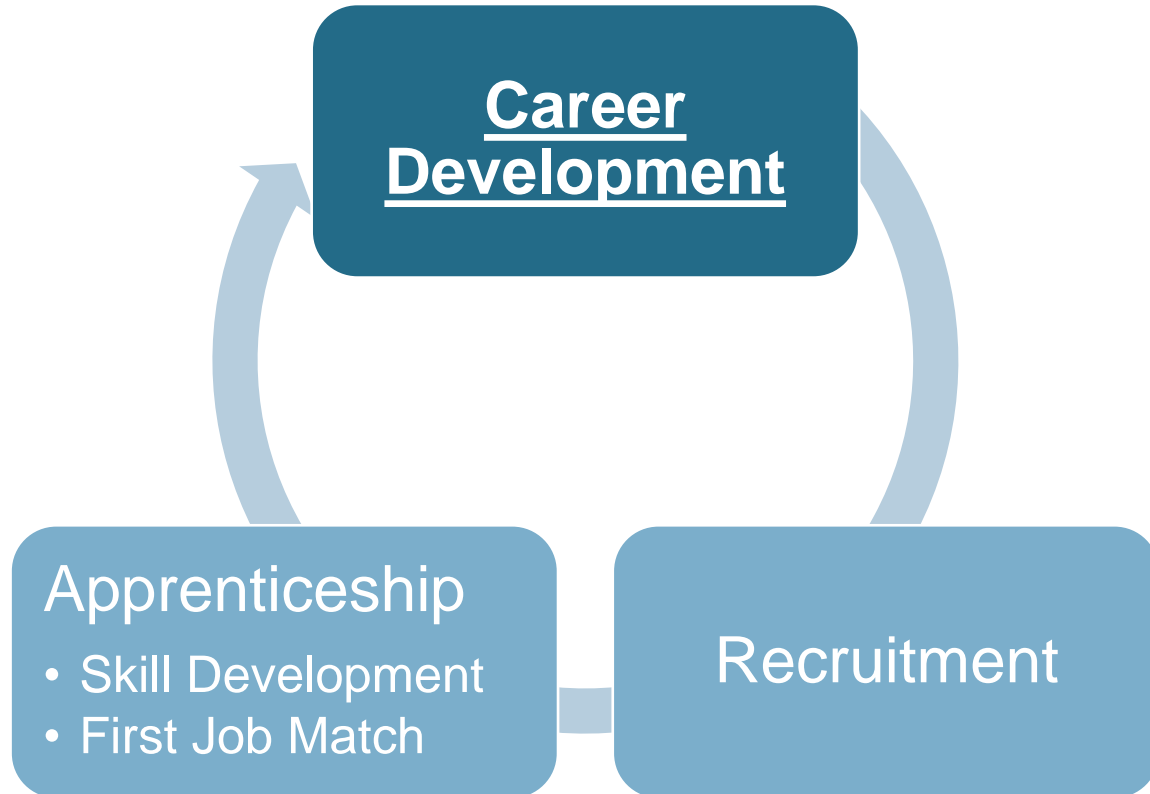
# Apprenticeship



- Develop skills and work experience at the same time
- HVAC maintenance or installation during day
- Classroom/lab training for 3-4 hours in evening
- Examples of supporting wraparound services:
  - Childcare
  - Tool Banks



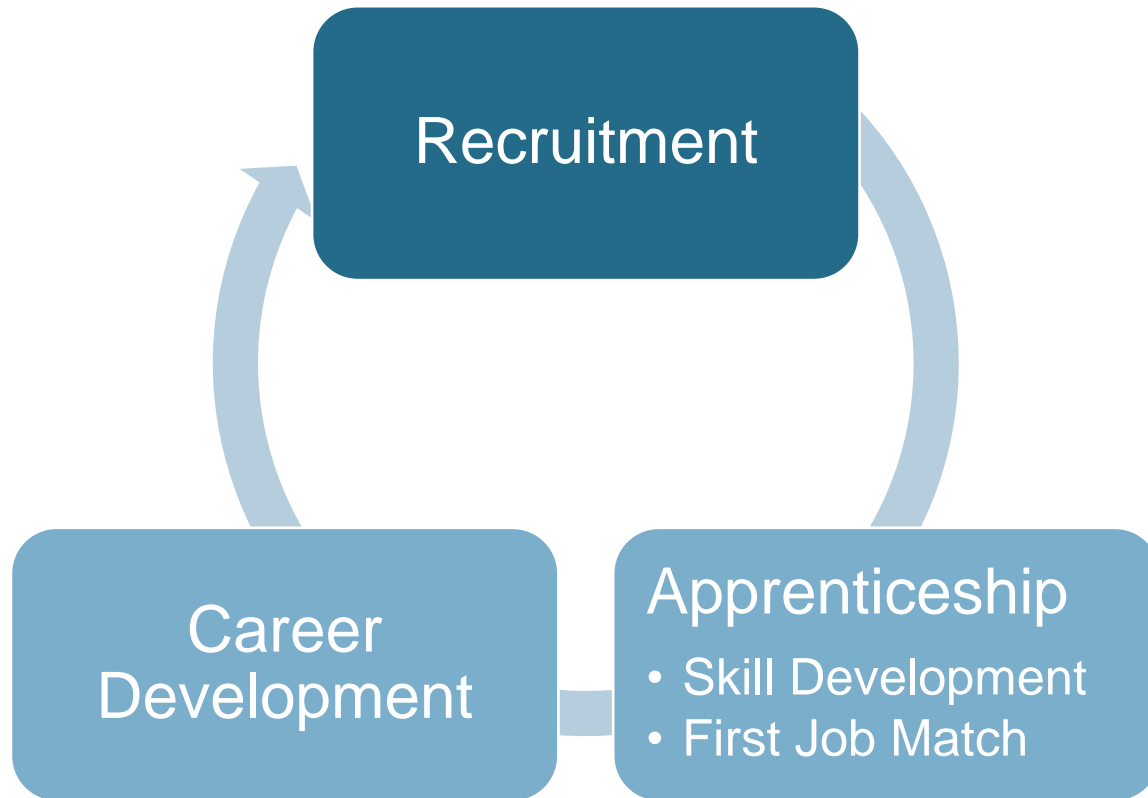
# Career Development



- Continuing education through manufacturers, distributors, and PNNL resources
  - [Building Science Education Solution Center](#)
    - Introduction to Heat Pumps
    - Electrical Panel Assessment
    - Smart Diagnostic Tools
    - Thermostats for Heat Pumps and Dual-Fuel Heat Pumps
    - Cold Climate Heat Pump Sizing
    - Heat Pump Sales
- Soft skills training (e.g., courtesy, leadership, sales)
- Contractor business development
  - Creating work-life balance
  - Defining career paths and milestones



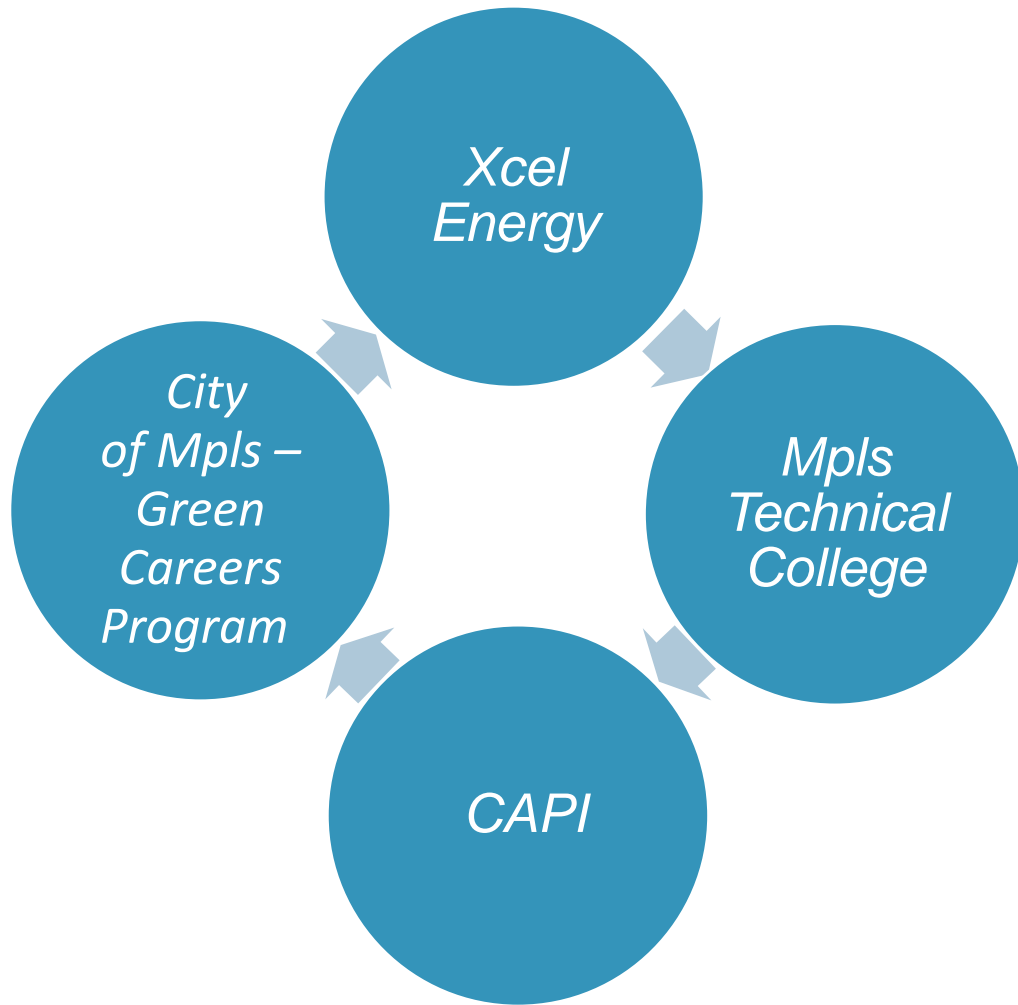
# Later Recruitment Efforts



- Leading HVAC intro workshops
- Sponsoring scholarships
- Training younger installers and technicians
- Defining career pathways and/or mentoring
- CBO outreach and connection

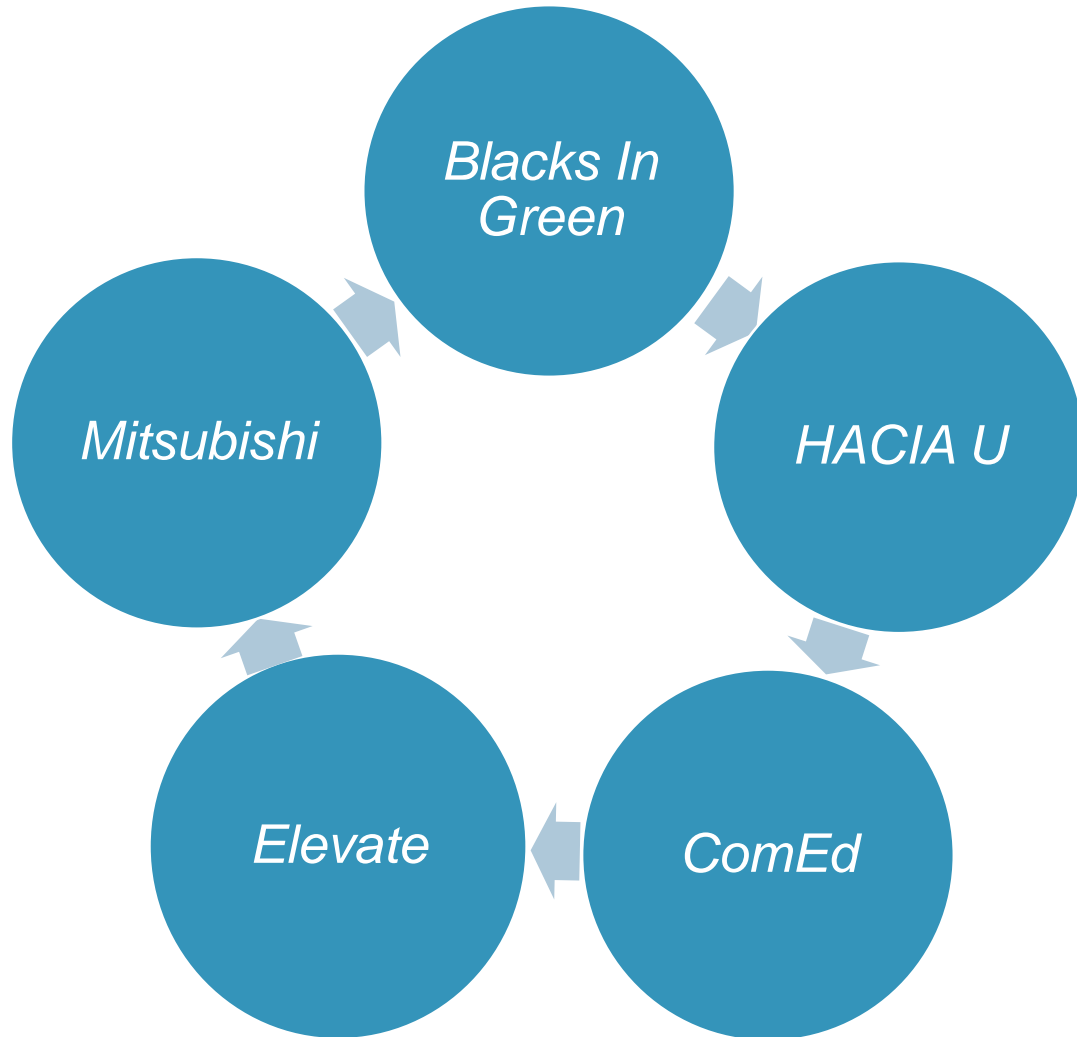


# Connecting the Dots: Opportunities for Impact in Twin Cities



- Xcel Energy – electric & gas Investor-Owned Utility engaged in funding workforce development including an Xcel-managed scholarship fund offered across 8 Minnesotan technical colleges & universities aimed at increasing BIPOC and women in energy efficiency
- Minneapolis Technical College – technical college with strong commercial and residential HVAC program; incorporates ASHP training into their curriculum
- CAPI – community-based organization in Minneapolis with Green Energy Career Pathways funding, provides case management and navigation services for all participants
- City of Minneapolis – Green Careers Program - provides free training to young adults in earning a NABCEP Solar Associate credential and an on-ramp to energy efficiency career exploration

# Connecting the Dots: Opportunities for Impact in Chicago



- Blacks in Green – community development organization that advocates for clean energy jobs and has demand for contractors from underrepresented groups
- HACIA U – facilitates general construction pre-apprenticeship program that teaches basic skills like how to use tools as well as advanced skills to business owners
- ComEd – utility engaged in contractor development through contractor training, business accelerator programs, and workforce engagement pilot
- Elevate – nonprofit facilitating training and partnerships for contractor and workforce development
- Mitsubishi – manufacturer that supplies equipment and product training.



# Next Steps

# Collaborative Next Steps to Tackle Equitable Workforce Development

Disseminate insights and strategies through website

Convene regional working group on equitable workforce development

Educate decision makers and connect skill developers to ASHP training content

Scope and outline equitable partner collaboration cycles while strengthening existing ones



# Stay up to date with the Collaborative

Join us for upcoming Collaborative events showcasing our work to date

- August | Best Practices Website Launch



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# Discussion



# Contact Information



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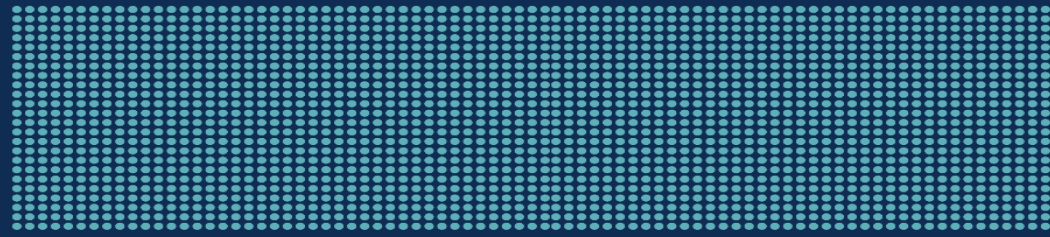
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**THANK  
YOU!**

