

Toward Career Paths in Energy Efficiency in Existing Buildings

Raising the Bar in Home Performance Contracting

National Center for a Clean Energy Workforce Scoping Workshop
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Overview

BPI sets standards for the assessment and upgrade of the nation's existing residential buildings. More than 240 training organizations, including a growing number of community colleges, now deliver training that is aligned with BPI standards and prepares students to challenge BPI's written and field practical certification exams. BPI is working to develop standards and certifications to meet the growing need in the marketplace for apprenticeship, energy auditor, installer, crew chief and QA inspector designations.



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Lot's of Work = Lot's of Jobs

1/3 of owner-occupied homes > **45 years old**

1/3 are between **25 and 45** years old

Large majority of our homes were built before modern energy codes and are drafty, uncomfortable and expensive to operate.

*About 150 Million Homes Need
Residential Energy Efficiency (REE) Improvements*



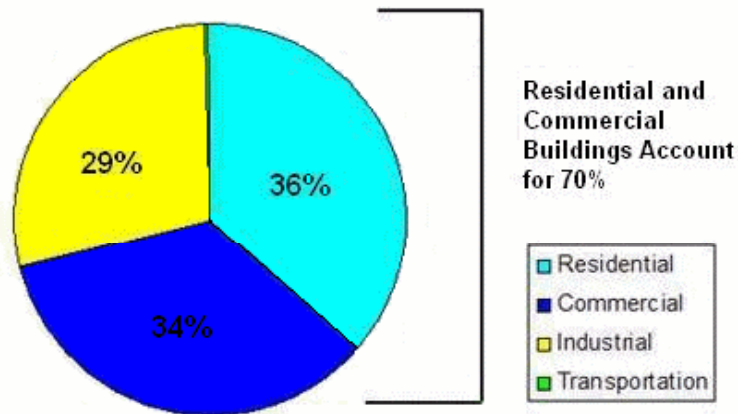
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Residential Buildings & Climate Change

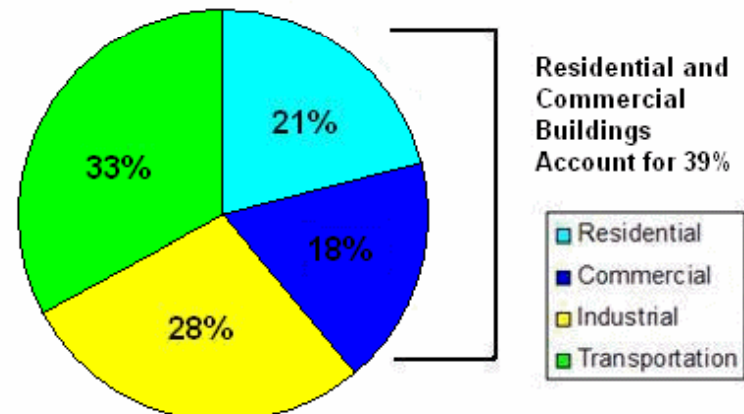
Energy use from residential buildings accounts for 36.5% of electricity consumed in the U.S. and 21% of carbon emissions.

U.S. Consumption of Electricity



Source: U.S. Energy Information Agency

Producers of Carbon Dioxide Emissions in the U.S.



Source: U.S. Energy Information Agency

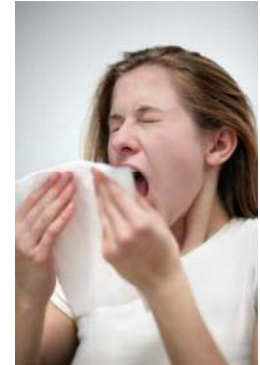


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Home Performance Provides Solutions

- Dust and Allergies
- Comfort Issues
- **High Utility Bills**
- Hazardous Materials
- Moisture
- Climate Change
- ENERGY INDEPENDENCE



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But, as we all know...

***Energy Audits Waste
Energy and Money...***

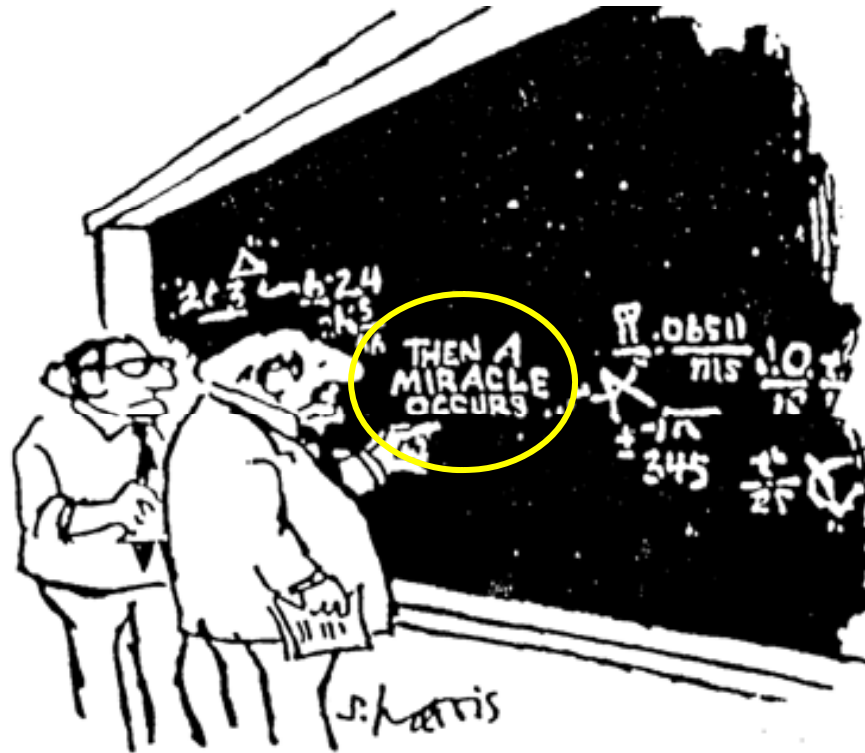
***...If They are Not
Converted into Work***



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The miracle, of course, is home performance contracting.



"I think you should be more explicit here in Step Two."



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What could a center do to better align job training with real time and emerging industry needs and to create wealth and well-paying jobs, stable jobs in California?



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People Alignment

- Human Capital to transform existing occupations
- Conduit to Career Paths in REE Professions
- Align Skills with Quality: Support tangible credentials – Portable – National – Recognizable
- Develop Uniform Messaging to help consumer's recognize that their needs can be met with verifiable skill sets



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Occupations in Whole House Contracting

1. Diagnostic Tester
2. Auditor/Assessor
3. Salesman
4. Dispatcher/Coordinator
5. Installer
6. Crew Chief
7. Supervisor
8. Owner
9. Quality Assurance Inspector
10. Supplier
11. Product designer
12. Marketing
13. Project/Program Manager for Program Administrator/Implementer

Align Human
Capital with
*support for a whole
industry*

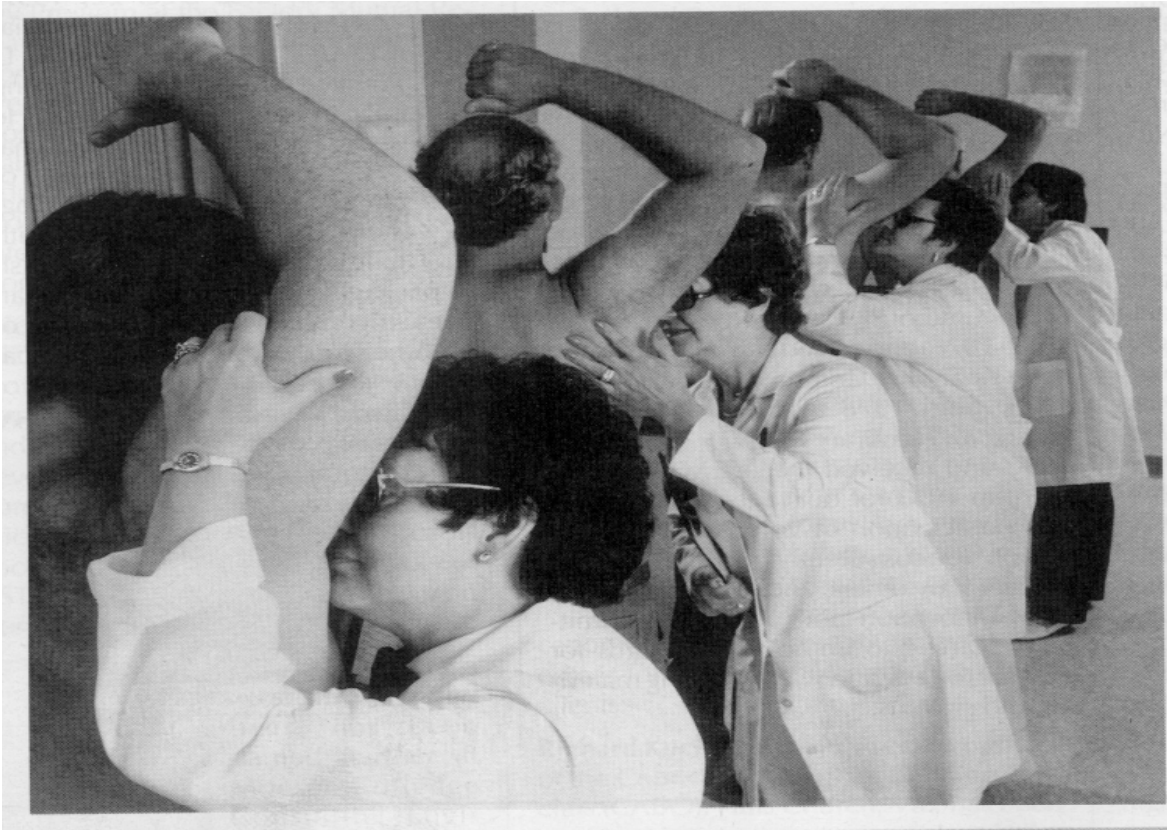
- Apprenticeships
- Marketing
- Customer Service
- Accounting/Reporting
- Data entry
- Payroll
- Human Resources



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Standards Setting is a Scientific Process



*More than 100
local, state, and
regional programs
rely on BPI
Standards,
Credentialing, and
Quality Assurance
as the basis for
their programs*



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Building “Stackable” Credentials

- From entry level worker to seasoned veteran
- Across technician skills sets (auditing, envelope, heating, AC/Heat Pump, QA Inspection, etc.)
- Including sales and marketing, management, and other job classifications
- Working with DOE WAP designations of Energy Auditor, Installer, Crew Chief and QA Inspector



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Developer Name: **Building Performance Institute**
Acronym: **BPI**

Committee Title:

Secretariat:

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Title: Manager of Standards

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Scope: Standardization activities include those for the assessment of existing residential buildings to improve the energy efficiency, comfort and occupant health and safety, installation of various energy conservation and energy efficiency measures to the building enclosure and the building systems, application standards for various energy conservation and energy efficiency measures, and the verification and commissioning of improved building enclosures and building systems.



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Market Alignment

- Market creation – not just job creation
 - Who's looking? Demographics may surprise you
 - Grow businesses ⇨ create a need for new hires
 - Help businesses be successful ⇨ create wealth
 - Improve homes ⇨ health ⇨ reduce operating costs ⇨ keep capital in local economy ⇨ release discretionary funds



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Understand the Workforce: BPI 2010 Workforce Survey

- BPI teamed with MIT PhD candidate, Ryan Hammond, to administer a workforce survey to 10,000 people who went through BPI certification exams. Over 2,000 responded.
- Goals:
 - Provide *baseline for understanding* the composition of individuals seeking BPI certification in quickly expanding market
 - Create system to *dynamically monitor* changes and for collecting real-time strategically relevant information for BPI on a go forward basis
 - Provide *deeper insight into the motivations, needs, and attitudes* of energy efficiency workforce



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Your Workforce

- Nearly 50% have a **college degree or advanced degree**
- 42% already hold another certification
- 25% hold General Contractor Licenses
- Over half are 47 years old or older
- **72% of respondents are employed in REE** by the end of the year they take a BPI exam
- 25% are still seeking jobs in REE
- 3% either left a job in REE – or never had one and are not seeking



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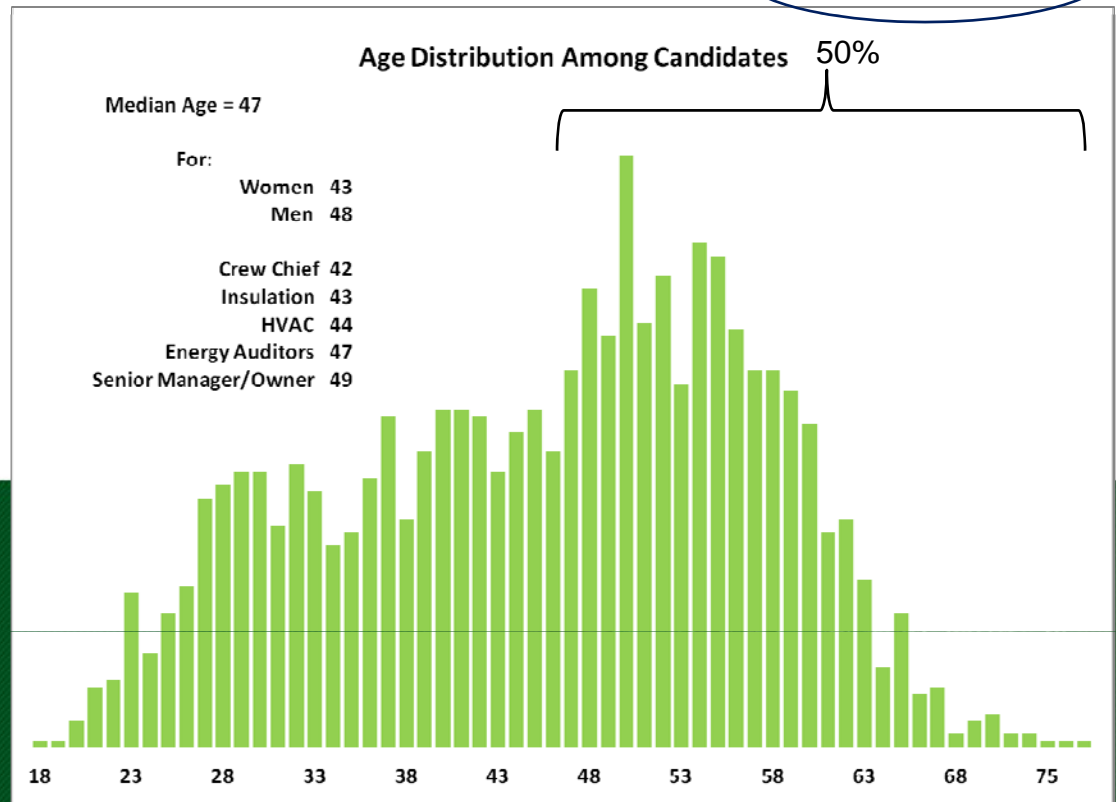
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Who is seeking BPI certification?

- Almost 50% of respondents had a college degree or advanced degree
- Certification from HERS and Community Colleges and Local Programs are common. So are General Contractor Licenses.
- Only 28% have none of these certifications
- Exam takers are spread widely across age groups but over half are 47 or older.
- Individuals reporting their primary job as Energy Auditor have one of the oldest averages, Crew Chiefs the youngest.

% of Total Respondants							
Male	90%						
Holding Related Certifications	HERS	NATE	HVAC Man	Insulat. Man	LEED	GC License	Local Program Cert
	29%	4%	9%	5%	9%	25%	34%
Highest Education Level	< High School	High School	Some College	2-Year Degree	4-Year Degree	Masters Degree	PhD/JD
	0.5%	9.6%	27.5%	12.8%	35.3%	13.0%	1.4%



Who is seeking certification?

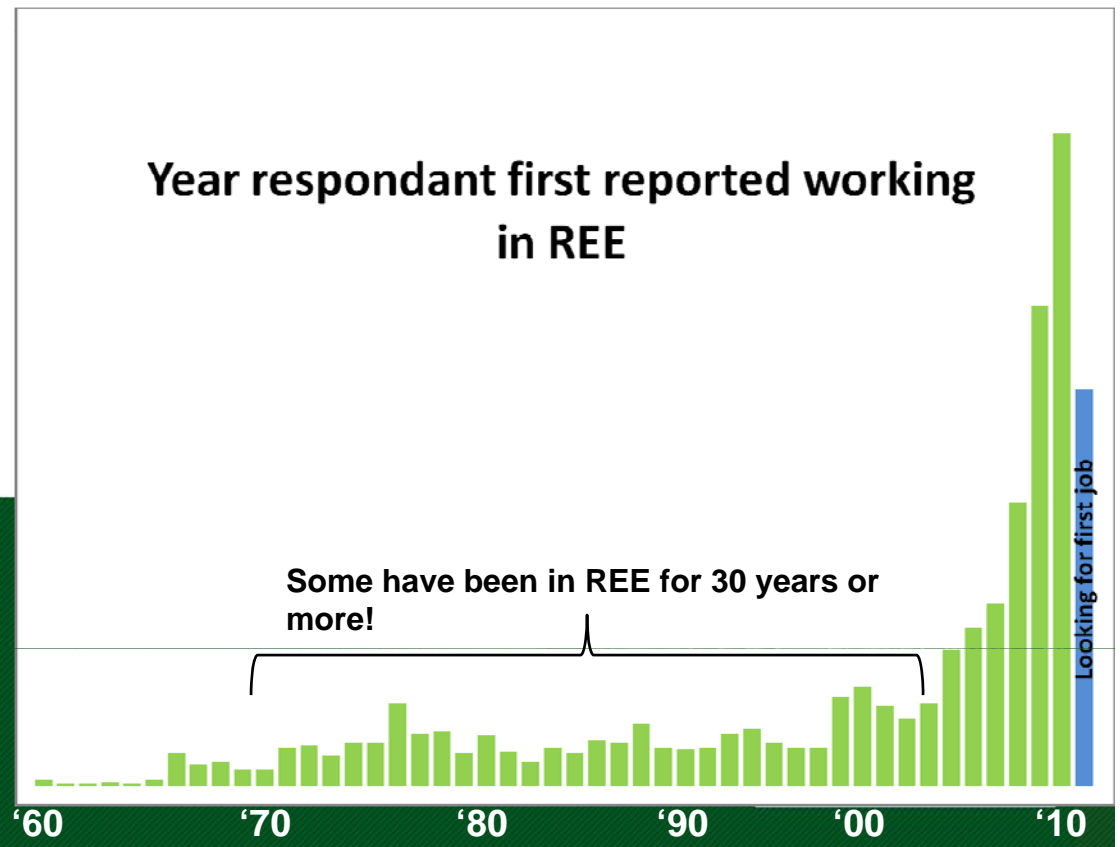
- 72% of respondents are **ALREADY** employed in REE by the end of the year they take a BPI exam

- 25% are still seeking jobs in REE

- Most Candidates consider themselves to having worked in REE for the first time only in last few years.

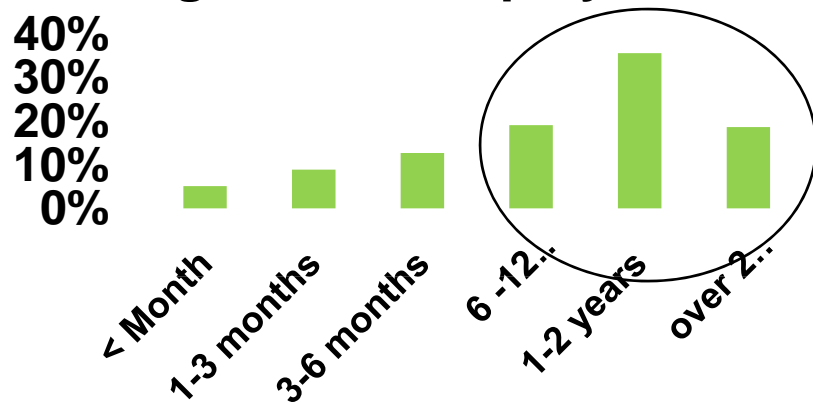
- Many are still looking for their first job in REE.

% of Respondents	
Employed FT in REE	61%
Employed PT in REE	11%
Employed but Seeking REE Job	11%
Unemployed, Seeking REE Job	13%
Never Employed in REE and Not Looking	2%
Was Employed in REE and Left Field	1%



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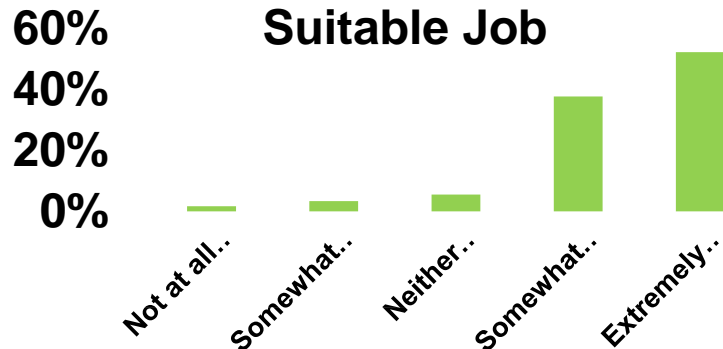
Length of Unemployment



Currently Unemployed BPI Candidates

- BPI Candidates who are unemployed have been so for over a year

Importance of BPI Certification in Finding a Suitable Job



- BPI certification is considered very important in their efforts to find employment



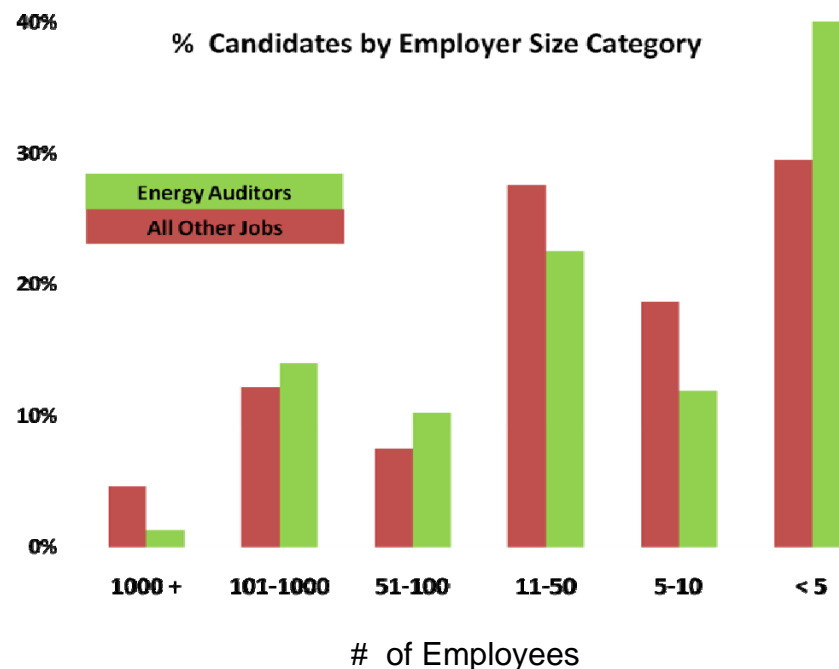
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% All Candidates by Employer Type

Contractor specializing in REE	23.3%
Self-Employed/Sole Proprietor	21.0%
Non-Profit Organization	12.5%
Contractor not specializing in REE	11.7%
Government Program (WAP etc.)	9.7%
Other - REE related	8.4%
Community College/University	4.9%
Utility Company	4.4%
Other for profit company	2.6%
Other - Non-REE related	1.2%

Where are they working?



% Energy Auditors by Selected Employer Type

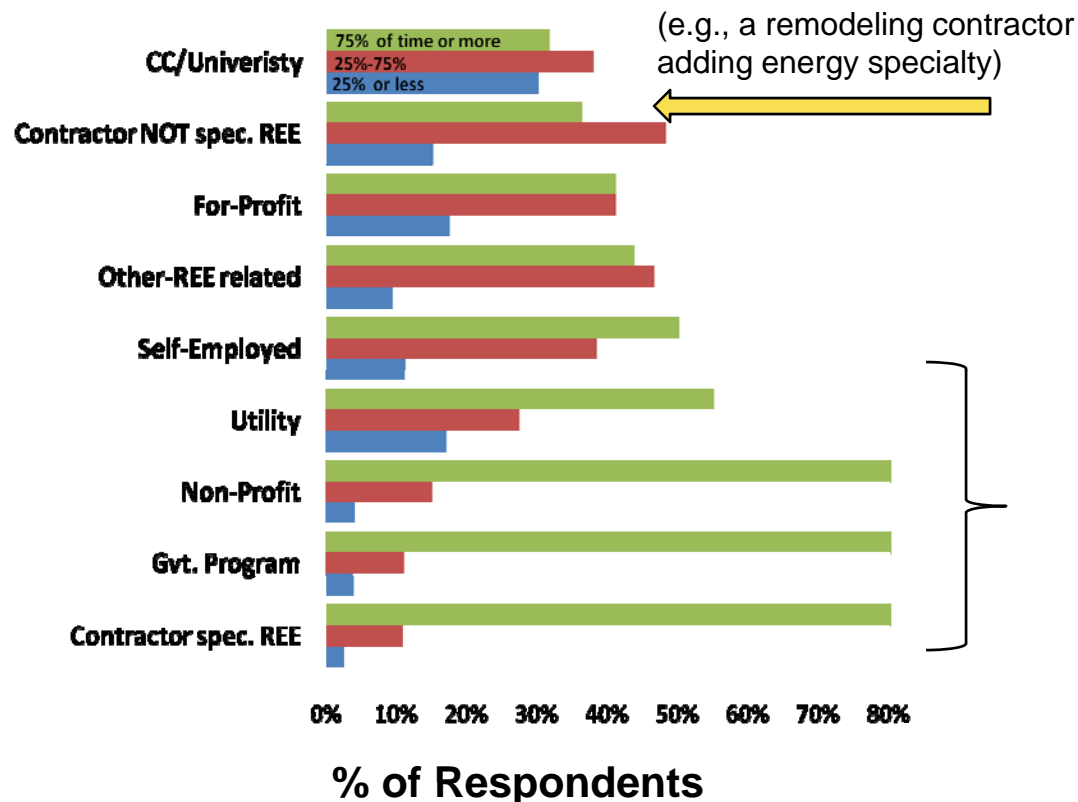
Contractor specializing in REE	19.1%
Self-employed/Sole proprietor	26.6%
Non-profit organization	15.9%
Contractor not specializing in REE	7.9%
Government program (WAP etc.)	16.1%
Other - residential energy related	6.0%
Utility Company	6.2%

Tenure w/ Employer	% Respondents
less than 1 year	23%
1-2 years	24%
3 - 5 years	18%
6 - 10 years	12%
more than 10 years	22%

How much of their time are they spending on REE?

- 63% report they spend 75% or more of their work time on REE
- 27% spend about 50% of time on REE
- 10% spend 25% or less
- These percentages vary widely by organization type
- However, even 40% of Non-REE specialized contractors seeking BPI certification report spending 75% of their time in REE projects

Amount of Time spent directly on REE by Employer Type

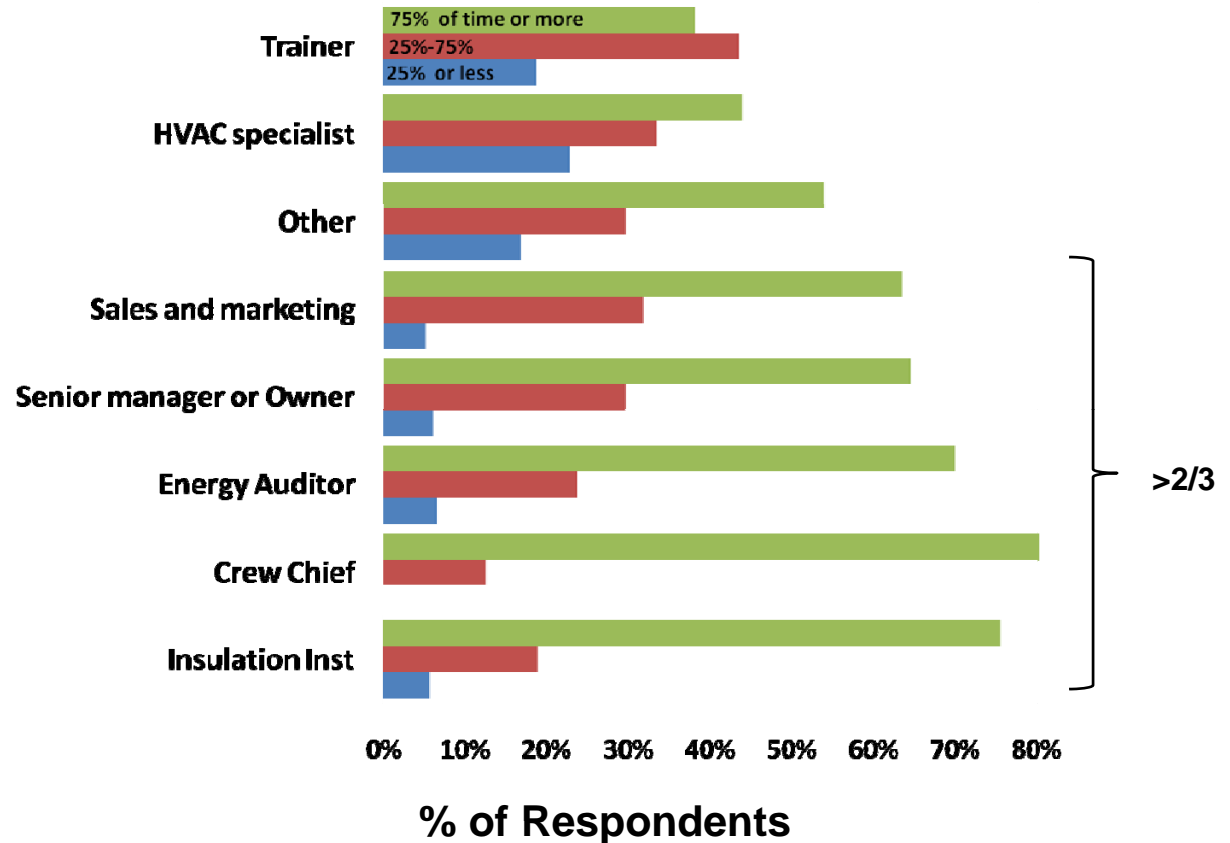


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How much of their time are they spending on REE?

**Amount
of Time
spent
directly
on REE
by Job
Type**



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Job Characteristics and Quality

Health and Pension Benefits

By Job Category

% who receive through employer	Health Benefits	Retirement Benefits	Union Member
All job categories	54%	41%	6%
Insulation Installation	44%	37%	8%
Crew Chief	46%	28%	8%
Energy Auditor	48%	38%	3%
HVAC Specialist	75%	55%	7%
Other - Misc	69%	56%	9%
Sales and Marketing	55%	37%	2%
Senior Manager/Owner	48%	34%	4%
Trainer	65%	59%	15%

By Organization Type

% who receive through employer	Health Benefits	Retirement Benefits	Union Member
All Organizations	54%	41%	6%
CC/University	66%	60%	27%
Gvt. Program	78%	63%	10%
Non-Profit	83%	63%	4%
Other - Non-REE related	81%	69%	31%
Other - REE related	62%	53%	11%
Other-For Profit	85%	59%	9%
Contractor NOT spec. REE	58%	46%	4%
Contractor spec. REE	41%	25%	2%
Self-employed	20%	14%	1%
Utility	84%	80%	4%



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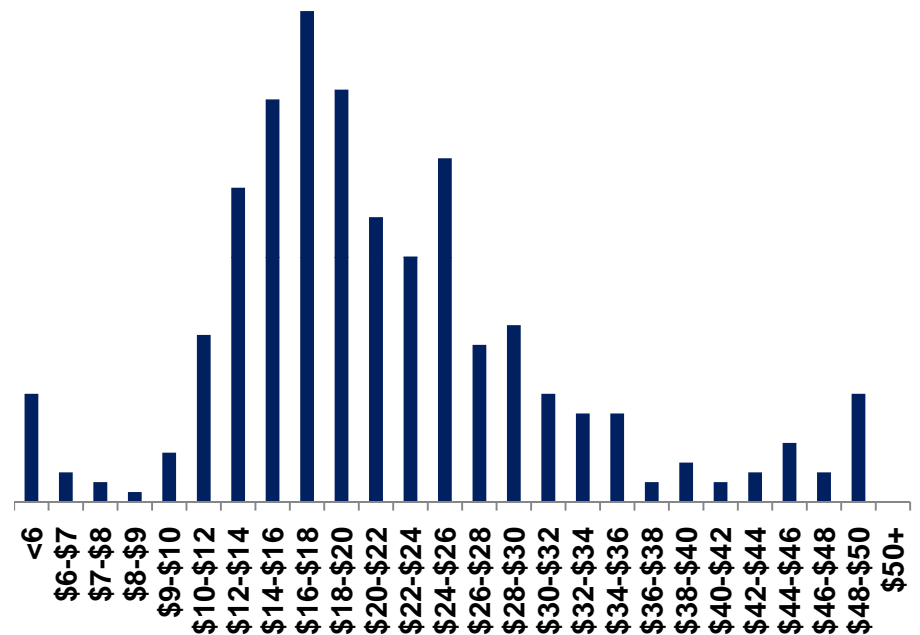
Job Characteristics and Quality

Reported Median Wages Categories by

Job Category	Modal Wage Category
Insulation Installation	\$14-\$16/hour**
Crew Chief	\$16-\$18/hour**
Energy Auditor	\$18-\$20/hour
HVAC Specialist	\$24-\$26/hour**
Other - Misc	\$22-\$24/hour
Sales and Marketing	\$22-\$24/hour**
Senior Manager/Owner	\$28-\$30/hour
Trainer	\$24-\$26/hour

**Based on limited data

Distribution of Reported Wages for Energy Auditor



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Job Characteristics and Quality

Overall, perceived job quality appears to be relatively high across a number of dimensions across most jobs.

Career Advancement Opportunities are the most negatively perceived.

Job Quality Index by Job

% Very or Somewhat Satisfied	Training and Skill Development	Control Over Work	Career Advancement Opportunities
All job categories	75%	83%	59%
Insulation Installation	65%	68%	45%
Crew Chief	60%	84%	48%
Energy Auditor	73%	80%	54%
HVAC Specialist	72%	82%	59%
Other - Misc	75%	79%	59%
Sales and Marketing	72%	78%	62%
Senior Manager/Owner	80%	90%	71%
Trainer	83%	90%	62%



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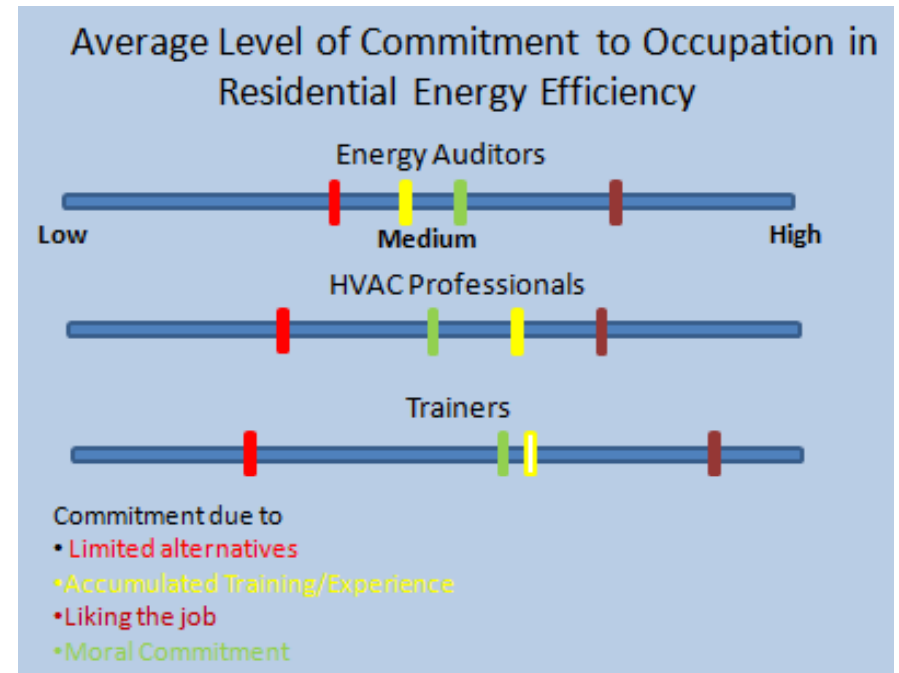


Motivation and Commitment

Reasons important in seeking BPI Certification*

Employer/Gvt Requirements	State/Federal Incentive	34%
	Required by my employer	20%
Create Personal Opportunities	Set existing business apart	37%
	Start new business	31%
	Career Switch	28%
	Find Employment	25%
Other	Raise my wages	18%
	Solve local, national or world problems	65%
	Other	12%

Average Level of Commitment to Occupation in Residential Energy Efficiency



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