Hawaii's Green Workforce

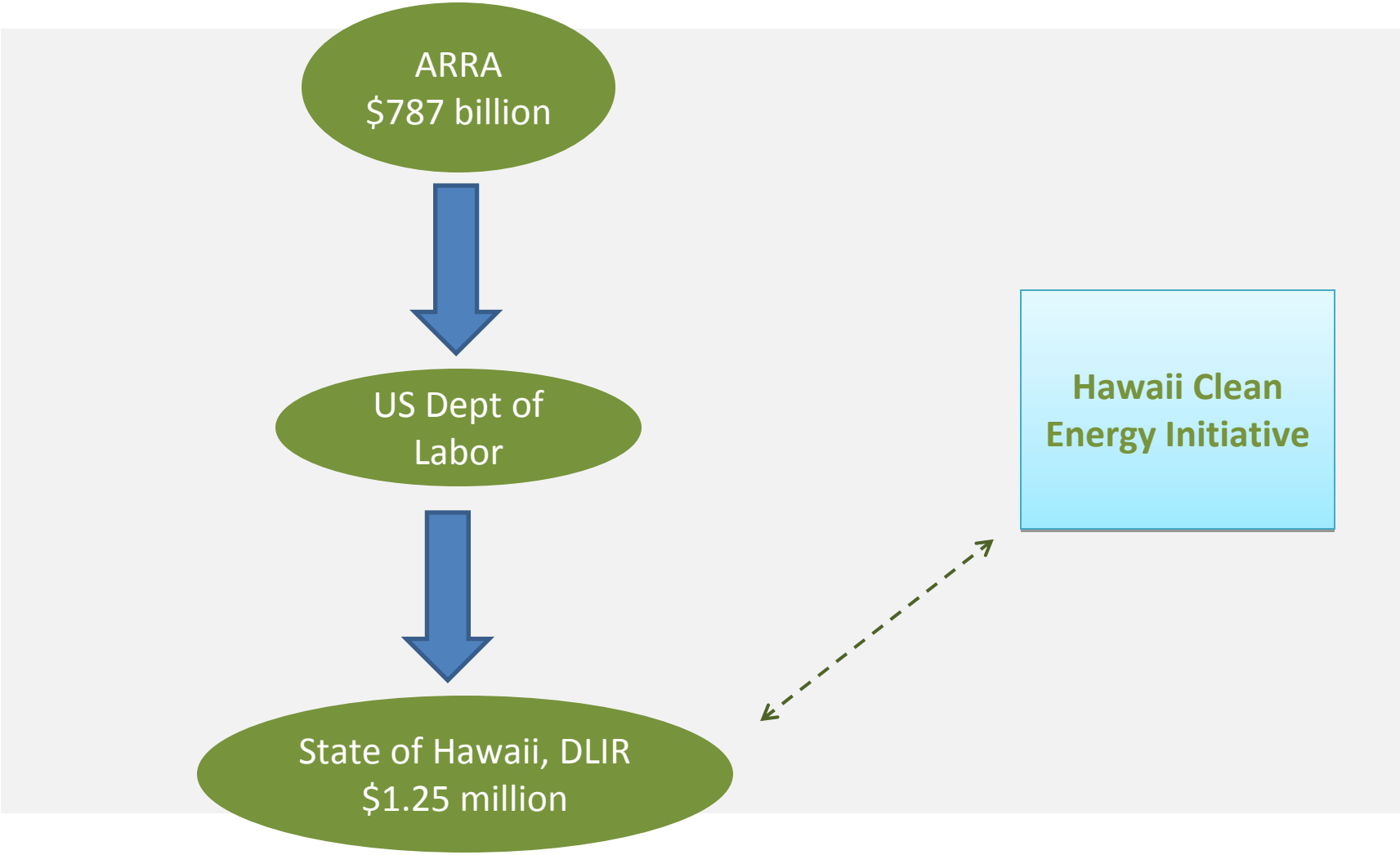
A Baseline Assessment

Maui Green Workforce Development Symposium

March 30, 2011

Jeff Matsu, Lead Researcher
Hawaii Green Jobs Initiative
Research & Statistics Office
Department of Labor & Industrial Relations

Hawaii Green Jobs Initiative



Back to the Basics: Math 101

Hawai'i Powered

Hawai'i Clean Energy Initiative

by 2030

by

40% RENEWABLE

+ 30% EFFICIENCY

= 70% CLEAN ENERGY

Tech + Financing = Clean Energy

Tech + Financing + Jobs = Green Economy

Key issues

- **Labor matters: compensation as a share of GDP = 55%.**
- **Capital versus Labor intensity: big differences across industries.**
- **Tax credits, subsidies, incentives: what are the goals?**
- **Great Recession fallout: retraining across the skills-based spectrum**

Bubble Blowing Risks

Low interest rates & cheap capital.

Are we prepared for the inevitable reset?

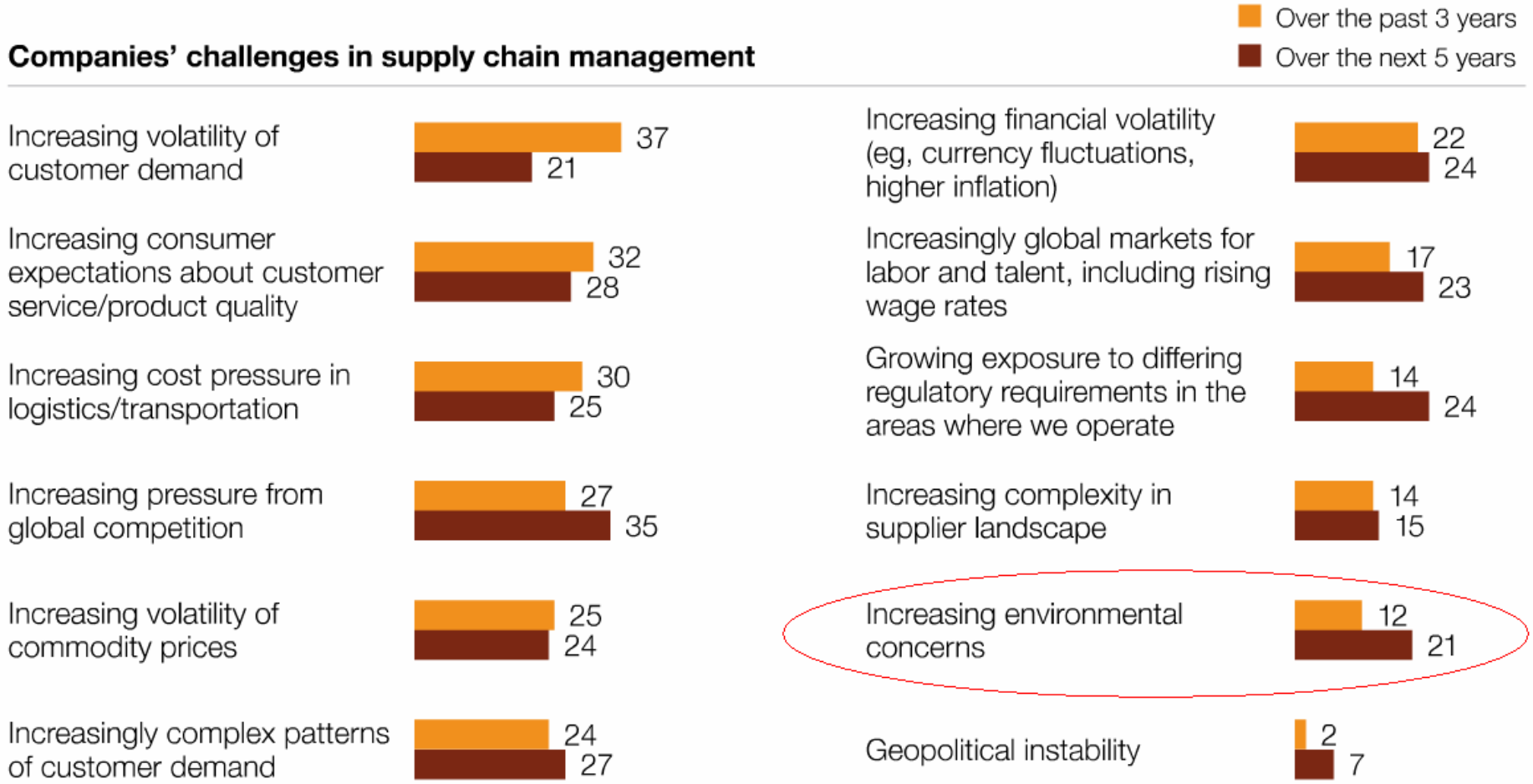
Lessons from Recent History:

- **2000: Tech "dot bomb"**
- **2008: Housing bust**
- **2015: Green burst???**

New challenges lie ahead

% of respondents,[1] n = 639

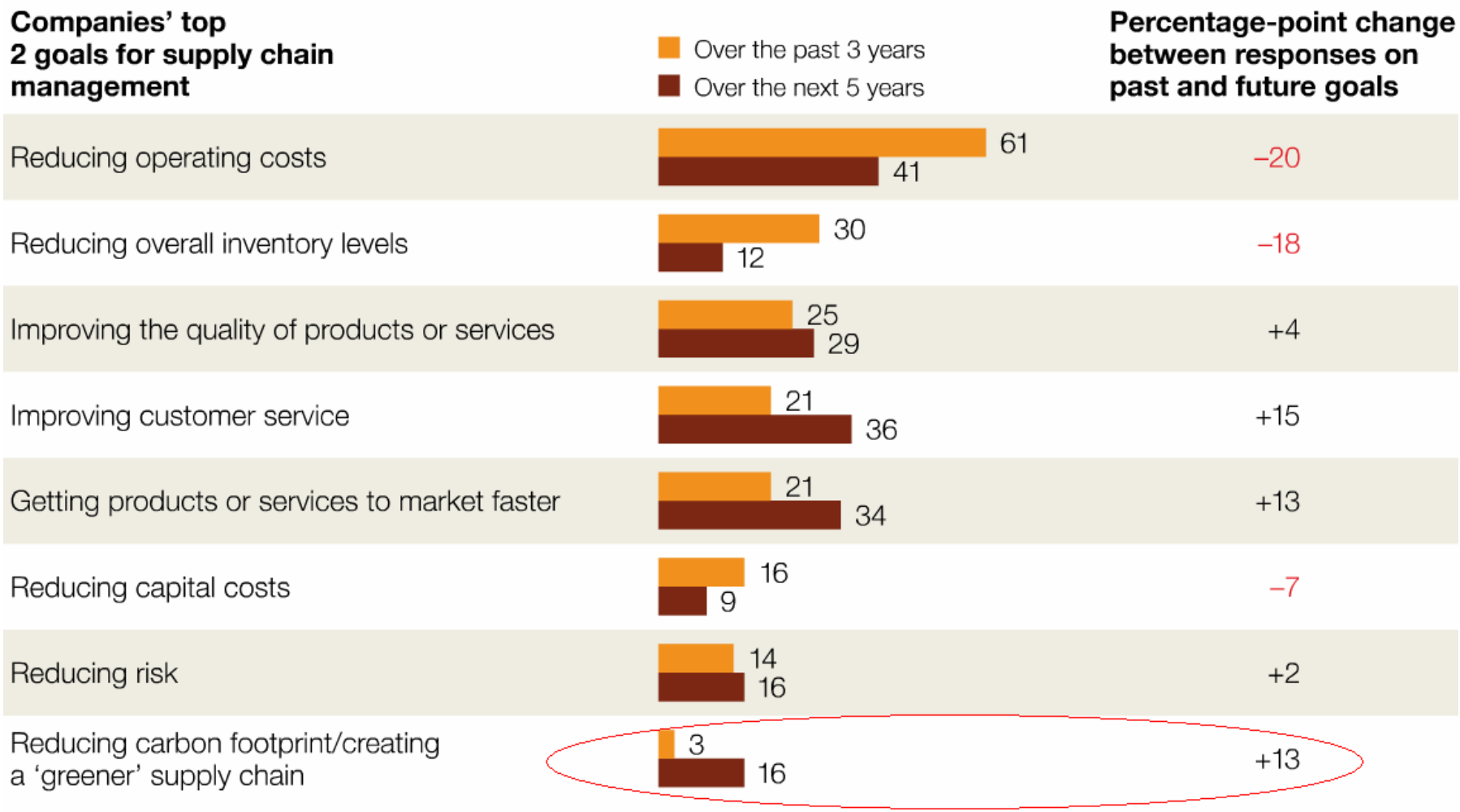
Companies' challenges in supply chain management



Source: McKinsey Quarterly, *McKinsey Global Survey*, November 2010.

Shifting priorities

% of respondents,[1] n = 639



Source: McKinsey Quarterly, *McKinsey Global Survey*, November 2010.

Defining Green Jobs

There is no standard definition of what constitutes a "green" job:

- **US Bureau of Labor & Statistics**: *"Green jobs are either: (1) jobs in businesses that produce goods or provide services that benefit the environment or conserve natural resources, or (2) in which workers' duties involve making their establishment's production processes more environmentally friendly or use fewer natural resources."*

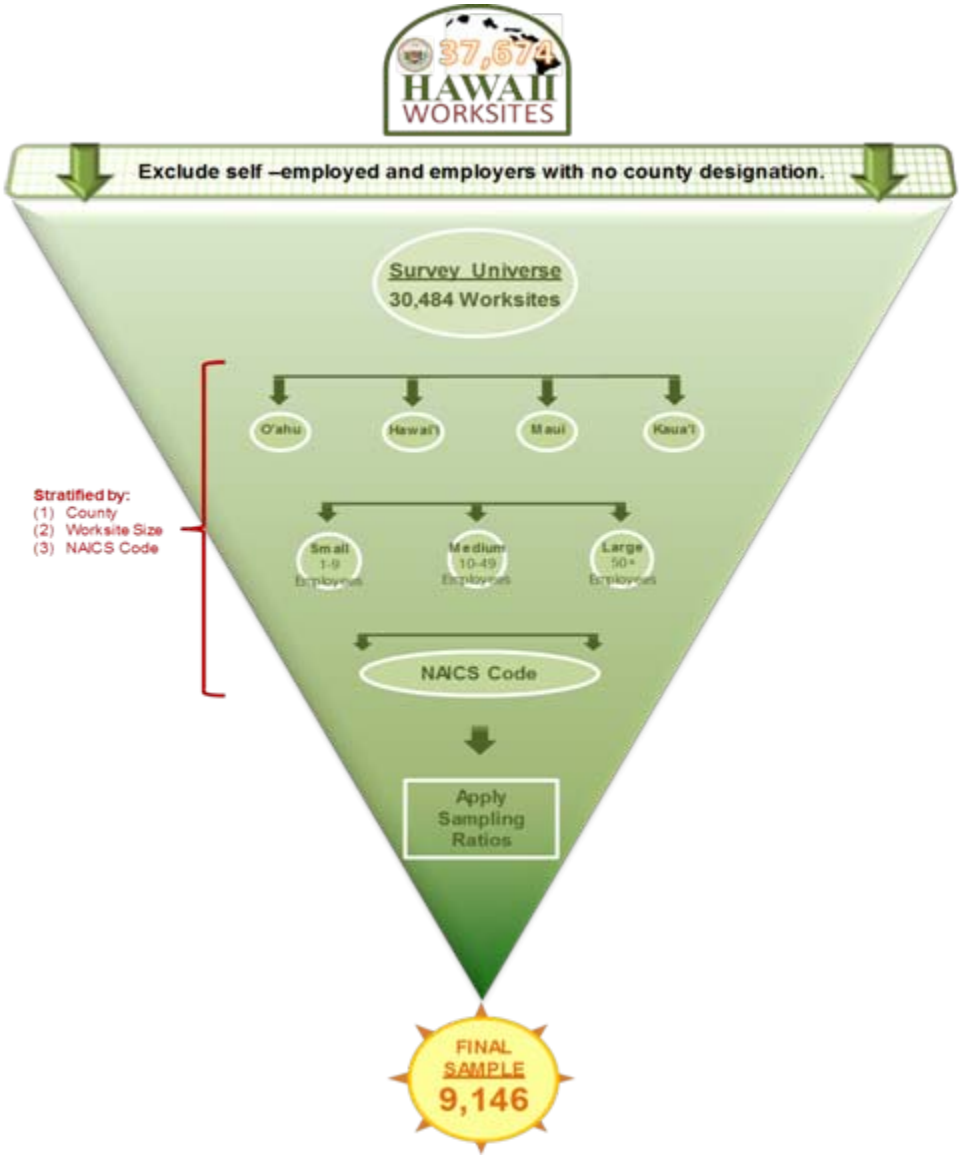
- **Workforce Information Council**: *"A green job is one in which the work is essential to products or services that improve energy efficiency, expand the use of renewable energy, or support environmental sustainability."*

- **State of Hawaii**: *"A green job is one that engages in economic activity that makes a positive impact on the environment or energy sustainability. When a job containing green responsibilities is performed on a part-time basis, it is considered green whenever that responsibility occurs on a recurring basis."*

Five Green Core Areas

- **G**enerate clean, renewable, sustainable energy
- **R**educe pollution and waste; conserve natural resources; recycle
- **E**nergy efficiency
- **E**ducational, training & support of a green workforce
- **N**atural, environmental-friendly production

Statistical Sampling Methodology



Sample Size by Industry

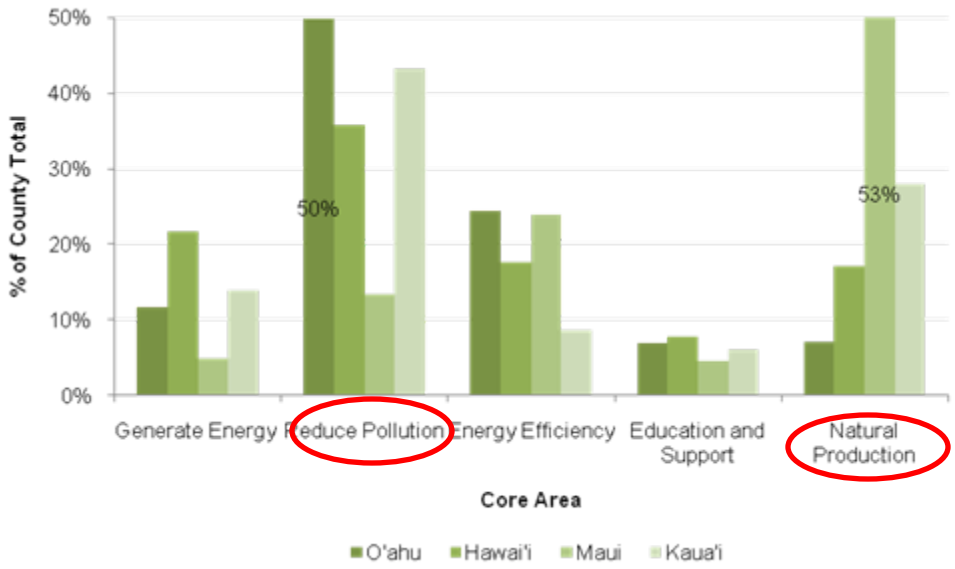
Survey universe as a share of total = 30%
44% response rate

NAICS	Sample Size	Sample as % of Total
11 Agriculture	177	1.9%
21 Mining	16	0.2%
22 Utilities	65	0.7%
23 Construction	1,135	12.4%
31-33 Manufacturing	413	4.5%
42 Wholesale Trade	523	5.7%
44-45 Retail Trade	1,174	12.8%
48-49 Transportation/Warehousing	274	3.0%
51 Information	149	1.6%
52 Finance & Insurance	286	3.1%
53 Real Estate & Rental & Leasing	344	3.8%
54 Professional, Scientific, & Technical Services	1,038	11.3%
55 Management of Companies & Enterprises	118	1.3%
56 Administrative/Support/Waste Mgmt/Remediation Services	715	7.8%
61 Educational Services	241	2.6%
62 Health Care & Social Assistance	678	7.4%
71 Arts, Entertainment, & Recreation	179	2.0%
72 Accomodation & Food Services	836	9.1%
81 Other Services	785	8.6%
TOTAL	**9,146**	**100.0%**

Current Green Jobs by Core Areas & County

County	Core Area					Total*
	Generate Energy	Reduce Pollution	Energy Efficiency	Education and Support	Natural Production	
O'ahu	806	3,419	1,677	472	492	**6,866**
Hawai'i	265	437	215	96	209	**1,222**
Maui	129	349	620	118	1,383	**2,599**
Kaua'i	64	199	40	28	129	**460**
STATE	**1,264**	**4,404**	**2,552**	**714**	**2,213**	**11,145**

*Column may not sum to due to rounding.

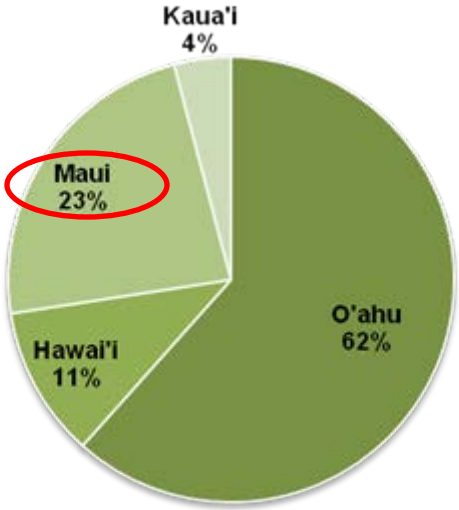


Current Green Jobs by County

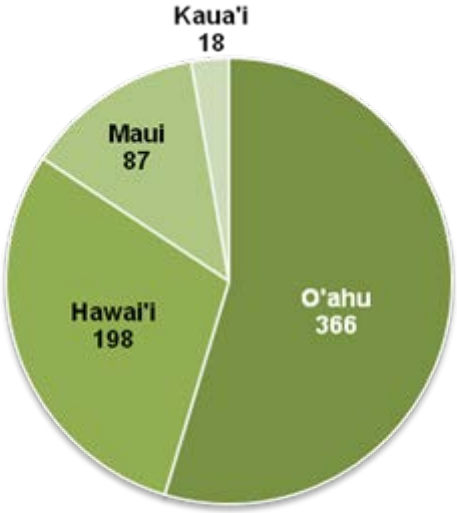
County	Green Jobs	Percent of Total Green Jobs	Total Jobs	Green to Total Jobs
O'ahu	6,865	62%	336,122	2.0%
Hawai'i	1,222	11%	49,749	2.5%
Maui	2,597	23%	56,184	4.6%
Kaua'i	460	4%	23,780	1.9%
Total:	**11,145**		**465,835**	**2.4%**

Current Green Jobs, Vacancies & Total

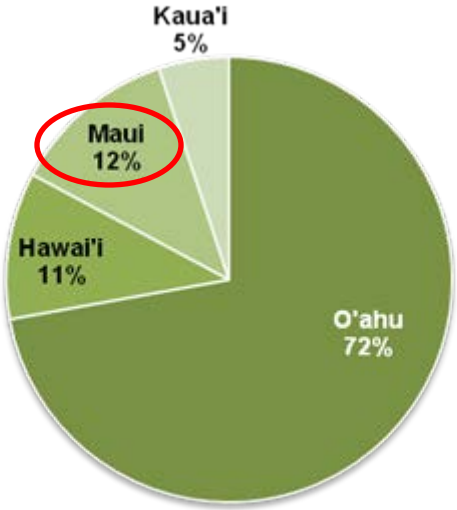
Green Jobs by County



Green Job Vacancies by County



Total Employment by County



Maui accounts for 12% of the State's total employment, yet its green jobs comprise 23% of the State's total.

Current Green Jobs: Top Industries

Industry	Green Jobs	% of Total Green Jobs	Total Jobs	% Green to Total Jobs
Construction	3,327	30%	29,307	11%
Administrative & Support & Waste Mgmt & Remediation Services	2,979	27%	40,132	7%
Professional, Scientific, & Technical Services	945	8%	24,358	4%
Wholesale Trade	809	7%	17,572	5%
Retail Trade	685	6%	67,313	1%

Current Green Jobs: Top Industries by County

Industry	Green Jobs	% of Total Green Jobs	County Total Jobs	% Green to County Jobs
O'ahu				
Construction	2,246	33%	21,382	11%
Administrative & Support & Waste Mgmt & Remediation Services	1,528	22%	31,010	5%
Professional, Scientific, & Technical Services	780	11%	20,817	4%
Hawai'i				
Construction	488	40%	3,444	14%
Agriculture, Forestry, Fishing, & Hunting	183	15%	2,329	8%
Wholesale Trade	158	13%	1,570	10%
Maui				
Administrative & Support & Waste Mgmt & Remediation Services	1,219	47%	4,411	28%
Construction	516	20%	3,009	17%
Manufacturing	115	4%	1,070	11%
Kaua'i				
Administrative & Support & Waste Mgmt & Remediation Services	161	35%	1,843	9%
Arts, Entertainment, and Recreation	87	19%	933	9%
Construction	77	17%	1,472	5%

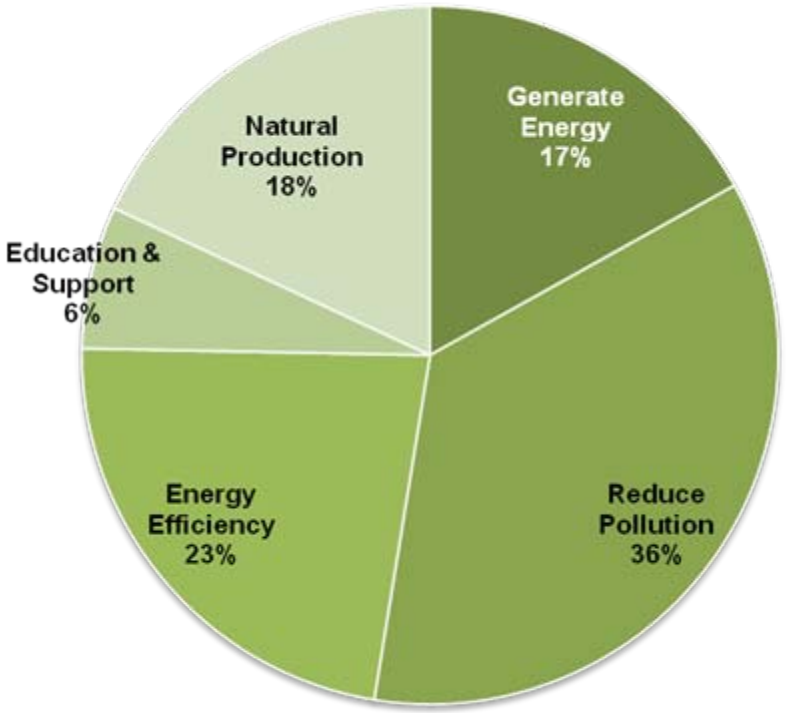
Current Green: Jobs by Worksite Size

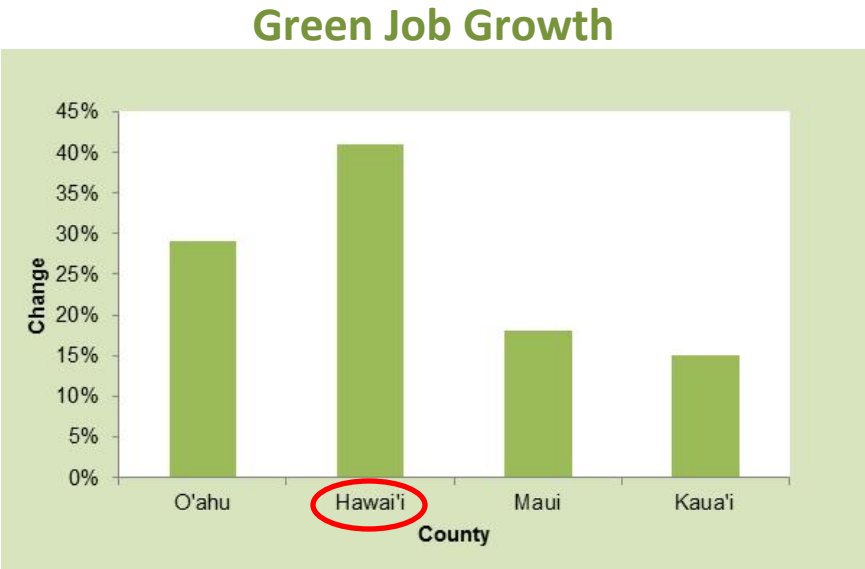
Worksite Size	Green Jobs	% of Total Green Jobs	Total Jobs	% Green to Total Jobs
Small	2,881	26%	77,175	3.7%
Medium	4,634	42%	143,138	3.2%
Large	3,630	33%	245,522	1.5%
Total:	**11,145**		**465,835**	

Current Green: Top Occupational Groups

Occupational (Major Grouping)	Green Jobs	Green Job Titles (with > 50 jobs)
Construction and Extraction	2,690	Electricians (438), Carpenters (306), Insulation Workers Floor Ceiling & Wall (277), Solar Photovolatic Installers (237), Solar Thermal Installers & Technicians (194), , Insulation Workers Mechnical (184), Laborers (173), First Line Supervisors/Mgrs of Construction (167), Plumbers (167), Hazardous Materials Removal Workers (160), Tile and Marble Setters (64), Carpet Installers (54), Elevator Installers and Repairers (54), Operating Engineers (53)
Building and Grounds Cleaning and Maintenance	1,667	Janitors & Cleaners (1,197), Landscaping & Groundskeeping Workers (276), First Line Supervisors/Mgrs of Landscaping Workers (103)
Life, Physical, and Social Science	1,044	Forest & Conservation Technicians (601), Environmental Science & Protection Technicians (196), Environmental Scientists & Specialists (114)
Installation, Maintenance, and Repair	921	Heating & Air Conditioning Mechanics & Installers (348), Maintenance & Repair Workers General (159), Installation Maintenance & Repair Workers All Other (114), Automotive Speciality Technicians (95), First Line Supervisors/Mgrs of Mechanics Installers & Repairers (61)
Sales and Related	844	Retail Salespersons (219), Sales Rep. Services All Other (126), Cashiers (103), First Line Supervisors/Mgrs of Retail Sales Workers (89), Sales Rep. Whlse & Manf. Tech & Sci. Prod (80), Telemarketers (66)

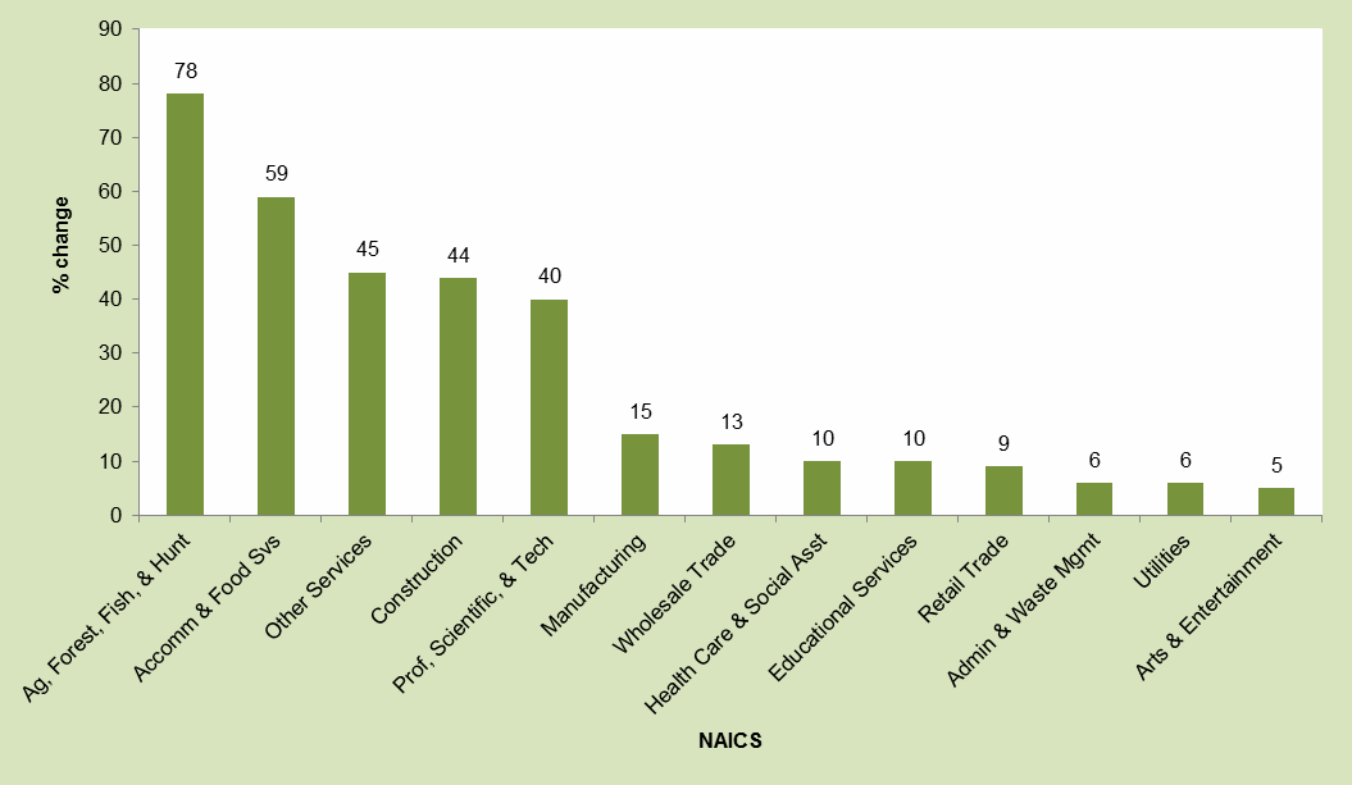
Projections by Core Areas & County





Businesses anticipate green employment to grow faster than the overall labor market, 2010-12: **26% vs 1.4% increase**.

Growth in Green Jobs by Industry, 2010-2012

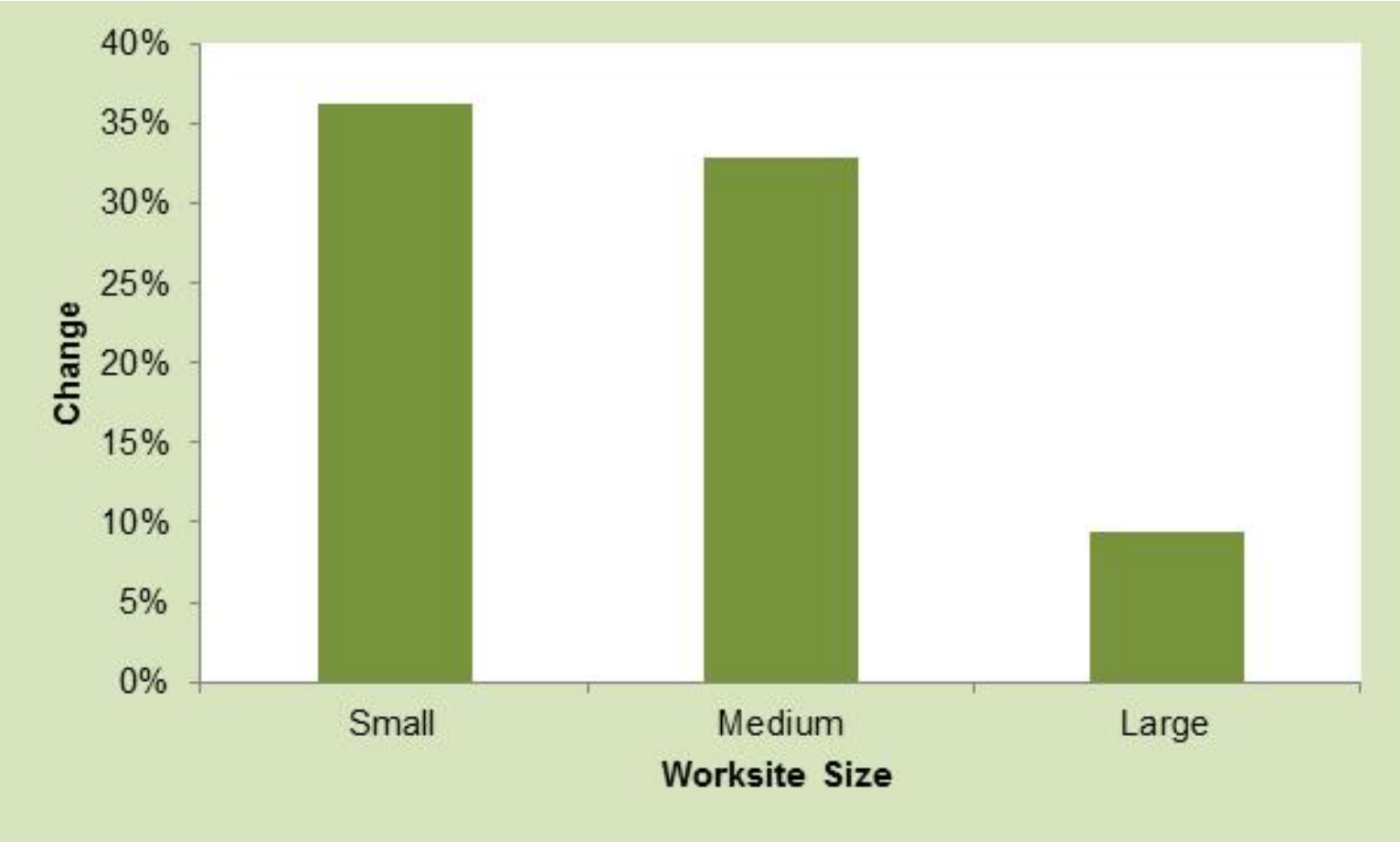


Projections: Top 10 Green Occupations by Growth 2010-12

Occupational Title	2010 Green Jobs	2012 Projected Green Jobs	Growth Rate
Solar Photovoltaic Installers	237	684	189%
Sales Engineers	46	267	480%
Electricians	438	647	48%
Upholsterers	64	209	227%
Insulation Workers Mechanical	184	297	61%
Solar Thermal Installers and Technicians	194	297	53%
Graders and Sorters Agricultural Products	79	181	129%
First-Line Supervisors/Managers of Production and Operating Workers	48	141	194%
Computer Support Specialists	76	167	120%
First-Line Supervisors/Managers of Landscaping Lawn Service and Groundskeepir	103	179	74%

Base-effects: Emerging green occupations are likely to experience rapid growth.

Projections: Growth by Worksite Size



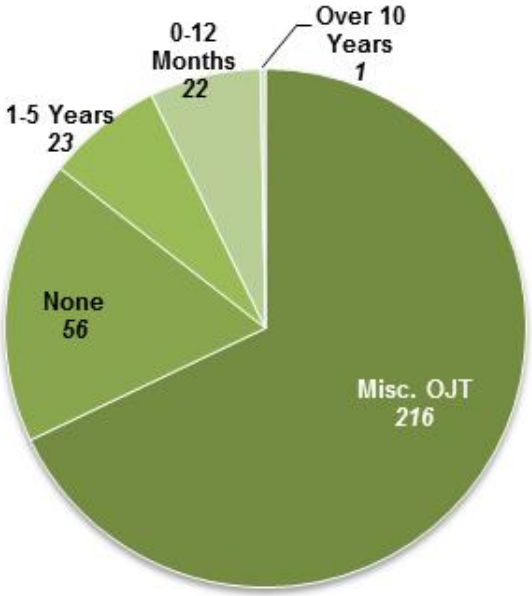
Green Practices by County & Worksite Size

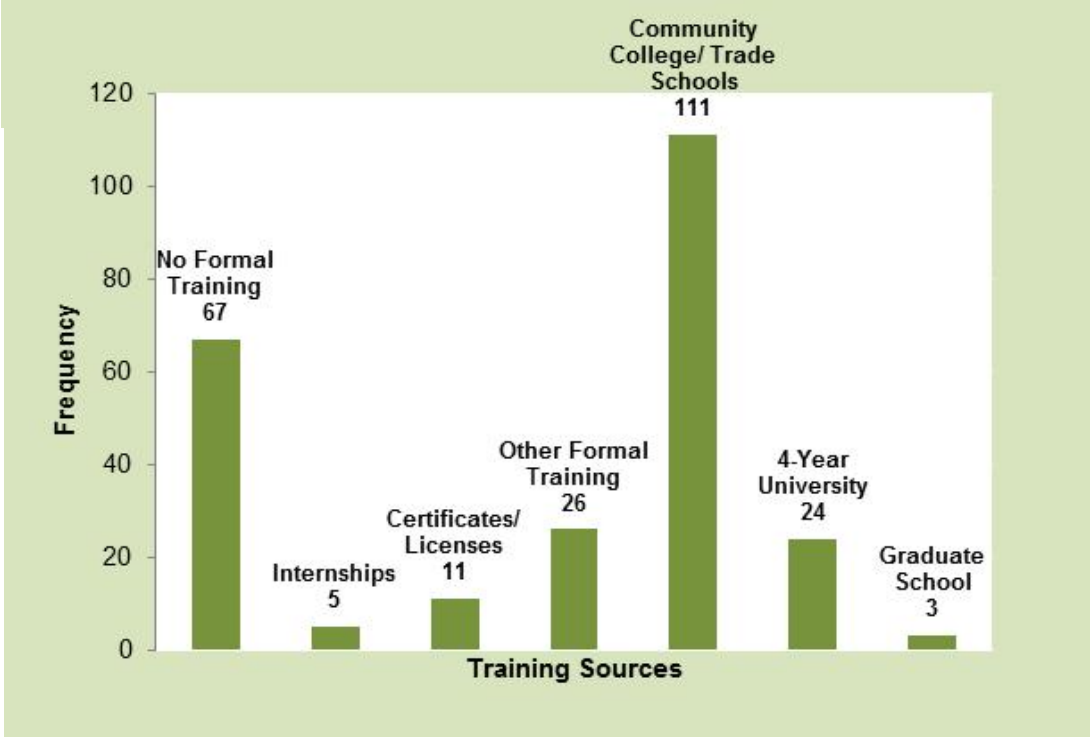
Green Practices	County				State	Worksite Size		
	O'ahu	Hawai'i	Maui	Kaua'i		Small	Medium	Large
Recycle	82%	82%	84%	86%	**83%**	77%	87%	91%
Use Recycled Products	58	58	59	65	**59**	54	62	64
Energy Saving Bulbs	50	59	56	55	**53**	52	52	58
Reduce Energy Use	38	37	43	39	**38**	33	37	54
Clean w/ Ecofriendly Products	23	33	37	33	**28**	28	28	27
Water Conservation	22	27	32	26	**25**	26	23	26
Telecommute	13	13	13	9	**12**	12	14	11
Carpool	10	13	14	14	**11**	10	13	13
Solar and Photovoltaics	6	12	13	12	**9**	8	8	12
Use Low VOC Paints, Stains, or Sealers	7	10	11	10	**8**	7	9	11
Fuel Efficient and Alternative Fuel Vehicles	6	9	9	8	**7**	7	7	7
Other	6	7	7	7	**6**	5	6	8
Subsidized Bus Pass	9	2	3	2	**6**	3	7	12
Bicycle Commute Program	2	1	3	2	**2**	2	2	2
Average Number of Green Practices:	**3.3**	**3.6**	**3.8**	**3.7**		**3.2**	**3.5**	**4.0**

Businesses report an average of 3.5 green practices per worksite.

Qualifications & Employee Training Requirements

On-the-Job Green Training

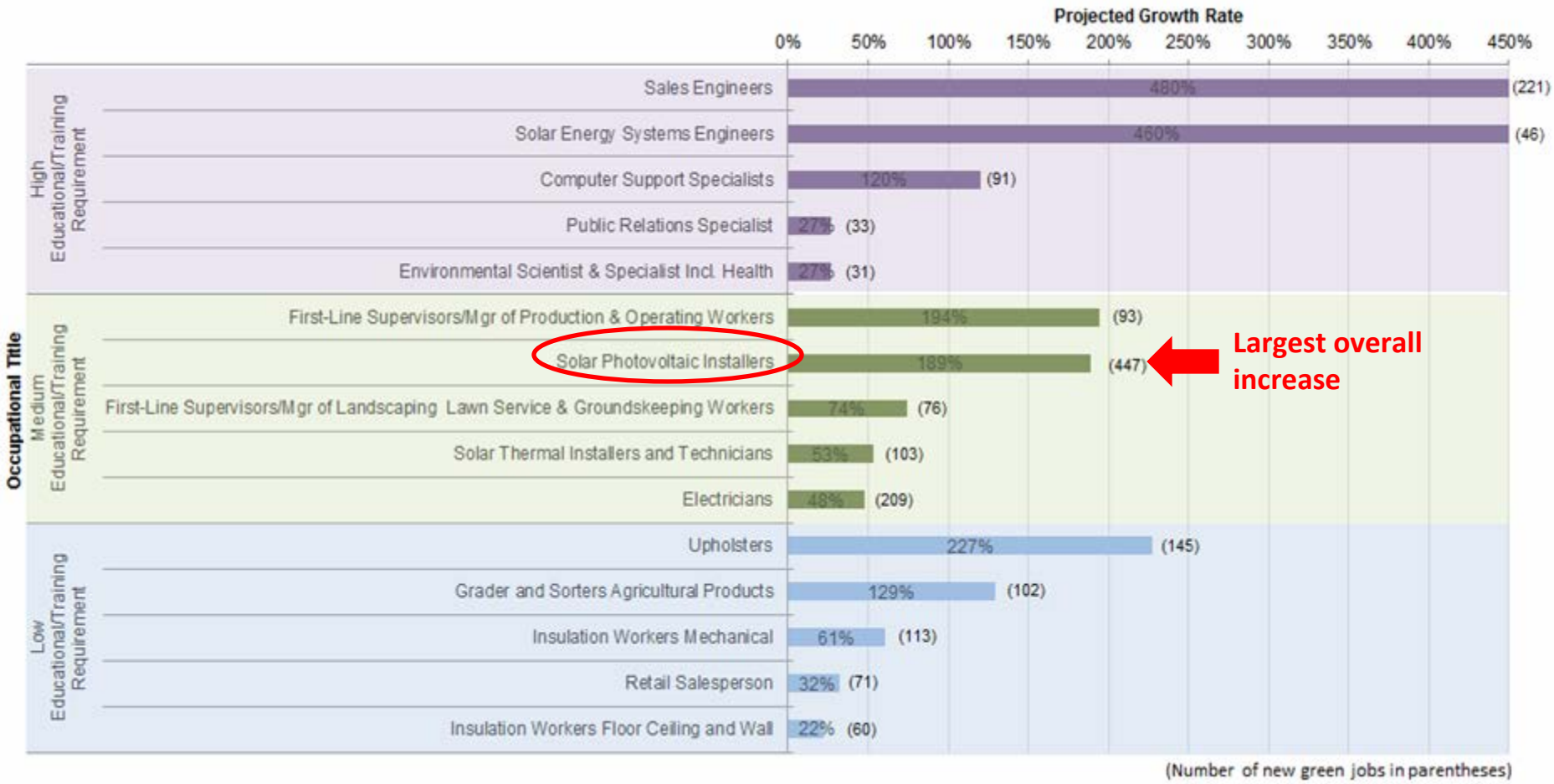




83% of respondents indicate OJT as a requirement.

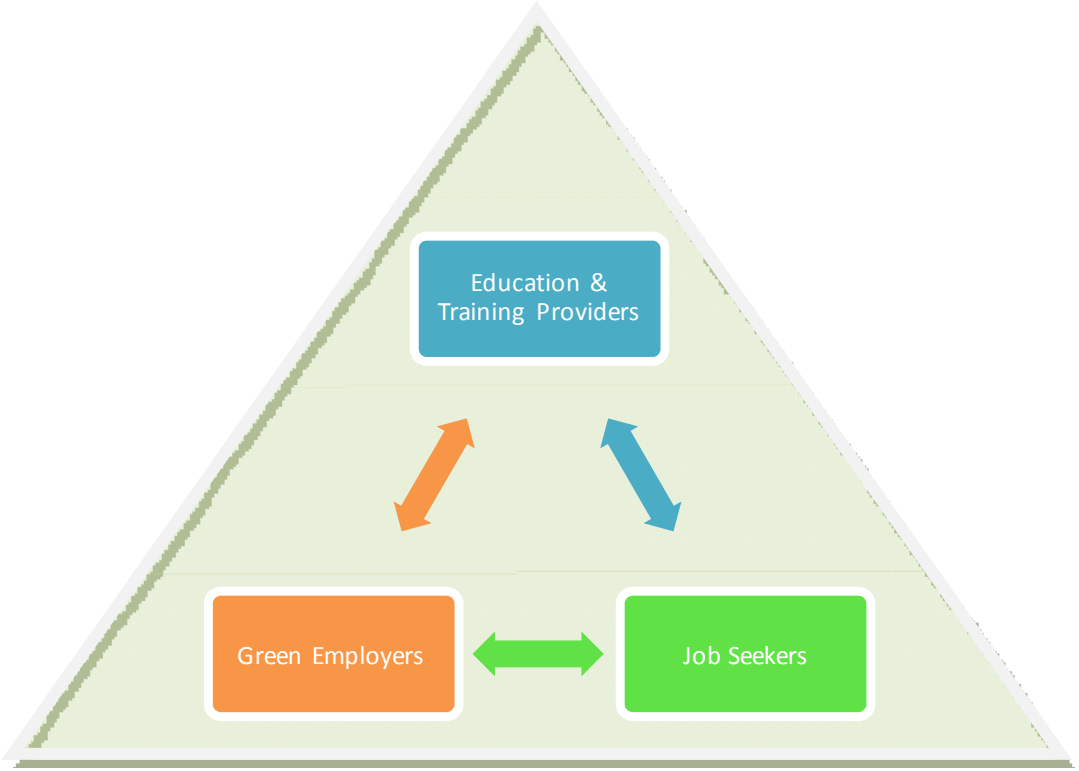
> 70% of respondents indicate some form of minimum education or training requirement

Qualifications & Employee Training Requirements



Across all tiers, the top-five occupations are estimated to account for 63% of new green jobs by 2012.

Green Partnership



- **Skills gap assessment:** Is our local workforce adequately prepared for green jobs? What are the relevant training programs, and where are they located?
- **Comprehensive green jobs forecast (UHERO):** model-based vs self-reported. Allows for long-term planning by all stakeholders.
- **Outreach:** Collaboration with local WIBs, OneStops, WDD, WDC, community groups.

Delivery tools

- Green Portal: *www.GreenJobsHawaii.org*
- Geographic Solutions (i.e., “Green” HireNet)
- Transferable Occupation Relationship Quotient (TORQ)
- Help-Wanted OnLine (HWOL)
- Economic Modeling Specialists Inc. (EMSI)

Contact Us

www.GreenJobsHawaii.org

dlir.rs.GreenJobsHawaii@hawaii.gov

(808)586-9029

Acknowledgements

- *Front cover photo acknowledgements:*
  - *Wind energy turbine construction photo courtesy of First Wind.*
  - *Photovoltaic roof installation photo courtesy of © 2010 Sunetric, Inc.*
  - *Taro patch photo courtesy of NorthShoreKauai.com.*
  - *Group picture of people holding plants courtesy of Kupu Hawai'i.*
- *All black and white photos used within this presentation were courtesy of H. Herradura.*