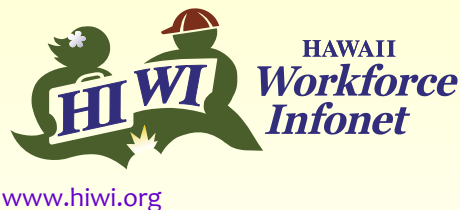


HAWAII'S GREEN WORKFORCE WILL BECOME GREENER

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As the State of Hawaii focuses on the goal set forth by the Hawaii Clean Energy Initiative (HCEI) of reducing its dependency on imported oil from 90 percent to being 70 percent reliant on renewable energy by 2030, the “greening” of Hawaii’s workforce plays a major role in the achievement of this objective. According to a green jobs survey conducted by the Department of Labor and Industrial Relations’ Research and Statistics office in 2010, the long term outlook for the green workforce in Hawaii remains very optimistic. The number of green jobs is anticipated to expand from 11,145 to 14,253 or possibly go as high as 22,766 by 2018. This means that growth is expected to reach at least 28 per-

cent and could more than double over the next seven years. Only some of the findings from the 2010 Hawaii Green Jobs Survey are presented in this analysis. For more detailed information regarding the survey, refer to the publication titled “Hawaii’s Green Workforce – Beyond the Baseline” on the HIWI website at www.hiwi.org.

Results from the survey indicate that growth in Hawaii’s green jobs sector will vastly outpace the total overall growth rate of mostly all private jobs statewide (Figure 1). Annually, green jobs are projected to expand by at least 3.5 percent through 2018 and could rise by as much as 13 percent, compared to 0.7 percent for the state as a

whole. Green workers in nearly all private industry sectors, with the exception of finance, insurance, and real estate, will experience growth well above their respective industry averages. Even industries that are forecasted to decline over the long term such as the agriculture, forestry, fishing, and hunting industry group as well as the manufacturing industry will see a rise in the creation of green jobs from 2010 to 2018.

Turning to the top 20 largest green occupations (Figure 2), not surprisingly due to the nature of the work performed, half of the occupations in this list are classified under the construction and extraction occupational group. The green sector portion of all the occupa-

tions will advance much faster than the overall growth in each occupation. The following green occupations also appear on the statewide list of all occupations with the most number of openings: retail salespersons; security guards; laborers and freight, stock, and material movers, hand; and landscaping and groundskeeping workers.

Employment levels for three green occupations; forest and conservation technicians, solar photovoltaic installers, and solar thermal installers and technicians will be higher than the statewide occupation totals. Possible reasons for the discrepancy are discussed below.

Figure 1

Industry Growth in Green Jobs								
Industry	Green Jobs Employment					Long Term Projections		
	High Growth Scenario		Low Growth Scenario		Employment		Annual Percent Change	
	2010	2018	Annual Percent Change	2018	Annual Percent Change	2008		2018
Agriculture, Forestry, Fishing, & Hunting	278	1,129	38.3%	485	9.3%	6,730	6,580	-0.2%
Construction & Mining	3,330	9,450	23.0%	5,538	8.3%	37,800	40,700	0.8%
Manufacturing	347	529	6.6%	398	1.8%	14,860	14,650	-0.1%
Transportation, Warehousing, & Utilities**	389	425	1.2%	475	2.8%	26,690	29,640	1.1%
Retail & Wholesale Trade	1,494	2,186	5.8%	1,761	2.2%	88,500	93,330	0.5%
Finance, Insurance, & Real Estate	98	*	*	*	*	29,320	29,990	0.2%
Health Care & Social Assistance Services**	183	272	6.1%	226	2.9%	64,390	76,890	1.9%
Accommodations & Food Services	174	611	31.4%	299	9.0%	95,280	98,850	0.4%
Other Services	4,854	8,347	9.0%	6,359	3.9%	25,230	27,510	0.9%
Total Private Industry	11,145	22,766	13.0%	14,253	3.5%	388,800	418,410	0.8%

* The number of additional jobs is greater than zero but less than ten.

** Long Term Projections includes government

Figure 2

Top 20 Largest Green Job Occupations									
SOC Codes	Industry	Green Jobs Employment					Long Term Projections		
		High Growth Scenario			Low Growth Scenario		Employment		Annual Percent Change
		2010	2018	Annual Percent Change	2018	Annual Percent Change	2008	2018	
37-2011	Janitors & Cleaners, exc Maids & Housekeeping Cleaners	1,197	1,497	3.1%	1,351	1.6%	14,260	14,400	0.1%
19-4093	Forest & Conservation Technicians	601	*	*	*	*	140	140	0.0%
33-9032	Security Guards	552	578	0.6%	629	1.7%	11,090	12,170	1.0%
47-2111	Electricians	438	1646	34.5%	814	10.7%	3,360	3,500	0.4%
49-9021	Heating & Air Conditioning & Refrigeration Mechanics & Installers	348	690	12.3%	489	5.1%	900	970	0.8%
47-2031	Construction Carpenters	306	692	15.8%	475	6.9%	10,430	11,120	0.7%
47-2131	Insulation Workers - Floor, Ceiling, & Wall	277	**	**	**	**	**	**	**
37-3011	Landscaping & Groundskeeping Workers	276	584	13.9%	390	5.2%	10,140	11,330	1.2%
47-4099	Construction & Related Workers, All Other						150	170	1.3%
47-4099.01	Solar Photovoltaic Installers	237	*	*	*	*	**	**	**
41-2031	Retail Salespersons	219	576	20.4%	337	6.7%	26,140	28,210	0.8%
19-4091	Environmental Science & Protection Tech., inc Health	196	*	*	*	*	180	210	1.7%
51-9199	Production Workers, All Other						310	340	1.0%
51-9199.01	Recycling & Reclamation Workers	194	*	*	*	*	**	**	**
47-4099	Construction & Related Workers, All Other						150	170	1.3%
47-4099.02	Solar Thermal Installers & Technicians	194	297	6.6%	*	*	**	**	**
53-7062	Laborers & Freight, Stock, & Material Movers - Hand	191	456	17.3%	267	5.0%	9,010	8,860	-0.2%
47-2132	Insulation Workers - Mechanical	184	**	**	**	**	**	**	**
47-2061	Construction Laborers	173	274	7.3%	249	5.5%	6,510	7,440	1.4%
47-1011	First-Line Supervisors/Managers of Construction Trades & Extraction Workers	167	499	24.9%	287	9.0%	2,810	3,060	0.9%
47-2152	Plumbers, Pipefitters, & Steamfitters						3,200	3,380	0.6%
47-2152.02	Plumbers	167	315	11.1%	232	4.9%	**	**	**
47-4041	Hazardous Materials Removal Workers	160	169	0.7%	166	0.5%	280	300	0.7%
49-9042	Maintenance & Repair Workers - General	159	327	13.2%	221	4.9%	6,830	7,540	1.0%

*Data is suppressed for consistency concerns.

**Data is not available.

Data Comparison Issues

Green jobs projections and long-term forecasts were done independently and used different samples of employers, survey methodology, and projection models.

The long-term forecasting methodology is detailed in the “Employment Projections for Industries and Occupations 2008 – 2018,” at www.hiwi.org. While the industry forecasts utilized statistical models, the occupational forecasts were primarily based on the staffing patterns produced by the Occupational Employment Statistics (OES) survey. The survey is conducted semi-annually from a sample of all nonfarm establishments, including government. The survey samples about 1,000 establishments each in May and November, and over the course of a 3-year survey cycle, over 6,000 establishments are included and the minimum required response rate is 75 percent. For example, the May 2009 staffing patterns used in this round of long-term projections were based on survey data from 2006 to 2008. Occupational coding is based on the 6-digit Standard Occupational Classification (SOC) codes.

The green jobs industry projections were developed using a combination of 2010 Quarterly Census of Employment and Wages (QCEW) data and customized macroeconomic models. Two major concepts utilized were that industry size and the mix of jobs within an industry could affect job counts. Growth rates were applied to the 2010 QCEW estimates and then the green job estimates generated in the baseline assessment for 2010 and 2012 from the green survey were incorporated into the modeling process. A range of outcomes was generated for each industry, reflecting high and low scenarios.

To develop occupational projections, OES data were combined with the Department of Labor and Industrial Relations’ occupation projections to generate a SOC-code specific growth path for each occupation code for 2008 – 2018. In addition, the data obtained from the DLIR green jobs survey for 2010 and 2012 provided more recent evidence of the changing job mix. Thus high and low scenario outcomes were also generated for each occupation.

In order to compare occupational projections, the more detailed 8-digit ONET-SOC codes were rolled up into the broader 6-digit SOC codes. Since the projections were produced using two different methodologies at different time periods, it is not surprising to find some inconsistencies when comparing the data. Specifically, there were some instances where the number of green jobs was greater than the total employment in the long term projections. For instance, in the case of all other construction and related workers, which include the new and emerging occupations in the solar industry, the difference in employment between the two sets of projections was probably the result of different samples and the different survey time periods. The OES survey lags in reflecting new and emerging industries and occupations in a timely manner, due to the 3-year survey cycle. This should be less of an issue when OES releases the results of its May 2013 green survey containing the first publishable set of “green jobs” data.

Which set of projections to use will depend on the purpose of the data user - one represents only private industry green jobs, and the other all jobs. Regardless, the focus should be on the projected direction and amount of growth, rather than the absolute employment numbers.