Reality Check: How Green is Hawai‘i’s Workforce?

The Hawai‘i Green Jobs Initiative

April 2012

State of Hawai‘i
Department of Labor and Industrial Relations
Research & Statistics Office

STATE OF HAWAI‘I

NEIL S. ABERCROMBIE, GOVERNOR
BRIAN E. SCHATZ, LT. GOVERNOR

DEPARTMENT OF LABOR AND INDUSTRIAL RELATIONS

Dwight Takamine, Director
Audrey Hidano, Deputy Director

RESEARCH AND STATISTICS OFFICE

Francisco P. Corpuz, Research and Statistics Officer
Phyllis A. Dayao, Labor Market Information Staff Supervisor
John K. Kontos, Research Statistician

www.greenjobshawaii.org

Hawai‘i Green Jobs Initiative
Research & Statistics Office
Department of Labor & Industrial Relations
830 Punchbowl Street, Room 304
Honolulu, HI 96814

Phone: 808-586-9013
Fax: 808-586-9022
Email: dlir.rs.greenjobshawaii@hawaii.gov

Background

At the end of 2010, the Department of Labor and Industrial Relations' Research and Statistics Office released a Baseline Report on Hawai'i's Green Workforce (https://greenjobshawaii.hirenethawaii.com/admin/gsipub/htmlarea/uploads/HawaiisGreenWorkforce_BaselineAssessment.pdf). According to the 2010 Report:

- Green jobs in Hawai'i's private sector were estimated at 11,145, accounting for 2.4 percent of total private employment.
- Green job vacancies were estimated at 670, which represented 1.5 percent of Hawai'i's total unemployment.
- Between 2010 and 2012, employer worksites projected the number of green jobs to increase by 26 percent to 14,048, accounting for 2.9 percent of total employment.

In Spring of 2012, the Bureau of Labor Statistics (BLS) released its Green Goods and Services (GGS) Employment 2010 Report. Based on this GGS survey by BLS, four of the top five industries employing the greatest number of green workers in the United States and Hawai'i were the same (see Charts 1 and 2). These include:

- construction;
- professional, scientific, and technical services
- administrative and waste services, and
- transportation and warehousing

Hawai'i tied for 12th place in the percentage of green jobs nationwide. This report also corroborates Hawai'i's Baseline Report. The full text of the GGS report can be found at http://www.bls.gov/news.release/pdf/ggqcew.pdf.

Methodology

To estimate the number of green jobs created in the State of Hawai'i from the first quarter of 2010 to the third quarter of 2011, data from the 2010 Hawai'i Green Jobs Survey was compared to data from the Quarterly Census of Employment and Wages (QCEW).

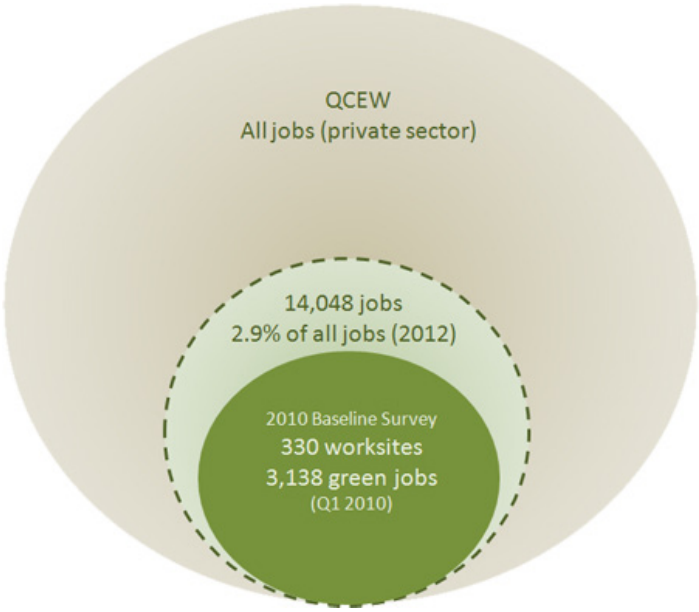
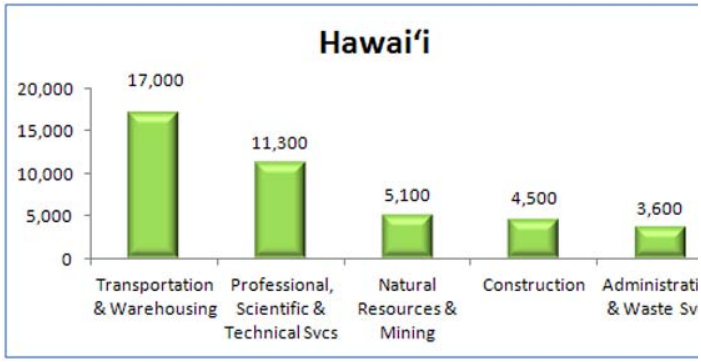


Chart 1. Green Goods & Services Employment,2010, US

Chart 2. Green Goods & Services Employment,2010, HI



Of the Hawai'i employer worksites contacted during the 2010 Hawai'i Green Jobs Survey, 330 reported having green jobs in the first quarter of 2010. A total of 3,138 green jobs was reported, while the total number of jobs reported by the same employer worksites was 20,770. The number of workers in the first quarter of 2010 at the 330 employer worksites which reported having green jobs while responding to the Hawai'i Green Jobs Survey, was 21,637 according to QCEW (slightly higher than, but very close to, the number provided by the 2010 Hawai'i Green Jobs Survey respondents). Assuming that the proportion of green jobs at each worksite has remained constant, and that the QCEW data is more accurate, the number of green jobs at the 330 worksites was estimated at 3,164 in the first quarter of 2010.

To estimate the growth in green jobs from the first quarter of 2010 to the first and third quarter of 2011 (the latest period for which QCEW data is available), it was again assumed that the proportion of green jobs has remained the same at all worksites as what was reported by the 2010 Hawai'i Green Jobs Survey respondents. If, for example, Worksite A reported 100 jobs in 2010, 20 of which were green, then when their number of workers increased from 100 to 200, it was assumed that the number of green jobs increased from 20 to 40. If, on the other hand, Worksite B, which also had 100 jobs in 2010 but only five green jobs, increased its workers from 100 to 200 in 2011, the estimated number of green workers would increase only by five, from five to 10. This analysis does not capture changes in the composition of the already existing workforce (e.g., an already existing worker who was not green in 2010, may have received additional training that made them "green") or the proportion of new green workers hired, due to a lack of green jobs data in 2011.

Estimating Industry-Level Green Job Growth – Methodology

To estimate industry-level green job growth from the sample of 330 employer worksites in the "Hawai'i's Baseline Assessment, an estimated green job count per industry was used. Green employment levels from the sample were weighted differently for each industry as certain industries were either overrepresented or underrepresented for various reasons. For example, large worksites such as utilities with 50 or more employees were considered overrepresented as the likelihood of having green workers was higher. The weights were determined by the ratio of the green job count in 2010 for each industry from the Baseline Assessment and the number of green jobs each industry in the sample had. For example, as seen in Appendices A and B, the 18 Manufacturing worksites from the sample employed a total of 142 green workers, while the estimate for the Manufacturing Industry according to the Baseline Assessment for the same time period was estimated at 347 green jobs. The weight for Manufacturing would therefore be 347/142=2.44. To obtain industry-level estimates of green workers from the first quarter of 2010 to the third quarter of 2011, estimated green employment levels for each quarter in every industry were multiplied by the weight. As an example, the estimated number of green jobs at the 18 Manufacturing worksites for the first quarter of 2011 was 152.8, which when multiplied by 2.44, produces an estimate for the total number of green jobs in the Manufacturing industry in Quarter 1 of 2011).

Another goal of the study was to compare green jobs estimates to the University of Hawai'i Economic Research Organization (UHERO) 2012 Green Jobs Forecast ("Hawai'i's Green Workforce: Beyond the Baseline", p. 12), which combined various industries into one. An example of this was Retail Trade and Wholesale Trade, which for the purposes of the UHERO Forecast were combined into one, despite being separate industries according to the 2-digit NAICS code classification. To make the comparison, it was assumed that the proportion of green jobs in each industry is expected to remain the same in 2012. For example, Wholesale Trade had an estimated 809 green jobs in 2010 and Retail Trade an estimated 685 green jobs, while the 2012 Forecast for Wholesale and Retail trade was 1,561 green jobs (based on UHERO's low growth projection). So it is assumed that the ratio of Wholesale trade and Retail trade is expected to remain the same in 2012 as in 2010.

Results

By using the method of estimation described above, the number of green workers at the 330 sampled worksites appears to have increased from 3,164 in the first quarter of 2010 to 3,175 in the third quarter of 2011, an increase equal to 0.3501%. This is much lower than the 6% increase in the total number of jobs during the same time period. The much smaller increase in green jobs is the result of the lower employment levels observed in Construction and Mining throughout 2011 (when compared to the first quarter of 2010). Construction and Mining in the first quarter of 2010 was the industry with the largest number of green jobs (867 at 102 worksites). See Appendices A and B for the employment changes in industries from 2010 to 2011.

From the first quarter of 2010 to the third quarter of 2011, 335 jobs were lost at 102 Construction and Mining worksites, which resulted in an estimated loss of 91 green jobs (9.9% decrease since the first quarter of 2010). Appendix A.

To reduce seasonal effects that may skew the data (employment levels may vary from March to September in the Construction industry), a comparison of employment levels was made from the first quarter of 2010 to the first quarter of 2011. Green jobs appeared to decrease during this time period from 3,164 to 3,044 (3.8%). At the same time, the total number of jobs increased by 3.9%. The reduction in green jobs is to a large extent to a loss in Construction and Mining jobs. The estimated number of green Construction and Mining jobs lost during this period was 125 (13.7% loss). Appendix B.

Employment changes in all industries[1] can be seen in the Charts 3 and 4 and Table 1.

1. 2-digit NAICS codes were used to separate employer worksites by industry. Industries with 3 or fewer employer worksites were not listed, but data from those worksites were added to the total. Construction and Mining have different NAICS codes (23 and 21 respectively), but for the purpose of this report, the two industries were combined into one.

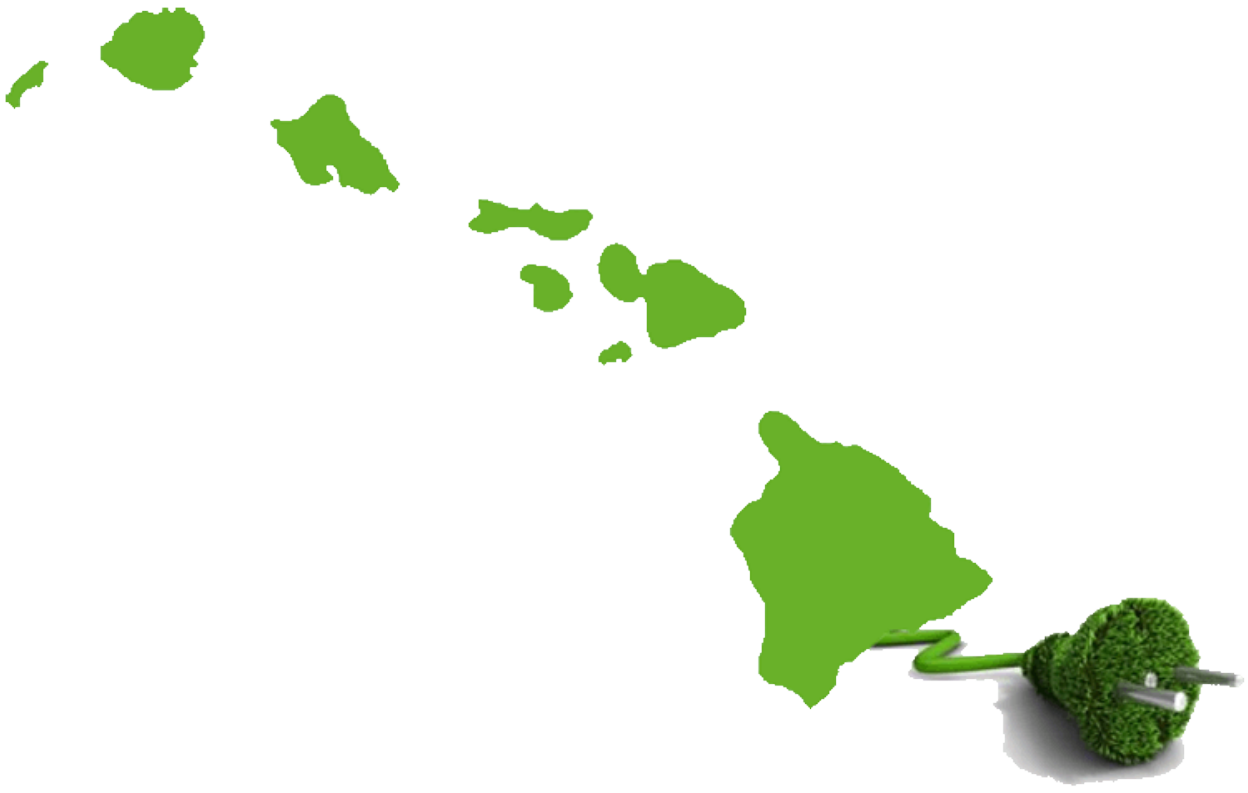
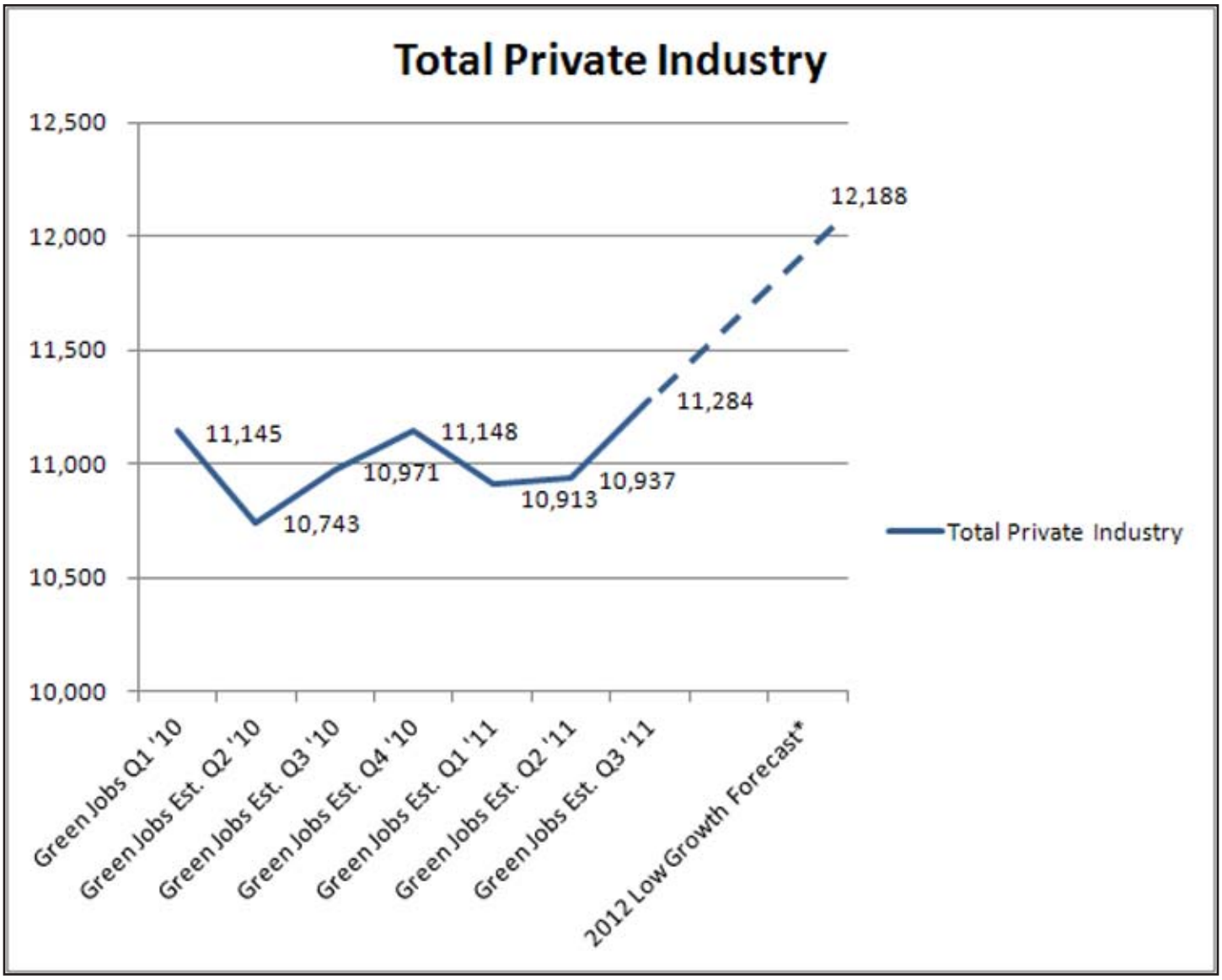
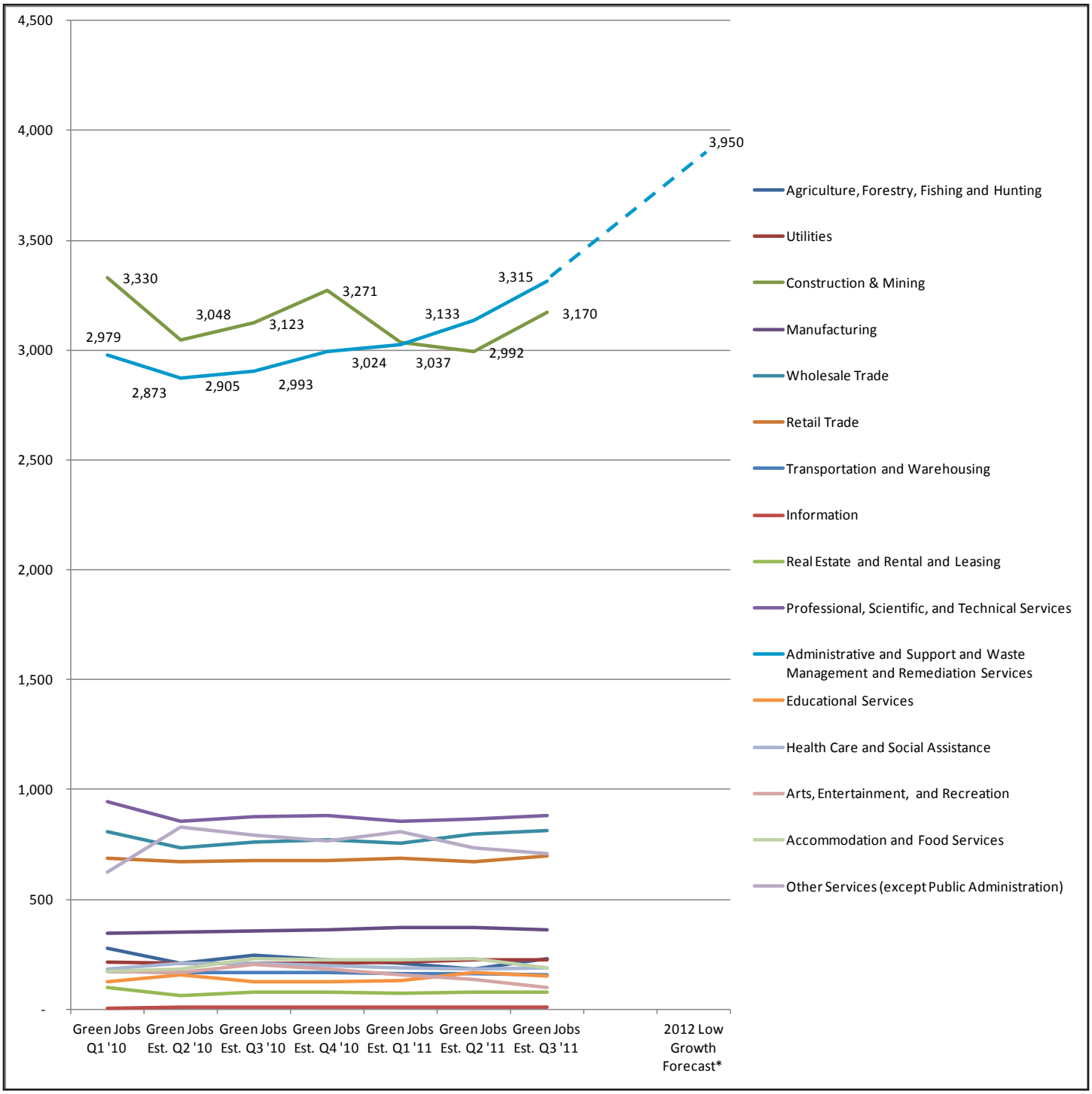


Chart 3. Total Green Jobs



* "Hawai'i's Green Workforce: Volume 2: Beyond the Baseline: Model-Based Projections." Appendix A, UHERO-DLIR, May 2011 (https://greenjobshawaii.hirenethawaii.com/admin/gsipub/htmlarea/uploads/FullReportForWeb_BeyondTheBaseline.pdf)

Chart 4. Total Private Industry Green Jobs by Industry



* "Hawai'i's Green Workforce: Volume 2: Beyond the Baseline: Model-Based Projections." Appendix A, UHERO-DLIR, May 2011 (https://greenjobshawaii.hirenethawaii.com/admin/gsipub/htmlarea/uploads/FullReportForWeb_BeyondTheBaseline.pdf)

Table 1. Estimation of Green Jobs by Quarter

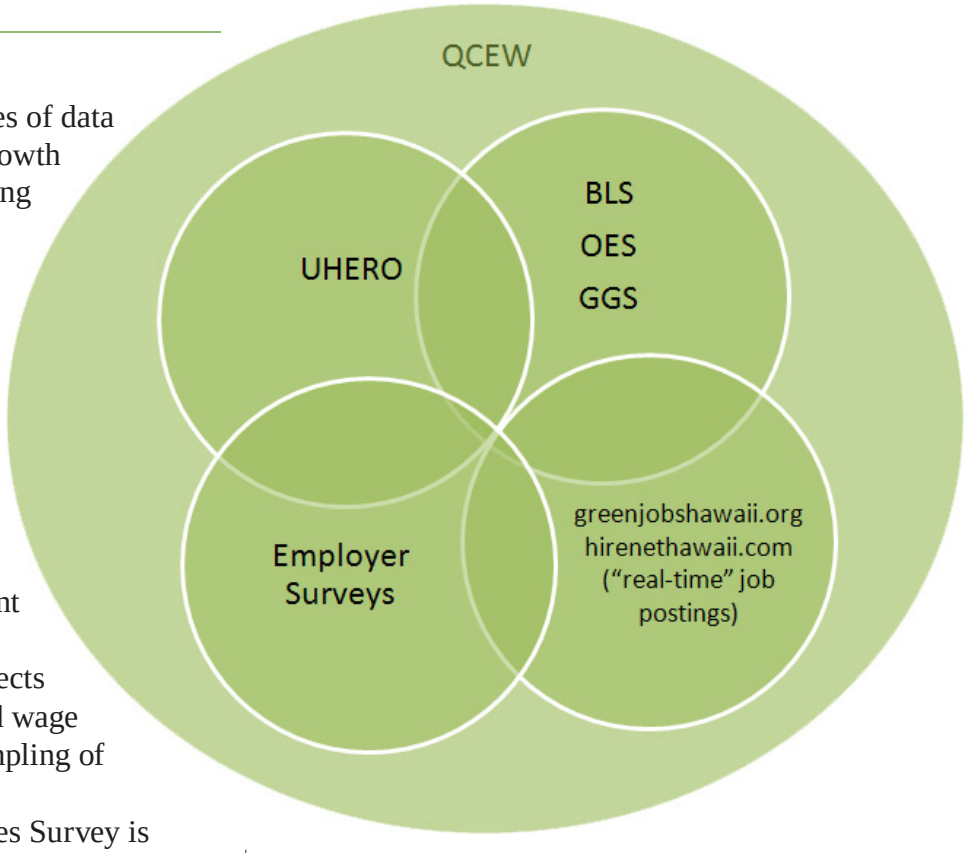
Hawai'i's Industries	Green Jobs Q1 '10	Green Jobs Est. Q2 '10	Green Jobs Est. Q3 '10	Green Jobs Est. Q4 '10	Green Jobs Est. Q1 '11	Green Jobs Est. Q2 '11	Green Jobs Est. Q3 '11
Agriculture, Forestry, Fishing and Hunting	278	208	247	226	207	182	233
Mining	3	4	4	4	4	4	4
Utilities	214	210	211	212	217	223	224
Construction	3,327	3,044	3,119	3,267	3,033	2,988	3,166
Manufacturing	347	350	357	361	373	372	361
Wholesale Trade	809	736	761	774	757	798	815
Retail Trade	685	670	675	677	690	670	696
Transportation and Warehousing	175	169	167	166	162	161	158
Information	7	11	11	12	11	9	10
Real Estate and Rental and Leasing	98	62	80	78	71	80	80
Professional, Scientific, and Technical Services	945	858	875	881	854	864	882
Administrative and Support and Waste Management and Remediation Services	2,979	2,873	2,905	2,993	3,024	3,133	3,315
Educational Services	124	159	124	127	131	168	151
Health Care and Social Assistance	183	211	212	200	186	185	191
Arts, Entertainment, and Recreation	173	167	202	182	157	138	101
Accommodation and Food Services	174	182	231	224	226	229	187
Other Services (except Public Administration)	626	829	790	764	810	733	710
Total Private Industry*	**11,145**	**10,743**	**10,971**	**11,148**	**10,913**	**10,937**	**11,284**

**May not sum to total due to rounding.*

Next Steps

R&S will continue to examine sources of data and methodologies to estimate the growth of Hawai'i's green workforce including the following:

- The University of Hawaii's Economic Research Organization (UHERO) did a Green Jobs Forecast in 2011 for 2012. R&S will continue to partner with UHERO to develop projections.
- The Occupational Employment Statistics Program (OES), which is a BLS program, collects occupational employment and wage data through surveys of a sampling of non-farm establishments.
- The Green Goods and Services Survey is another BLS program conducting surveys.
- Assessment of green job postings on R&S' green portal at www.greenjobshawaii and in HireNetHawaii, the State's job matching system.
- New or additional employer surveys may be possible if resources become available. DLIR has submitted proposals for a Workforce Innovation Grant and a Workforce Data Quality Initiative Grant. These grants would enable R&S to develop and implement the collection of additional data such as occupations through the QCEW reporting system. R&S also needs a way to assess how many existing workers are being trained to become "green." and whether employers are adding more green workers.
- R&S will also scan for information on up and coming energy projects to gauge the need for green workers.



Appendix A. Green Jobs Growth by Industries (Quarter 1 2010 - Quarter 3 2011)

	2010 Baseline			QCEW 2010		QCEW 2011 Q3					
Hawai'i's Industries	Worksites	Total Jobs (2010 Green Jobs Survey)	Green Jobs (2010 Green Jobs Survey)	Total Jobs Q1 '10	Green Jobs Est. Q1 '10	Total Jobs Q3 '11	Green Jobs Est. Q3 '11	Growth Q1 '10 -Q3 '11	%	Green Growth Q1 '10 - Q3 '11	%
Agriculture, Forestry, Fishing and Hunting	13	765	66	743	61.6	613	55.3	-130	-17.5%	**-6.4**	**-10.4%**
Utilities	12	2,263	142	2,253	136.6	2,488	148.7	235	10.4%	**12.1**	**8.9%**
Construction & Mining	102	3,348	867	3,528	916.6	3,193	825.8	-335	-9.5%	**-90.8**	**-9.9%**
Manufacturing	18	706	142	691	142.2	726	147.7	35	5.1%	**5.6**	**3.9%**
Wholesale Trade	23	508	307	472	279.2	507	309.3	35	7.4%	**30.1**	**10.8%**
Retail Trade	18	816	111	804	109.3	823	112.9	19	2.4%	**3.6**	**3.3%**
Transportation and Warehousing	4	926	134	902	130.0	832	120.6	-70	-7.8%	**-9.4**	**-7.2%**
Professional, Scientific, and Technical Services	44	467	204	440	187.4	464	190.3	24	5.5%	**2.9**	**1.6%**
Administrative and Support and Waste Management and Remediation Services	35	6,133	865	6,598	827.4	8,315	962.7	1717	26.0%	**135.3**	**16.4%**
Educational Services	6	259	37	274	39.9	302	45.1	28	10.2%	**5.2**	**13.0%**
Health Care and Social Assistance	9	1,000	56	1,133	64.4	1,215	58.5	82	7.2%	**-5.9**	**-9.1%**
Arts, Entertainment, and Recreation	8	296	48	310	53.0	84	28.1	-226	-72.9%	**-24.9**	**-47.0%**
Accommodation and Food Services	14	2,537	31	2,779	43.6	2,782	33.3	3	0.1%	**-10.4**	**-23.8%**
Other Services (except Public Administration)	20	265	102	326	153.7	272	115.7	-54	-16.6%	**-38.0**	**-24.8%**
TOTAL	330	20,770	3,138	21,637	3,164.4	22,926	3,175.4	1,289	6.0%	11.1	0.4%

Appendix B. Green Jobs Growth by Industries (Quarter 1 2010 - Quarter 1 2011)

	2010 Baseline			QCEW 2010		QCEW 2011 Q1					
Hawai'i's Industries	Worksites	Total Jobs (2010 Green Jobs Survey)	Green Jobs (2010 Green Jobs Survey)	Total Jobs Q1 '10	Green Jobs Est. Q1 '10	Total Jobs Q1 '11	Green Jobs Est. Q1 '11	Growth Q1 '10 -Q1 '11	%	Green Growth Q1 '10 - Q1 '11	%
Agriculture, Forestry, Fishing and Hunting	13	765	66	743	**61.6**	743	49.2	0	0.0%	**-12.4**	**-20.1%**
Utilities	12	2,263	142	2,253	**136.6**	2,396	143.7	143	6.3%	**7.1**	**5.2%**
Construction & Mining	102	3,348	867	3,528	**916.6**	3,255	791.3	-273	-7.7%	**-125.3**	**-13.7%**
Manufacturing	18	706	142	691	**142.2**	725	152.8	34	4.9%	**10.6**	**7.5%**
Wholesale Trade	23	508	307	472	**279.2**	484	287.2	12	2.5%	**8.0**	**2.9%**
Retail Trade	18	816	111	804	**109.3**	814	111.8	10	1.2%	**2.6**	**2.3%**
Transportation and Warehousing	4	926	134	902	**130.0**	858	124.0	-44	-4.9%	**-6.0**	**-4.6%**
Professional, Scientific, and Technical Services	44	467	204	440	**187.4**	445	184.3	5	1.1%	**-3.1**	**-1.7%**
Administrative and Support and Waste Management and Remediation Services	35	6,133	865	6,598	**827.4**	7,639	878.1	1041	15.8%	**50.7**	**6.1%**
Educational Services	6	259	37	274	**39.9**	270	39.1	-4	-1.5%	**-0.8**	**-2.1%**
Health Care and Social Assistance	9	1,000	56	1,133	**64.4**	1,154	56.9	21	1.9%	**-7.4**	**-11.5%**
Arts, Entertainment, and Recreation	8	296	48	310	**53.0**	280	43.6	-30	-9.7%	**-9.4**	**-17.7%**
Accommodation and Food Services	14	2,537	31	2,779	**43.6**	2,834	40.3	55	2.0%	**-3.3**	**-7.6%**
Other Services (except Public Administration)	20	265	102	326	**153.7**	288	132.0	-38	-11.7%	**-21.8**	**-14.2%**
TOTAL	**330**	**20,770**	**3,138**	**21,637**	**3,164.4**	**22,490**	**3,043.9**	**853**	**3.9%**	**-120.5**	**-3.8%**

hawai‘i green jobs initiative

Department of Labor and Industrial Relations