WORKSOURCE OREGON EMPLOYMENT DEPARTMENT

Quality Information, Informed Choices

Labor Market Information

State of Oregon • Employment Department • 875 Union NE, Salem, OR 97311 • www.QualityInfo.org

Contact: Charlie Johnson
Green Jobs Economist
Charlie.B.Johnson@state.or.us
(503) 947-3098

March 31, 2010

Occupations with Green Jobs: Employment, Education, and Skills

Oregon's Labor Market Information Improvement Grant

In June 2009 the Oregon Employment Department published a report titled *The Greening of Oregon's Workforce: Jobs, Wages, and Training*. The report detailed findings from an extensive statewide survey of green jobs. The survey found roughly 51,000 green jobs in Oregon in 2008 dispersed throughout every major industry sector and more than 220 occupations. Green jobs represented about 3 percent of the state's nonfederal employment.

Oregon was awarded a $1.25 million Green Jobs Labor Market Information Improvement Grant in December 2009 aimed at increasing the state's understanding of green jobs. Thirteen occupations have been selected for in-depth study under the grant. The occupations were selected based on a number of criteria, but priority was given to occupations where new or additional skills may be required in the future.

One goal of the grant is to identify the differences between green jobs and non-green jobs within the same occupation. The first step of this process is to compile all previously known information about the 13 occupations prior to conducting more detailed research.

Employment, Projections, and Wages

Of the 13 occupations selected for study, only 11 had measurable employment in Oregon in 2008. Wind turbine service technicians and solar photovoltaic installers are popularly discussed as examples of green jobs, however they are relatively new

Table 1

Employment, Projections, and Wages for Selected Occupations with Green Jobs

SOC Code	SOC Title	2008 Employment	2018 Employment	Net Change	Percent Change	Total Openings	Annual Mean Wage
17-205	Civil Engineers	3,208	3,517	309	9.6%	877	$74,350
19-305	Urban and Regional Planners	1,250	1,405	155	12.4%	411	$64,066
37-301	Landscaping and Groundskeeping Workers	11,031	12,427	1,396	12.7%	2,807	$26,128
45-209	Farmworkers and Laborers for Crops, Nurseries, and Greenhouses	18,715	19,941	1,226	6.6%	6,438	$20,687
47-203	Carpenters	13,637	13,864	227	1.7%	1,939	$41,602
47-206	Construction Laborers	10,215	10,461	246	2.4%	937	$33,683
47-215	Plumbers, Pipefitters, and Steamfitters	4,514	4,543	29	0.6%	942	$58,899
47-401	Construction and Building Inspectors	1,370	1,543	173	12.6%	472	$58,515
49-303	Bus and Truck Mechanics and Diesel Engine Specialists	4,247	4,591	344	8.1%	1,358	$42,379
49-902	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	2,771	2,867	96	3.5%	550	$44,902
51-803	Water and Liquid Waste Treatment Plant and System Operators	1,186	1,305	119	10.0%	387	$45,220
	Total	**72,144**	**76,464**	**4,320**	**6.0%**	**17,118**	**-**

Source: Oregon Employment Department

occupations and don't yet have publishable employment estimates in the United States. More detailed information about these occupations is expected to be released by the Bureau of Labor Statistics in 2012.

Of the remaining occupations farmworkers and laborers for crops, nurseries, and greenhouses had the most employment in 2008 and the greatest number of projected openings over the next 10 years (Table 1). However, not all of the jobs in this occupation, or any other occupation, are green jobs. In 2008 there were only 3,189 green jobs in this occupation, indicating that only a portion of the 10-year growth will be in green jobs.
Three occupations have significantly higher projected growth rates than the others: landscaping and groundskeeping workers (12.7%); construction and building inspectors (12.6%); and urban and regional planners (12.4%). However the later two occupations are expected to have fewer than 500 job opportunities over the next 10 years.

As a group the 11 occupations represented 72,144 jobs in Oregon in 2008 and are projected to grow by 6.0 percent by 2018, adding a total of 4,320 positions. The projected growth rate for this group is slightly lower than the overall growth rate of 9.1 percent projected for all occupations in Oregon. However, due to retirement and other replacement needs it is expected that there will be 17,118 openings within these occupations during the period.

Civil engineers had the highest annual average wage ($74,350) of the occupations selected while farmworkers had the lowest ($20,687).

Education and Training

The Greening of Oregon's Workforce report shows that the majority of green jobs in Oregon don't require any education beyond high school. The same statement is true for all jobs in Oregon. However, there is often a significant difference between the minimum required education to be eligible for a job, and the education level that will make a job candidate competitive in the hiring process.

Table 2

Education and Licensure Requirements for Selected Occupations with Green Jobs

SOC Code	SOC Title	Minimum Education	Competitive Education	License Required
17-2051	Civil Engineers	Bachelor's	Master's	
19-3051	Urban and Regional Planners	Bachelor's	Master's	
47-2152	Plumbers, Pipefitters, and Steamfitters	Postsecondary training	Postsecondary training and related work experience	Yes
51-8031	Water and Liquid Waste Treatment Plant and System Operators	Postsecondary training	Postsecondary training and related work experience	Yes
47-4011	Construction and Building Inspectors	Related work experience	Associate	Yes
47-2031	Carpenters	Long term on-the-job training	Postsecondary training	
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	Long term on-the-job training	Postsecondary training	
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	Long term on-the-job training	Postsecondary training	Yes
37-3011	Landscaping and Groundskeeping Workers	Short term on-the-job training	Related work experience	
45-2092	Farmworkers and Laborers for Crops, Nurseries, and Greenhouses	Short term on-the-job training	Related work experience	
47-2061	Construction Laborers	Short term on-the-job training	Related work experience	

Source: Oregon Employment Department

Of the 13 occupations selected only two require a bachelor's degree and two require postsecondary training (Table 2). Seven of the occupations typically provide on-the-job training

or require related work experience but don't require formal education beyond high school. However, a job seeker would only be competitive in two occupations if she didn't have some postsecondary education. Four of the occupations also have state required licenses.

Although official data does not yet exist, it is likely that wind turbine service technicians require postsecondary training or an associate degree. There are multiple training programs at the community college level throughout Oregon designed for individuals entering this occupation. Solar photovoltaic installers likely require on-the-job training or some postsecondary education component, and many are likely involved in either an electrician's or plumber's apprenticeship program.

Skills

The Oregon Employment Department hosts an online job matching tool called iMatchSkills® (www.iMatchSkills.org). The tool is unique in that it allows job seekers to advertise the skills they possess in addition to their past employment experience. The tool matches job seekers with job openings that have been posted to the site. Employers identify the skills they are seeking for each job opening.

Table 3

iMatchSkills Job Openings for Selected Occupations with Green Jobs

SOC Code	Occupation Title	iMatchSkills Job Openings 3/2009-3/2010	iMatchSkills Job Openings 4/1/2010	Count of Skills Requested by Employers
17-2051	Civil Engineers	239	9	59
19-3051	Urban and Regional Planners	36	3	50
37-3011	Landscaping and Groundskeeping Workers	452	15	26
45-2092	Farmworkers And Laborers, Crops, Nursery, and Greenhouse	456	20	59
47-2031	Carpenters	168	5	28
47-2061	Construction Laborers	472	9	16
47-2152	Plumbers, Pipefitters, and Steamfitters	55	5	37
47-4011	Construction and Building Inspectors	63	2	31
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	172	16	50
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	230	24	45
51-8031	Water and Liquid Waste Treatment Plant and System Operators	62	3	37

Source: iMatchSkills.org, 3/2009 - 3/2010

For the 11 occupations with measured employment, there were 2,405 job openings posted on the iMatchSkills® job match tool by employers between March 2009 and March 2010. Employers posted more than 450 openings each for landscaping and groundskeeping workers, farmworkers and laborers, and construction laborers over the period (Table 3). Urban and regional planners were the least sought-after occupations by employers with just 36 openings during the 12-month period. Many occupations are affected by seasonal hiring patterns, and as of April 1st, 2010 the occupation with the most current job listings was heating, air conditioning, and refrigeration mechanics and installers.

Employers identified 59 unique skills they were seeking in qualified applicants for civil engineering positions, while only 16 skills were identified by employers in listings for construction laborers. Differences between the number of skills requested within each occupation may indicate a diversity of activities that employees in those occupations are expected to perform. Job seekers able to increase the number of skills they possess may also be more competitive in the job market. In total employers identified 309 unique skills they were seeking when hiring for open positions.

The majority of the skills requested by employers were occupation specific; they were unique to just one of the occupations. However, there were some common threads through many of the occupations with green jobs. Ten skills were sought much more frequently than average, and in multiple occupations (Table 4). The ability to work in and maintain a safe workplace environment and use basic math skills were two themes throughout the listings.

Table 4

10 Skills Employers Want for Selected Occupations with Green Jobs

Skill Requested	Requested In Occupations	Requested In Job Openings
follow safety procedures	9	1,465
use basic mathematics	8	732
use algebra	8	173
maneuver heavy objects	7	958
read schematics and specifications	7	360
use geometry	6	123
read repair work orders	5	448
read blueprints and technical drawings	5	256
perform basic carpentry	4	459
understand, use, and communicate technical information	4	138

Source: iMatchSkills.org, 3/2009 - 3/2010

Oregon's job matching tool, iMatchSkills®, does not currently have occupational classification codes for Solar Photovoltaic Installers and Wind Turbine Service Technicians. The system is expected to be updated to include these occupations between now and 2013.

Future Research

The Oregon Employment Department will be conducting in-depth research about these 13 occupations over the next year. Green jobs within each occupation will undergo extensive skills analyses to identify the knowledge, skills, and abilities required for workers to perform those jobs. The results will be compared to similar analyses of non-green jobs within the same occupations to determine how the skills for green jobs differ from non-green jobs.

This information will be incorporated into training at the state's community colleges to ensure that training programs are providing students with the skills that employers are seeking. The iMatchSkills® system will be updated to identify skills sets unique to green jobs, allowing employers to advertise green job openings and job-seekers to advertise their skills related to green jobs. Finally, Oregon's Career Pathways system will develop five pathways maps for occupations with green jobs. Students seeking careers in these occupations will be able to view information about available training throughout the state in one consolidated website.