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Labor Market Information

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Oregon's Renewable Energy Production and Generation Sector **Oregon's Labor Market Information Improvement Grant**

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. One goal of the grant is to identify Oregon's green sectors and track employment and wages in those sectors over time. The Renewable Energy Production and Generation Sector is the first to be studied under the grant.

There are a number of groups throughout Oregon involved in identifying and measuring green sectors throughout the state. One of those groups – the Oregon Green Jobs Council – is legislatively responsible for, among other things, identifying high-demand green industries in Oregon. The Oregon Green Jobs Council has identified the Renewable Energy Production and Generation Sector as one such industry.

The sector includes those firms that produce renewable energy from solar, wind, biomass, geothermal, wave, bioenergy, small-hydro, and biofuels technologies. The process of identifying firms involved in these activities is challenging for many reasons. First, the vast majority of businesses that create renewable energy consume all of that energy – making it very difficult to identify which businesses are involved. Second, renewable energy can take many forms and is not necessarily electricity. Heat is one example of another form of renewable energy.

In fact, more than 200 firms throughout Oregon produce renewable energy. These businesses range from local pharmacies that have installed solar panels to utility-scale wind farms along the Columbia George. Many of the firms in this sector use byproducts created early in their manufacturing cycle, such as wood scrap from sawing logs, to create energy or heat that is used later in their manufacturing process – to dry cut lumber in kilns for example. Many public utilities and waste disposal facilities are capable of generating renewable energy as well. For example, over the past few decades many wastewater treatment facilities have been retrofitted to capture and use methane (a byproduct) to generate heat or electricity for the facility.

It is unclear which, if any, of the employees at these businesses are directly involved in the generation of renewable energy or the maintenance of renewable energy equipment. It is possible that some businesses use contractors to maintain their solar panels or wind turbines,

for example. Some firms, such as those using scrap waste and other byproducts to produce renewable energy, may not have specific employees dedicated to those tasks. This analysis, although it discusses employees, is not a study of green jobs (those jobs with specific duties related to the production of renewable energy) but a study of all employees at businesses that generate renewable energy.

For the purpose of this analysis only those firms identified as producing renewable energy eligible for Oregon's Renewable Portfolio Standard by the Oregon Department of Energy have been included. This significantly reduces the number of firms studied and makes the analysis more directly pertinent to renewable energy generation by eliminating many firms that do not produce renewable energy as a major function of their business. It also eliminates firms that do not produce electricity from renewable energy sources.

Employment Trends

Oregon has 16 firms that produce electricity from renewable sources at 69 different locations throughout the state. However, only 13 firms were identified that are eligible to produce electricity for Oregon's Renewable Portfolio Standard and have employment. The firms represent nine different industries as identified by the North American Industrial Classification System (NAICS). Only half of the firms are in the utilities sector, while others are identified as manufacturers or management firms which, apparently, are producing renewable energy as a byproduct of (or in addition to) their normal business operations.

Employment in this sector totaled 11,040 in the third quarter of 2009, a decrease of 8.8 percent (1,069 jobs) from the third quarter of 2004. Bonneville Power Administration (BPA), a federal agency included in this sector, grew by 100 jobs over the five-year period. Non-federal employment in the renewable energy generation sector totaled 9,640 jobs in the third quarter of 2009, down from 10,809 jobs in the third quarter of 2004 (-10.8%). Private employment in the sector shrank by 12.0 percent while Oregon's total private employment declined by 2.0 percent over the same period.

The significant downward employment trend at firms producing renewable electricity is, in large part, due to declining employment in wood products and paper manufacturing. Broader economic trends have also impacted the firms involved in this sector. The decrease in employment is likely not due to the fact that these firms produce renewable energy.

In order to examine trends in wages and hours of employees in greater detail, only non-federal employment will be discussed for the remainder of this analysis.

Wage Trends

A study of Unemployment Insurance Wage Records shows that 9,846 individuals were on the payroll of non-federal entities producing electricity from renewable sources in the third quarter of 2009. The count of employees in the wage records typically differs from the official quarterly employment figure due to workforce turnover. For example, a firm may only employ 10 people

at any given time throughout the quarter (employment), but 20 individuals may work for the firm sometime during the same period (wage records).

12-Month Percent Change in Count of Records, Total Wages, and Average Wage, 2009Q3			
	Employees	Total Wages	Average Wage
Renewable Energy	-5.7%	-0.9%	5.0%
Total Non-Federal	-7.3%	-7.2%	0.1%

Source: Unemployment Insurance Wage Records

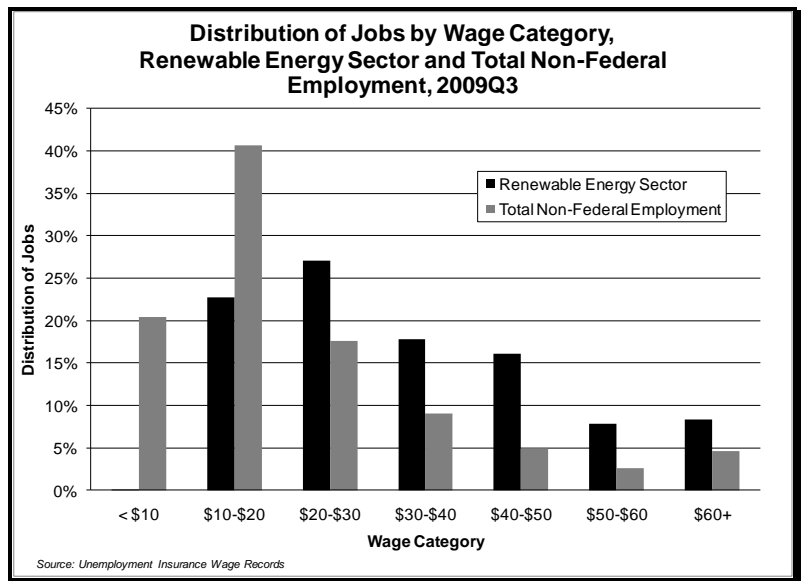
There was a 5.7 percent decrease in the number of wage records at renewable energy firms from the third quarter of 2008 to the third quarter of 2009 (Table 1). The sector seemed to perform better than all non-federal employers. In fact, total wages in renewable energy firms decreased only slightly over the one-year period, compared to a decrease of 7.2 percent for all non-federal employees. Steady

Table 1

total wages coupled with declining employment resulted in an annual increase in the mean quarterly wage for employees of the renewable energy sector. Alternately, the quarterly mean wage for all non-federal employees remained flat over the period.

Total wages paid at firms in the renewable energy sector during the third quarter of 2009 were near \$171 million, roughly 1.1 percent of the total non-federal wages (\$15.3 billion) paid during the period in Oregon.

In general, a larger share of employees working in the renewable energy sector earned high wages compared to all non-federal employment during the quarter (Graph 1). Within the sector a full 50 percent of employees earned at least \$30 per hour, compared to 21 percent for all non-federal employees. The median hourly wage for the renewable energy sector was \$30.01 during the third quarter of 2009 while the median wage for all non-federal employees was \$16.35.



Graph 1

The vast majority of workers in the renewable energy sector are employed at firms with 500 or more employees (Table 2). Total non-federal employment tends to be more evenly distributed between medium and large employers, although firms with at least 500 employees account for a greater share of employees than any other size class. Similar to all non-federal employment, employees of very small and very large renewable energy firms tend to earn slightly higher wages than employees of midsize firms.

	Renewable Energy		Total Non-Federal	
	Employment	Wage	Employment	Wage
Under 5 employees	0.1%	\$34.06	5.6%	\$15.32
5 - 9 employees	-	-	6.6%	\$14.52
10 - 19 employees	-	-	8.8%	\$14.09
20 - 49 employees	0.3%	\$30.03	12.8%	\$14.69
50 - 99 employees	0.6%	\$30.04	9.9%	\$15.52
100 - 249 employees	-	-	13.6%	\$15.55
250 - 499 employees	7.0%	\$21.40	10.1%	\$15.77
500 or more employees	92.0%	\$30.39	32.5%	\$19.87

Source: Unemployment Insurance Wage Records

Table 2

Hour Trends

In the third quarter of 2009 the median number of hours worked for renewable energy firm employees was 517 hours. For those employees who worked in the same industry in 2004 the third quarter 2009 median was 520 hours, indicating that senior employees at companies in the renewable energy sector tend to work slightly more hours than newer employees. This could be a direct consequence of recessionary trends and may not be unique to renewable energy firms. The median number of hours worked in a quarter for renewable energy firm employees has increased by roughly 20 hours since the third quarter of 2004. Increases in the number of hours worked can have large impacts on total wages for employees, even when wage rates remain relatively constant.

Ninety-seven percent of employees at businesses producing renewable energy worked at least 200 hours during the third quarter of 2009, while 94 percent worked more than 350 hours (typically considered “full time”). In contrast, only 79 percent of all non-federal employees worked more than 200 hours while 65 percent worked more than 350 hours during the quarter.

Employees who worked 200 or more hours in the renewable energy sector during the third quarter of 2009 experienced a 1.3 percent decline in their mean wage and a 4.4 percent increase in their median wage compared to the same quarter in 2008 (Table 3). This change indicates that a significant portion of the sector’s job loss over the year was concentrated in lower paying positions – increasing the median wage. At the same time, high paid employees may have experienced reductions in their work hours, or a few very high paid staff may have been laid off – putting

	Mean	Median
All Workers	5.0%	15.6%
Employed 200+ Hours	-1.3%	4.4%
Employed 350 + Hours	1.3%	2.9%

Source: Unemployment Insurance Wage Records

Table 3

downward pressure on the mean wage. However, both the mean and median wage increased for employees working at least 350 hours during the quarter, indicating that the majority of wage and hour reductions were likely aimed at part-time staff.

Worker Trends

In an attempt to identify the career paths of individuals employed within the renewable energy sector, each individual employed in the sector during the third quarter of 2009 was tracked back in time. Of the 9,846 individuals, 55 percent have worked within the same industry since the first quarter of 2001 while 45 percent worked in a different industry during the period.

Of those employees who worked in another industry during the period, 14 percent were employed in another manufacturing industry, 10 percent in another professional and business services industry, and 3 percent each in the retail trade and state and local government sectors. The remaining workers joined the renewable energy sector workforce from a variety of industries ranging from natural resources to education and health services.

Fewer than 1 percent of the employees at firms producing renewable energy did not hold a job in Oregon between the first quarter of 2001 and the second quarter of 2008. However, 14 percent of the employees were not employed in the third quarter of 2004. These two facts lead to three possible conclusions about the workforce. First, it is probable that any recent graduates currently employed in the sector worked before or during college – recent graduates may account for those individuals that had worked in retail trade and leisure and hospitality prior to working in the renewable energy sector. Second, it appears that very few individuals now working in the sector moved to Oregon within the eight-year time period. Finally, a small number of individuals who were unemployed as a result of the 2001 recession may have found employment in the renewable energy sector before the third quarter of 2009.

Renewable electricity producing companies within the wood product manufacturing and electric power generation industries had larger than average shares of their employees that did not change industries within the period (64% and 62%, respectively). Both sectors experienced declines in employment over the period. Combined, these two trends indicate that firms were foregoing hiring new employees in an effort to keep as many incumbent workers employed as possible. Due to the low turnover of their employees, fewer of their current workers came from other industries. It is also possible that firms in these sectors have moved toward using staffing firms to provide a more flexible workforce. For example, a company that owns wind turbines may discover that it is more cost effective to hire contractors for maintenance of the turbines and may shift a portion of its workforce to a new staffing firm. In this example, the measured employment at firms producing renewable energy would decrease even though the total employment related to those business activities remained constant.