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Renewable Energy

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Green Jobs in the United States

Generating electricity from renewable energy rather than fossil fuels have proven to have significant health benefits. The air and water pollution emitted by coal and natural gas plants is linked to major health issues such as heart attack, asthma, brain damage, and cancers. Replacing fossil fuels with renewable energy has the ability to eliminate these diseases before they can emerge. The average economic impact associated with these major diseases is between \$361.7 and \$886.5 billion. Wind, solar, and hydroelectric systems generate electricity with very little air pollution. Geothermal and biomass energy systems emit more pollutants, but little compared to coal and natural gas (Concerned Scientists 1).

Human activity is loading the Earth with greenhouse gasses, which trap heat, increase the globe's temperature, and create significant impacts on the overall weather changes on the Earth, environment, and climate. Electricity production accounts for more than one third of U.S. global warming emissions—with a significant amount produced by coal power plants. Compared to natural gas, which emits 0.6 to 2 pounds of carbon dioxide per kWh, and coal, which produces between 1.4 to 3.6 pounds of CO₂E/kWh, wind only emits 0.02 to 0.04 pounds of CO₂E/kWh. In addition, solar emits 0.07 to 0.2, geothermal 0.1 to 0.2, and hydroelectric between 0.1 and 0.5. With this

information, it is possible for fossil fuel workers to be trained in renewable energy technologies (Concerned Scientists 1).

Increasing renewable energy jobs would allow for the globe to replace energy-intensive technologies with green jobs. A UCS analysis found that by 2025 national renewable electricity standard would lower power plant emissions 277 million metric tons. U.S. Department of Energy's National Renewable Energy Laboratory researched the environmental impacts associated with generating 80 percent of the country's electricity from renewable resources by 2050. Furthermore, researched showed that global warming emissions from electricity production could be reduced by approximately 80 percent. Thus, if current power plant workers are willing to receive new job training, there could be a significant reduction in greenhouse gas emissions (Concern Scientists 1).

There is no set definition for a 'green job.' The field of green jobs are subject to *greenwashing*, a term that attracts the jobs to profitability for the wrong reasons. In theory, the term green jobs should refer to solving the climate change problem. Green jobs are most often described as 'natural' or 'organic.' As environmental jobs become mainstream, common jobs have been referred to green such as administrative assistant, marketing representative, and computer programmer. None of these jobs require environmental training (Priesnitz 5).

The definition of 'green-collar job' is simpler since it refers to blue-collar job. This means that a factory worker has the potential to become a wind turbine mechanic. In order to be truly green, a job must play a role in building a sustainable economy. According to the Apollo Alliance, a 2008 *Green-Collar Jobs in America's Cities*

"If a job improves the environment, but doesn't provide a family-supporting wage or a career ladder to move low-income workers into higher skilled occupations, it is not a green-collar job" (Priesnitz 9). Some of the new jobs created in the renewable energy will include solar electricity, wind energy, geothermal, etc. Workers will be needed in design, engineering, manufacturing, and installation sectors in both residential and commercial areas (9). The energy efficiency could create an even larger job opportunity, since the field of work offers the most benefits for the smallest cost and will be most popular among consumers.

Developing countries are in need of access to electricity. Without irrigation systems, food insecurity in poor countries creates famine and puts countries into deeper poverty for one billion people globally. Without access to clean drinking water, disease and lost labor take a significant economic toll. Solar-powered technologies from Kyocera are a proven and cost-effective way to develop irrigation and extract clean drinking water. Helping these developing countries can create millions of green jobs for the United States and the countries in need (Maracci).

While many people are starting to recognize global warming as an issue, many of the world's most impoverished communities are experiencing the worst affects of climate change. These communities have had the worst affects as well as contributing the least greenhouse gas emissions. Problems like poverty, the refugee crisis, and lack of clean drinking water and sanitation are symptoms of changing climate (Carolan 1)

Overall, worldwide job growth has not recovered completely since the recession. However, the Bureau of Labor Statistics show that green jobs have increased to 6.5 million green jobs in 2013. The renewable energy field has grown significantly over the

last ten years. In order, the largest increases of green jobs across the globe are: China, Brazil, United States, India, and Germany. These numbers show a significant merge from traditional fossil fuels production and energy consumption. As with most things energy-related, China is the leader in green job growth—primarily in solar manufacturing and installation. The country currently has over 2.6 million green jobs, and 13 GW of new solar photovoltaic installations in 2013 (Carolan 2).

Europe came in second from China with 1.2 million green jobs in 2012. Wind, solar, and biomass were the largest industry leaders while Germany, France, Italy, and Spain combined 60 percent of all green jobs. Brazil ranked third with nearly 90,000 jobs—primarily in the bioenergy industry (Carolan 2).

The United States came in fourth with about 625,000 green jobs in 2013. Overall, the solar energy industry grew 20 percent in 2013 to reach 143,000 jobs with all involved technologies, and more than half of these jobs were installation. In addition, the overall wind energy fell from 80,700 jobs in 2012 to 50,500 jobs at the end of 2013 (Carolan 1).

Overall, green jobs are the answer to an improved economy and a stable climate. Renewable energies are the answer to clean energy, air, and resources. Green jobs will stimulate the economy while preserving and increasing jobs as technology advances. As more clean energy solutions emerge, more green jobs will be available to workers. They will also increase the amount of middle-class jobs, as the category has been depleting. Green jobs are the future for reducing greenhouse gas emission and clean energy.

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