Green Jobs Facts

Job Opportunities in a Green Economy: Minnesota Can Gain from Fighting Global Warming

Curbing global warming is the work of a generation, and specifically, the work of millions of people, performing the jobs needed to build the green economy. Clean energy investments will create opportunities for welders, sheet metal workers, machinists, truck drivers, and others. In Minnesota, there are more than 252,000 jobs in a representative group of job areas that could see job growth or wage increases by putting global warming solutions to work. And the benefits of those new jobs would spread to a much wider swath of the economy.

Clean-Energy Strategies Can Generate Job Growth

A new study by economists at the Political Economy Research Institute of the University of Massachusetts at Amherst examines the types of jobs that are needed to create a clean-energy economy and pinpoints six specific energy strategies that reduce pollution and can lead to job growth:[1]

- Building retrofitting
- Mass transit
- Energy-efficient automobiles
- Wind power
- Solar power
- Cellulosic biofuels

New jobs will certainly be needed for building a green economy, but the vast majority of jobs associated with these six green strategies are in the same areas of employment that people already work in today, in every region and state of the country. For example, constructing wind farms creates jobs for sheet metal workers, machinists, and truck drivers, among many others. Increasing the energy efficiency of buildings through retrofitting relies, among others, on roofers, insulators, and building inspectors. Expanding mass transit systems employs civil engineers, electricians, and dispatchers. What makes these entirely familiar occupations "green jobs" is that the people working in them are contributing their everyday labors toward building a green economy.

GREEN JOBS FOR America

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Train operators who currently deliver furniture may one day deliver wind turbine component parts, meaning that their work will be contributing to building a green economy, and that a green economy is creating new employment in rail transportation.

By examining the number of people who are employed in each of the occupations that will be affected by these six green economy strategies, and the average wages in each state for each of these job types, it becomes clear that millions of U.S. workers, across a wide range of occupations, states, and income levels, will all benefit from defeating global warming and transforming the United States into a green economy.

A push to dramatically increase America's clean-energy supply will mean increased demand for these workers, and rising demand could also lead to rising wages.

Jobs that Will Build the Green U.S. Economy

Green Economy Strategy	Representative Jobs
Building Retrofitting	Electricians, heating/air conditioning installers, carpenters, construction equipment operators, roofers, insulation workers, carpenter helpers, industrial truck drivers, construction managers, building inspectors
Mass Transit	Civil engineers, rail track layers, electricians, welders, metal fabricators, engine assemblers, production helpers, bus drivers, first-line transportation supervisors, dispatchers
Energy-Efficient Automobiles	Computer software engineers, electrical engineers, engineering technicians, welders, transportation equipment painters, metal fabricators, computer-controlled machine operators, engine assemblers, production helpers, operations managers
Wind Power	Environmental engineers, iron and steel workers, millwrights, sheet metal workers, machinists, electrical equipment assemblers, construction equipment operators, industrial truck drivers, industrial production managers, first-line production supervisors
Solar Power	Electrical engineers, electricians, industrial machinery mechanics, welders, metal fabricators, electrical equipment assemblers, construction equipment operators, installation helpers, laborers, construction managers
Cellulosic Biofuels	Chemical engineers, chemists, chemical equipment operators, chemical technicians, mixing and blending machine operators, agricultural workers, industrial truck drivers, farm product purchasers, agricultural and forestry supervisors, agricultural inspectors

Green Jobs in Minnesota

Solving global warming will require all kinds of workers with a wide range of skills. Tens of thousands of Minnesotans have good-paying job skills that are representative of a broad range of skills needed to build clean energy solutions:

■ **Carpenters** will be needed to make buildings more energy efficient. There are nearly 19,000 carpenters in Minnesota, paid an average of nearly $20 per hour.

■ **Electricians** are essential to expanding mass transit solutions. There are nearly 12,000 electricians in Minnesota, paid an average of over $27 per hour.

■ **Operations managers** are needed to manufacture of energy-efficient automobiles. There are nearly 32,000 operations managers in Minnesota, paid an average of over $42 per hour.

■ **Machinists** craft essential components for wind power. There are over 9,000 machinists in Minnesota, paid an average of nearly $19 per hour.

■ **Welders** are vital to solar power manufacturing. There are nearly 9,000 welders in Minnesota, paid an average of over $17 per hour.

■ **Industrial truck drivers** transport supplies and fuels for the cellulosic biofuels sector. There are over 10,000 industrial truck drivers in Minnesota, paid an average of nearly $16 per hour.[2]

[1] These six strategies are of course by no means exhaustive. For example, a 2007 study by McKinsey and Company, *Reducing Greenhouse Gas Emissions: How Much at What Cost?*, discusses five broad clusters of approaches to reducing greenhouse emissions, including improving energy efficiency in buildings and appliances; increasing fuel efficiency in vehicles and reducing carbon intensity of transportation fuels; improving efficiency in energy-intensive industrial production; expanding and enhancing carbon sinks; and reducing the carbon intensity of electrical power production. Within these five broad clusters, they identify a total of 41 strategies that, in combination, are capable of significantly reducing greenhouse emissions.

[2] Sources: May 2007 State Occupational Employment and Wage Estimates, Bureau of Labor Statistics; IMPLANinput-output modeling system, Bureau of Economic Analysis 2005 Annual Input-Output Accounts.