

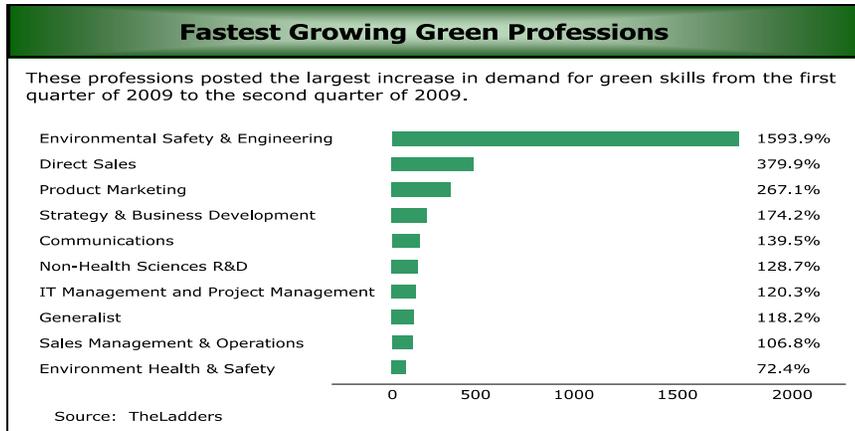
The knowledge and skills gained in high school can lead students to continue their education in **“green”** programs at the postsecondary level, or to begin work immediately after graduation. For example, students at Lakers High School in Pigeon who take courses in Agriculture and Natural Resources are prepared to enter Michigan State University to pursue a Degree in Biosystems Engineering.



Creative enhancement such as the Renewable Energy Passport Program at Tuscola Technology Center allows students to complete six areas of study. The areas are: wind energy, solar energy, biofuels, green construction, advance transportation systems and sustainable agriculture. Once concepts in an area are mastered the students receive a stamp in the passport corresponding to that section.

CTE in Michigan must respond to the needs of the growing **“green”** industry by providing students with early introduction to the career options; creating cutting edge programs, curriculum, classes and instruction; partnering with business and industry; and educating students on the latest technologies and skills.

By addressing these needs CTE programs will adapt to the changing needs of the Michigan economy and provide a seamless transition for students into the **“green” workforce or postsecondary education.**



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Michigan Green Economy and Career and Technical Education

What is Our Role?



Why Green?

The word “green” has become the celebrated word when purchasing products and services, constructing buildings, and in daily life disciplines. The objective of going green begins with an explanation of our carbon footprint. Everything each one of us does produces carbon. Our bodies, just as a power generation plant or gas appliance produces carbon in the form of carbon dioxide. Carbon dioxide is considered a greenhouse gas linked to global climate change. Two masses on the earth have the role of absorbing carbon: water and vegetation. The more carbon we exhaust through the generation of energy, the less water and vegetation can maintain the balance. Because of this, we have to consider energy used to produce, transport, and implement all goods in our carbon footprints. Two words are used to explain green goals for energy: *renewable* and *sustainable*.



Renewable means a repeatable form of energy, such as ethanol. Ethanol is produced from vegetation of biomass. Production of such biomass uses solar energy and the hydrologic cycle to produce agricultural plants. The fuel production then involves a distillation process. Other fuels, such as fossil fuels and wood, are carbon based.

Sustainable energy, such as wind, tidal, nuclear, geothermal, or solar, contributes no carbon. Sustainable energy is kinetic energy harnessed that has no impact on the environment and will not be threatened by depletion.

Green in the mechanical industry means more efficient appliances to operate heating and air equipment. Also, sustainable and renewable sources of heating and cooling for transfer to comfort climate and industrial process systems.

Water purification and distribution are necessities in our daily lives. These processes contribute to significant amounts of the energy used everyday. Refined water recycling and purification methods have been developed and are available for use in our daily regiments.

What are “Green” Jobs in Michigan?

There is no consensus definition of a “green” job, but definitions used by the education, workforce, and sustainability communities share some of the following elements:

- provide products and services that promote renewable energy resources
- reduce pollution and conserve energy and natural resources
- exist in both skilled trades and professional occupations
- provide a fair, living wage to the worker and support the local economy

In the 2009 *Michigan Green Jobs Report*, “green” jobs include primarily occupations directly engaged in generating or supporting a firm’s green-related products or services and other support jobs created by the firm’s green-related revenue.

Industries that provide products or services related to: agriculture and natural resource conservation; renewable energy production; clean fuels and transportation; increase energy efficiency; and pollution prevention or environmental cleanup make up the “green” economy in Michigan.

“Green” jobs, as broadly defined in a report commissioned by the United Nations Environment Program, contribute significantly to preserving or restoring environmental quality and could include, but are not limited to:



- helping to protect ecosystems and biodiversity
- reducing energy, materials, and water consumption through high-efficiency strategies
- de-carbonizing the economy
- minimizing or avoiding the production of waste and pollution

Examples of “green” jobs include: wind energy technician, recycling director, sustainable agriculture specialist, and energy auditor. Some “green” jobs are found in new industries, such as wind and solar installation; while others involve the incorporation of green elements into existing industries, such as construction. Jobs in both categories require workers to have technical skills, which may involve getting trained in a new area, or updating their skill set to adjust to the new green elements of their existing trade.

“Green” jobs may also provide an important avenue to economic security for individuals during a period of record unemployment. The Pew Charitable Trusts found that jobs in the clean energy economy have grown at a faster rate than U.S. jobs overall. CTE programs that prepare people for “green” jobs are more important now than ever so that there is an available pool of skilled workers to fill these new jobs.

What is the Role of Career and Technical Education?



Career and Technical Education (CTE) serves as the catalyst in communities for educating diverse audiences about environmental stewardship, sustainable development, and the expanding size, capacity, and versatility of a “green workforce”.

CTE programs prepare individuals to work in our ever-expanding “green” economy.

Some high schools incorporate “green” training into their CTE curriculum by adding new fields of study in green technologies or by updating existing courses to include green elements.

Lenawee Tech Center has installed a residential wind turbine and a solar unit that are being used by their existing Careers in Electrical Engineering program.