

## How do women fit into an emerging green economy?

Green jobs play an increasingly important role in the current economy and will likely expand their influence on job markets of the future. Phrases such as “greening the economy” and “green jobs” have emerged and their usage has increased. However, these popular phrases can be difficult to define. A clear understanding of the greening economy and green jobs raises questions regarding the role women play in this new economy. This brief describes what we know about green jobs and the green economy, and the role women can, do and should play in this new economy.

### What is a Green Job?

While there is a general understanding that green jobs and green industry are environmentally friendly or beneficial, there is no universal definition to which all sectors agree. The U.S. Department of Labor defines green economy as, “...encompassing the economic activity related to reducing the use of fossil fuels, decreasing pollution and greenhouse gas emissions, increasing the efficiency of energy usage, recycling materials, and developing and adopting renewable sources of energy.”<sup>1</sup> Green economy may also include businesses and employment opportunities in industry sectors that produce renewable energy, produce green products, offer green services, or are involved in environmental conservation.”<sup>2</sup> Other sources define green jobs as “...jobs that involve protecting wildlife or ecosystems, reducing pollution or waste, reducing energy usage or lowering carbon emissions.”<sup>3</sup>

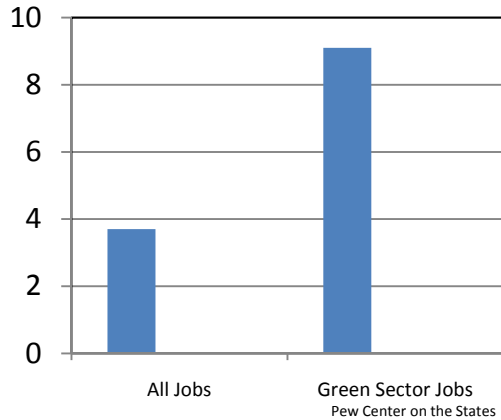
According to the Minnesota Department of Employment and Economic Development (DEED), many existing industries in Minnesota have become green-enhanced. These industries include construction, energy efficiency, environmental protection, government and regulatory administration manufacturing renewable energy, research, design and consulting services, and transportation. In addition to those listed, there are many employment positions that exist within these industries that may have alternative green job titles.<sup>4</sup>

*Like a color scale, jobs are more or less green*



Source: Minnesota Department of Employment and Economic Development, 2009

**Figure 1: Percentage of Growth in US Jobs Between 1998 and 2007**



In the United States, job growth in green jobs versus overall job growth is significant. Figure 1 illustrates that jobs in the clean energy economy grew at a national rate of 9.1 percent, while traditional jobs grew by only 3.7 percent between 1998 and 2007.<sup>5</sup>

DEED has compiled the ten fastest growing green-enhanced jobs within these industries in Minnesota (See Table 1). The table also includes the median wage for these job titles. Within the green movement, various groups advocate that green jobs should include jobs that pay a livable wage, have benefits, and provide opportunities for advancement.<sup>6</sup>

### Considerations for Women

Jobs and careers encompassed within the current understanding of green vary significantly and have not necessarily been previously paired together. Tradeswork and Science/Technology are two significant types of work included under the umbrella of green, yet the pathway to and through these career sectors is different. For example, the preparation needed to be a geologist is different than the training needed to be a recycling collection driver. One career requires a longer more formal course of study, the other requires specialized training.

**Table 1: Ten Fastest Growing Green-Enhanced Jobs in Minnesota**

<i>Occupation (Alternate Green Job Title)</i>	<i>Employment Projections 2006 - 2016</i>	<i>Median Wage</i>
Environmental Engineers	28.4%	\$ 37.56
Hazardous Waste Management Specialists	28.4%	\$ 37.56
Engineering Geologists	28.3%	\$ 28.97
Geologists and Hydrogeologists	28.3%	\$ 28.97
Energy Efficiency Finance Managers	24.0%	\$ 33.96
Alternative Financing Specialists/Government	24.0%	\$ 33.96
Energy Efficiency Finance Managers	24.0%	\$ 33.96
Alternative Financing Specialists/Government Incentives	24.0%	\$ 33.96
Recycling Collection Drivers	16.8%	\$ 17.10
Building Inspectors	16.6%	\$ 27.18

Data from Minnesota Department of Employment and Economic Development

Yet, there is a common factor in these clusters: few women are present. The percentages of women present in the Trades and in Science Technology, Engineering and Math (STEM) careers are very low. The following sections explore this disparity, and current challenges in creating and maintaining a robust pipeline into green, trades and STEM career fields for women.

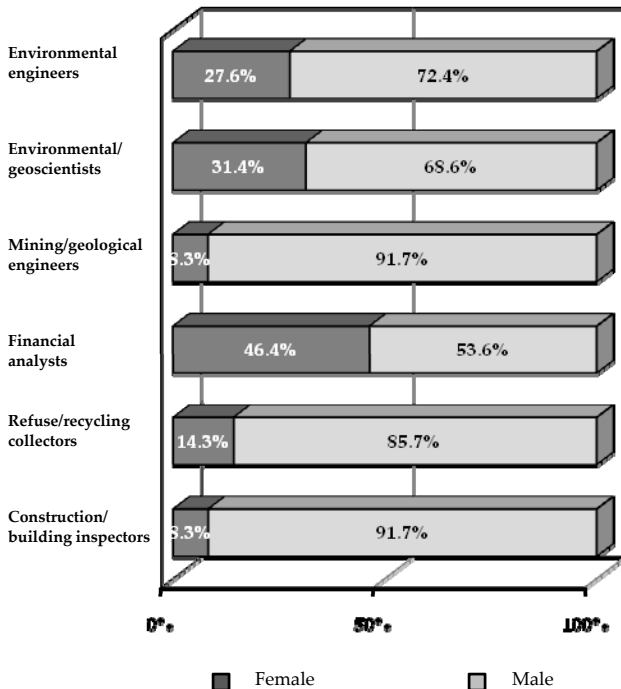
### What does the trend of green jobs mean for women in Minnesota?

Green jobs offer women the opportunity to have a meaningful career with good wages and benefits that can support a family. Many of these wages tend to be higher than the traditional occupations held by women.

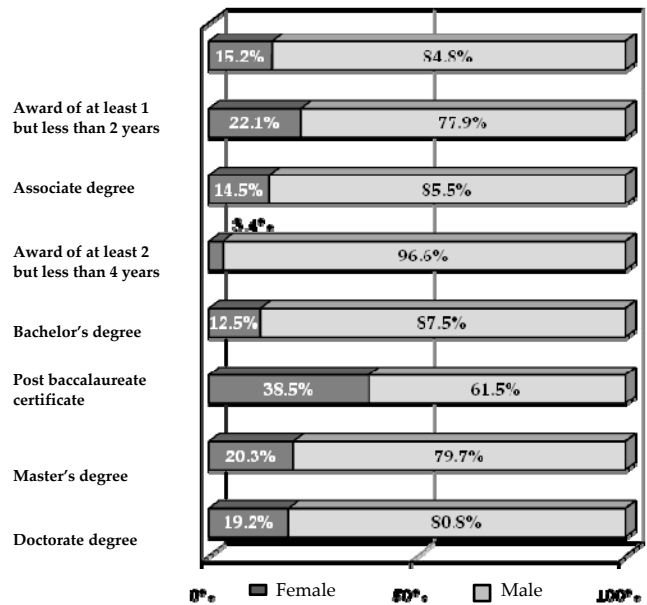
Yet, because many green industries are unfamiliar to women, women are not employed in large numbers in these jobs and industries. Many green jobs fall within the building and trades industry, which employs low numbers of female workers. Many green jobs are considered “non-traditional occupations” for women, meaning the percentage of women employed in these industries is usually under 25%.<sup>7</sup>

According to 2008 census bureau data, men comprise a larger percentage of the workers who are employed in the fastest growing green occupations in Minnesota (see Figure 3).<sup>8</sup>

**Figure 3:** Percentage of salaried workers who work in fastest growing green occupations in Minnesota, by sex<sup>7</sup>



**Figure 4:** Percentage of Degrees and Awards in Engineering (including technologies and technicians) by Minnesota Postsecondary institutions in 2006-2007, by sex<sup>9</sup>



### A Green Pipeline

In order for the number of women in green industries to increase, the number of women receiving certificates, degrees and awards in non-traditional areas must also increase.

Currently, women are underrepresented in the percentage of educational degrees and awards that may be necessary to enter these fields. Figure 4 reveals that women consistently comprise a smaller percentage of those earning degrees in engineering and engineering technology in Minnesota. While women do earn over or close to half of the degrees awarded in psychology (77.5%), biological/agricultural sciences (54.6%), social sciences (50.0%), and mathematics (45.1%), they earn degrees in lower percentages in engineering (17.9%), computer sciences (20.6%), and in physical sciences (43%).<sup>9</sup> These STEM-related career areas are part of the pipeline to green industries.

Girls' awareness of non-traditional, green and STEM related careers is critical. Their educational and career aspirations plant the seed for future work and opportunity. The 2007 Minnesota Student survey found that a majority of 12<sup>th</sup> grade girls aspire to obtain higher education. Of the 12<sup>th</sup> grade girls surveyed, 56% responded that they would like to go to college and 35% expressed interest in going to college and attending graduate school. Only five percent said that they were interested in attending some kind of trade or vocational school.<sup>10</sup> Additionally, interest in science, technology, engineering, and mathematics decrease throughout female students' education.

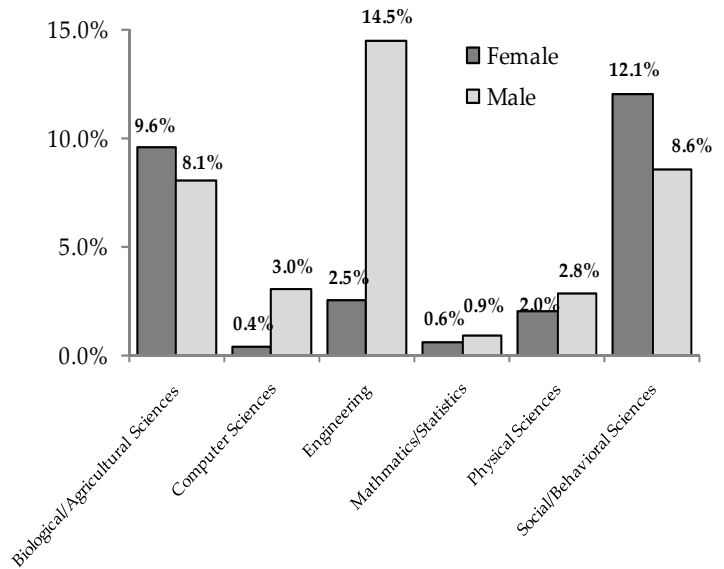
In 2006, less than 10% of college female freshmen indicated they intended to major in science and engineering fields (See Figure 5).<sup>11</sup> Within the science and engineering fields, a greater percentage of female freshmen (9.6%) indicated that they intended to pursue a biological or agricultural major. Less than one percent of female respondents indicated that they intended to pursue a degree in mathematics/statistics (0.6%) or computer sciences (0.4%).

## Ideas to consider to increase women's participation in the Green Economy.

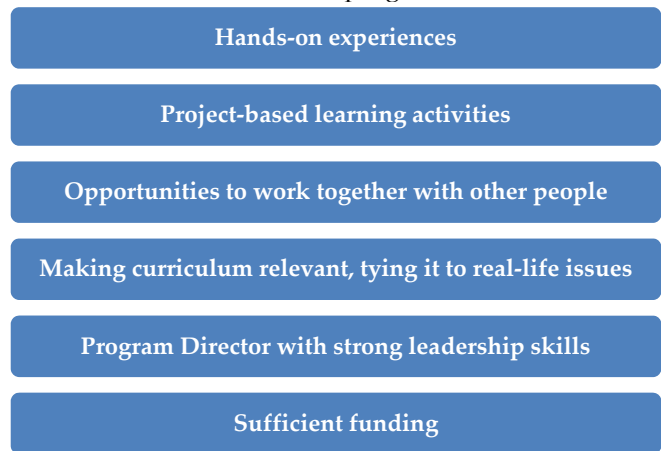
**1. Create and support a robust pipeline into green jobs and green career clusters by educating girls and young women.** Building career awareness in girls and young women is critical, particularly in the late/elementary years. Tactics to consider include:

- Host career fairs for girls and young women focusing on non-traditional career areas.
- Provide hands-on learning opportunities in gender-specific settings – in and out of the classroom. An example of this is Girls Inc's Operation S.M.A.R.T. or public television's SciGirls.<sup>12</sup>
- Connect girls to women employed in these career areas as mentors.
- Bring girls to green businesses to see green work in action.
- Consider the model of stimulating girls' interest in STEM careers by reviewing the suggestions provided by Girl Scouts of America (see Figure 6).<sup>13</sup>

**Figure 5:** Percentage freshmen intending to major in science and engineering fields in 2006, by sex<sup>11</sup>



**Figure 6:** Top promising practices for STEM programs<sup>13</sup>



- Encourage high school aged young women to participate in internships (summer, school based, or individually-initiated) in green industries.
- Educate and build awareness about green career paths amongst career guidance counselors, family-consumer-science, and other appropriate teachers. Include green career options as they create their post-high school/GED education or work plan.

### ***2. Create an equitable culture within the trades by considering the following best-practice policies:***

The Tradeswomen Network and Wider Opportunities for Women outline several suggestions,<sup>14</sup> including:

- Maximize the hiring of disadvantaged groups, including “individuals for whom construction is non-traditional employment.”
- Provide health and retirement benefits
- Require government agencies to coordinate hiring with local community based organizations, hiring centers, faith based initiatives, labor and non-profit organizations.
- Enact project labor agreements that include hiring goals for women and people of color.
- Establish and maintain state or publicly sponsored pre-apprenticeship programs.
- Provide childcare and transportation services or referral to support programs.
- Ensure harassment free places of work; create and uphold workplace policy and standards that prohibit harassment in any form.

***3. Understand the economic advantage of many green jobs.*** Working women are clustered into low-paying industry sectors<sup>15</sup>. While it is important to be aware of this and work towards equitable living wages for all working women, the economic advantage in green work should also be highlighted. Most green jobs pay more at the entry level than traditional work areas for women. For example, 13.6% of recycling collection drivers in Minnesota are women, and they on average earn \$17.10 per hour. Compare this to secretaries and administrative professionals (the career area that includes the highest percentage of women employed in Minnesota) where the average wage is \$14.96 per hour.<sup>16</sup>

***4. Support the greening of small business – the possibilities and the challenges.*** In 2008, 101,000 Minnesotan women either owned a small-business or were self-employed. A 2009 report from the Small Business Association shows that small businesses are a major force in the Minnesota’s net job change. The number of small employers in Minnesota was 121,742 in 2006, accounting for 98.0% of the state’s employers and 51.0% of its private-sector employment.<sup>17</sup> Consider the following:

- Encourage women to start their own green companies. In addition to various investments in green business that make start up more appealing, some current female business owners cite the intrinsic rewards of green business because it contributes to a safe and healthy community.<sup>18</sup>
- As small business is encouraged to go green, those with few resources may not have the capacity to navigate complicated regulations. Providing training to navigate these regulations is critical. Including green elements to the certification process for Disadvantaged Business Entities/DBE’s (women, minority, disabled, and veteran) may be one way to achieve this.
- Provide targeted training to DBE’s obtain certifications to work on city, state and federal projects, and how to bid competitively for these projects. This helps position these firms to be chosen by prime contractors as a minority firm.
- Encourage partnering projects where primary contractors partner with smaller women and minority subcontractors to guide them through large projects and help with technical assistance.
- Establish funds to assist small business with cash-flow challenges related to government projects. These projects tend to have a longer payment processing timeframe which can leave small businesses in a very precarious financial position as they wait for their payments.

## Sources

1. Minnesota Department of Employment and Economic Development (DEED) Vilsack, Rachel (September 2009). Green Jobs in Minnesota. <http://www.commissions.leg.state.mn.us/oesw/091109Materials.htm>
2. Ibid
3. Center for Energy Workforce Development. Greening of the Industry: Energy Efficiency Generation Transmission and Distribution. <http://www.cewd.org/greendocs/greendefnuclear.pdf>
4. DEED
5. Women's Economic Security Campaign. Creating Opportunity for Low-Income Women in the Green Economy (October 2009). <http://www.womensfundingnetwork.org/sites/wfnet.org/files/WESC/WESCGreenEconFINAL.pdf>
6. Ibid
7. United States Department of Labor, Women's Bureau (2008). *Nontraditional occupations for Women in 2008*. <http://www.dol.gov/wb/factsheets/nontra2008.htm>
8. Bureau of Labor Statistics, United States Department of Labor (2008). Employed persons by detailed occupation, sex, race and Hispanic or Latino ethnicity. <http://www.bls.gov/cps/cpsaat11.pdf>
9. Minnesota Office of Higher Education. *Degrees and Other Awards Conferred by Minnesota Postsecondary Institutions in 2006-07: Race/Ethnicity and Gender by Program* <http://www.ohe.state.mn.us/pdf/enrollment/awardsconferred/2006/programDetailByLevel.pdf>
10. Minnesota Student Survey Intraagency Team. Fall 2007. 2007 Minnesota Student Survey Statewide Tables. <http://education.state.mn.us/mdeprod/groups/SafeHealthy/documents/Report/033569.pdf>
11. National Science Foundation, Division of Science Resources Statistics, *Women, Minorities, and Persons with Disabilities in Science and Engineering: 2009*, NSF 09-305, (Arlington, VA; January 2009). Available from <http://www.nsf.gov/statistics/wmpd/>.
12. Girls Incorporated. Operation Smart <http://www.girlsinc.org/about/programs/operation-smart.html> and <http://pbskids.org/scigirls/>
13. Girl Scouts of the USA, *Evaluating Promising Practices in Informal Science, Technology, Engineering, and Mathematics (STEM) Education for Girls*, (New York, NY; 2008). Available from. [http://www.girlscouts.org/research/resources/evaluating\\_promising\\_practices\\_in\\_informal\\_stem\\_education\\_for\\_girls.pdf](http://www.girlscouts.org/research/resources/evaluating_promising_practices_in_informal_stem_education_for_girls.pdf)
14. Tradeswomen Now and Tomorrow. Strategies for Increasing Recruitment, Retention and Leadership Opportunities for Women in the Trades. <http://www.tradeswomennow.org/resources/publications/Labor.pdf>; and Rees, Susan. Wider Opportunities for Women. "Women and Green Jobs" presentation/webinar, March 15, 2010. <http://www.wowonline.org/documents/GreenJobsGoodForWomen.pdf>
15. Office on the Economic Status of Women. Women and Poverty in Minnesota (2008) <http://www.commissions.leg.state.mn.us/oesw/fs/WomenPoverty.pdf>
16. Bureau of Labor Statistics, United States Department of Labor. May 2008 Occupational Employment and Wage Statistics. [http://www.bls.gov/oes/oes\\_dl.htm](http://www.bls.gov/oes/oes_dl.htm)
17. United States Small Business Administration. October 2009. Small Business Profile: Minnesota.
18. Office on the Economic Status of Women 2009. Green Jobs for Women Roundtable. Comments from Rebecca Lundbergh, Powerfully Green. Audio access at <http://www.commissions.leg.state.mn.us/oesw/hearings.htm>

Writers: Jacqueline Ducshchere, Amy Brenengen  
Contributors: Julie Oldendahl, Patricia Tanji  
Reviewers: Mary Dahlquist, Sally Olson

Published May 2010  
Technical updates June 2010