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## Vermont Legislative Research Shop

### Green Jobs

Green jobs or ‘green collar’ jobs are jobs that have been created to combat the declining job market as well as to battle the changing climate. There is no one fixed definition for a green job, but generally they are jobs that look to improve sustainability and living conditions. Green jobs include: creating wind turbines, designing fuel-efficient cars, and installing solar panels for homes.<sup>1</sup> Many green jobs already exist. Some construction jobs may already be green in nature, but are only recently being classified as so. For example, weatherizing businesses and homes is considered a green job. Weatherizing improves energy efficiency, saving the average U.S. home \$350 per year in heating and cooling costs and reducing overall consumption of fossil fuels.<sup>2</sup>

The U.S. Conference of Mayors estimated the number of green jobs currently available in the United States based on the following criteria:

“To construct a count of green jobs in the United States we have identified to the finest precision possible the number of workers employed in green activities. We define these as: any activity that generates electricity using renewable or nuclear fuels, agriculture jobs supplying corn or soy for transportation fuel, manufacturing jobs producing goods used in renewable power generation, equipment dealers and wholesalers specializing in renewable energy or energy-efficiency products, construction and installation of energy and pollution management systems, government administration of environmental programs, and supporting jobs in the engineering, legal, research and consulting fields”(U.S. Conference of Mayors, 2008, p. 8).

The total number of these jobs as concluded by the U.S. Conference of Mayors is 751,051. Twenty-four states as well as the District of Columbia have mandated that a certain percentage of their electricity usage will come from renewable sources by a certain date, a decision that will create many green jobs. This is known as Renewable Portfolio Standards, or RPS.<sup>3</sup> According to research conducted by Management Information Services, Inc. and the American

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<sup>1</sup> See Table 1 on page 2 for a complete list of industries that provide green jobs.

<sup>2</sup> Center for Energy Economics, “Green Jobs: a Review of Recent Studies.” The University of Texas at Austin, Dec 2008. Retrieved on 17 February 2009 from [http://www.beg.utexas.edu/energyecon/documents/CEE\\_Green\\_Jobs\\_Review.pdf](http://www.beg.utexas.edu/energyecon/documents/CEE_Green_Jobs_Review.pdf)

<sup>3</sup> Global Insight, “Current and Potential Green Jobs in the US Economy.” Prepared for US Conference of Mayors, Oct 2008. Retrieved on 17 February 2009. <http://www.usmayors.org/pressreleases/uploads/GreenJobsReport.pdf>

Solar Energy Society more than one billion dollars in revenue and nine million jobs came out of the green job fields in 2007.<sup>4</sup>

Table 1: US Conference of Mayors Green Jobs List

<b><u>Green Jobs by Field</u></b>	
<p><b><u>Renewable Power Generation</u></b>            Hydroelectric            Nuclear            Other</p> <p><b><u>Agriculture and Forestry</u></b>            Corn Farming            Soybean Farming            Forestry and Reforestation services            Forest management services            Forest management plans, preparation of            Timber cruising, estimating, and valuation services</p> <p><b><u>Engineering, Legal, Research &amp; Consulting</u></b>            Environmental law            Environmental protection organization            Pollution control engineering            Building construction consultant            Heating and ventilation engineering            Electrical or electronic engineering            Energy conservation engineering            Agricultural and Biological research            Biotechnical research, commercial            Natural resource research            Energy research            Environmental research            Materials mgmt. consultant            Productivity improvement consultant            Environmental remediation            Energy conservation consultant            Environmental consultant            Earth science services            Geological and Geophysical consultant            Recycling, waste materials            Environmental cleanup services            Natural resource preservation service</p> <p><b><u>Government Administration</u></b>            Environmental health program administration            Environmental agencies            Air pollution control agency            Environmental protection agency            Environmental quality and control agency</p>	<p><b><u>Manufacturing</u></b>            Wet corn milling            Corn milling by-products            Renewable Gluten feed and meal            Soybean and Vegetable oil mills            Lecithin, soybean            Soybean flour, grits, oil, cake, meal, or powder            Soybean protein concentrates and isolates            Hydrogen            Ethyl alcohol, ethanol            Solar heaters and collectors            Turbines and turbine generator set units, complete            Gas turbine generator set units, complete            Hydraulic turbine generator set units, complete            Steam turbine generator set units, complete            Turbines and turbine generator sets and parts            Gas turbines, mechanical drive            Hydraulic turbines            Steam engines and turbines            Turbo-generators            Wheels, water            Windmills for pumping water, agricultural            Windmills, electric generating            Light emitting diodes            Solar Cells and Photovoltaic devices, solid state            Fuel cells, solid state            Hydrogen ion equipment, colorimetric            Environmental controls and testing equipment            Solarimeters</p> <p><b><u>Construction &amp; Systems Installation</u></b>            Solar energy contractor            Energy management controls            Environmental system control installation            Pollution control equipment installation</p> <p><b><u>Equipment Dealers &amp; Wholesalers</u></b>            Heating equipment and panels, solar            Air pollution control equipment and supplies            Pollution control equipment, air (environmental)            Pollution control equipment, water (environmental)            Solar heating equipment</p>
<p>Source: Global Insight, prepared for the US Conference of Mayors, "U.S. Metro Economies: Current and Potential Green Jobs in the U.S. Economy," p. 22, Oct. 2008. Retrieved on 24 February 2009 from <a href="http://www.usmayors.org/pressreleases/uploads/GreenJobsReport.pdf">http://www.usmayors.org/pressreleases/uploads/GreenJobsReport.pdf</a></p>	

Green jobs consist of more than simply installing green materials into homes and businesses. Building solar panels requires factory workers, truck drivers, installation experts and designers just to name a few. The need for new and improved industries, such as creating fuel-efficient

<sup>4</sup> Neal Lurie and Roger Bezdek, "ASES Green Collar Jobs report forecasts 37 million jobs from renewable energy and energy efficiency in U.S. by 2030" American Solar Energy Society, 15 Jan 2009. Retrieved on 18 February 2009. [http://www.ases.org/index.php?option=com\\_content&view=article&id=463&Itemid=58](http://www.ases.org/index.php?option=com_content&view=article&id=463&Itemid=58)

cars, will create jobs for designers, welders and other factory workers. The demand for these products will increase both the number of jobs and wages.<sup>5</sup>

A green economy would provide a number of benefits to the US economy. According to the US Conference of Mayors these benefits include technological investment, increased productivity in the work force, and improved energy efficiency across the United States. Green jobs are difficult to outsource, and can help reduce the unemployment rate.<sup>6</sup> For example, building large wind towers within the US instead of importing them will both save money and create new manufacturing jobs. A green economy will improve the US position in international trade, and could increase the country's disposable income.

Training for green jobs, as they often require a higher skill level than the disappearing industrial jobs they will ideally replace, is one of the greatest hurdles to the new green economy. Training programs are currently offered at various universities across the country.<sup>7</sup> Additionally, several states have passed legislation that provides funding for unemployed and low-wage workers to enter training programs.<sup>8</sup>

### Green Jobs Legislation in States

Much of the legislation that has been passed in other states is funding-intensive, including training programs that require significant investment. Other states are debating legislation that would dedicate federal funds from the American Recovery and Reinvestment Act of 2009 to the creation of green jobs. What follows is a detailed description of legislation and initiatives in eight states.

**Washington:** HB 2815 was passed during the 2008 session. The basic aim of the bill is to mitigate the impacts of climate change, but it also has specific provisions for improving Washington's place in the green economy. These provisions include: funding for surveys and research to determine which industries provide green jobs and what exactly they are; and the creation of the Green Collar Job Training Account, a competitive grant program for organizations that provide training for high-wage and high-demand jobs or education related to the green economy. Unfortunately, there is no dedicated funding source for the Green Collar Job Training Account. Rather, receipts from appropriations must be deposited into the account

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<sup>5</sup> Robert Pollin, James Heintz, Heidi Garrett-Peltier and Helen Scharber, *Green Recovery: A Program to Create Good Jobs and Start Building a Low-Carbon Economy* a report by the Political Economy Research Institute, retrieved on 19 February 2009 from [http://www.peri.umass.edu/green\\_recovery/](http://www.peri.umass.edu/green_recovery/).

<sup>6</sup> Steven Greenhouse. "Millions of Jobs of a Different Collar". New York Times, 26 Mar 2008. Retrieved on 17 March 2009 from <http://www.nytimes.com/2008/03/26/business/businessspecial2/26collar.html>

<sup>7</sup> Price, Asher, "Lawmakers, Others Eye Green Collar Jobs." Austin, TX: Austin American-Statesman, 17 Feb 2009, Retrieved on 17 February 2009: <http://www.statesman.com/news/content/news/stories/local/02/17/0217green.html>

<sup>8</sup> See Washington, Massachusetts, California and Michigan legislation descriptions below.

when they are received.<sup>9</sup>

**Massachusetts:** The “Green Job Act” is Chapter 307 of the Acts of 2008; it was signed into law on August 12, 2008. The act provides funding to develop a green technology sector in the Massachusetts economy. It dedicates \$68 million over five years to: “seed grants to companies, universities, and nonprofits; workforce development grants to state higher education, vocational schools, and nonprofits; and low-income job training (Pathways Out of Poverty); plus \$100,00 or a study of the clean energy sector.”<sup>10</sup>

**Indiana:** Representative Dvorak (D-South Bend) introduced HB 1437 at the beginning of the 2009 session that aims to improve renewable energy in Indiana. The bill passed the House in February and is currently being debated by the Senate. While it has no specific provisions relating to the creation of green jobs, it has been portrayed as a “green jobs bill” because it encourages use of and investment in renewable energy technologies. A bill to increase the use of renewable energy would bring green jobs associated with the production of that energy to Indiana.<sup>11</sup>

**Minnesota:** In November of 2008, Governor Pawlenty announced a “Green Jobs Investment Initiative” to be implemented during the 2009-2010 session. The initiative involves mostly tax credits for job growth and small business investment, as well as other tax incentives for use of clean energy and green technology, such as solar and biomethane energy production. The initiative also creates “a clean and green technology category as part of the Minnesota Cup competition to reward innovation and spark invention.”<sup>12</sup>

HF 680 was introduced to the Minnesota House of Representatives in early February 2009 and articulates the goals of allocation federal stimulus funding toward energy efficiency and green job creation. As of early March the bill is still being debated.<sup>13</sup>

**California:** AB 2855 was passed in the 2008 session of the California legislature. It creates two new tracks in the California Partnership Academies, which are occupational training schools for at-risk high school students, in Green Technology and Goods Movement. Ultimately the cost of the bill is estimated at \$1 million.<sup>14</sup> SB 1672 did not pass before the end of the 2008 session,

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<sup>9</sup> Washington State Legislature, Final Bill Report on HB 2815. Retrieved 17 February 2009 from <http://apps.leg.wa.gov/billinfo/summary.aspx?bill=2815&year=2008>.

<sup>10</sup> Office of Massachusetts Governor Patrick, Press Release, “Governor Patrick Signs Bills To Reduce Emissions And Boost Green Jobs.” 13 August 2008. Retrieved 17 February 2009 from [http://www.mass.gov/?pageID=gov3pressrelease&L=1&LO=Home&sid=Agov3&b=pressrelease&f=080813\\_green\\_jobs&csid=Agov3](http://www.mass.gov/?pageID=gov3pressrelease&L=1&LO=Home&sid=Agov3&b=pressrelease&f=080813_green_jobs&csid=Agov3)

<sup>11</sup> News from the State House, Press Release “Dvorak Pushes for Renewable Energy Technologies” Retrieved 17 March 2009 from [http://www.in.gov/legislative/house\\_democrats/dvorak\\_news\\_20090217.html](http://www.in.gov/legislative/house_democrats/dvorak_news_20090217.html)

<sup>12</sup> Minnesota Office of the Governor, “Governor Pawlenty Unveils ‘Green Jobs Investment Initiative.’” Retrieved 19 February 2009 from <http://www.governor.state.mn.us/mediacenter/pressreleases/2008/PROD009192.html>

<sup>13</sup> See Minnesota House bill text:

<https://www.revisor.leg.state.mn.us/bin/bldbill.php?bill=H0680.0.html&session=ls86>

<sup>14</sup> See California Senate bill analysis at [http://info.sen.ca.gov/pub/07-08/bill/asm/ab\\_2851-2900/ab\\_2855\\_cfa\\_20080609\\_160137\\_sen\\_comm.html](http://info.sen.ca.gov/pub/07-08/bill/asm/ab_2851-2900/ab_2855_cfa_20080609_160137_sen_comm.html)

despite its similarity of goals to AB 2855. It would have allocated \$3 billion to fund green job training at high schools and community colleges across the state.<sup>15</sup>

On March 16<sup>th</sup> 2009, Governor Schwarzenegger introduced the California Green Corps, a large-scale initiative to train youth aged 16-24 in green technologies. The program has \$20 million of initial funding, \$10 million of which is funding from the American Recovery and Reinvestment Act of 2009.<sup>16</sup>

Democrats in the California Senate also introduced a “Jobs of Tomorrow” bill package on March 5<sup>th</sup> 2009. The bills included in the package are as follows:

- SB 675 (Steinberg) – Clean Technology and Renewable Energy Job Training, Career Technical Education (CTE) and Dropout Prevention Act of 2010: establishes a Green Jobs Fund to invest in facilities, equipment, and teachers for CTE pathway programs starting in middle school, connecting to high school, apprenticeships, community and four-year colleges, that lead to jobs in growing clean tech and renewable energy sectors.
- SB 471 (Romero and Steinberg) – Calls for stem cell biology education to expose and prepare high school students for career paths in the growing field of regenerative medicine.
- SB 747 (Romero) – Creates pilot program for CTE curriculum in aerospace machining technology and maintenance with strong science and math components for high school students. Instruction would occur at community colleges and position pupils to pursue higher education in related math or science fields, or go directly into apprenticeship programs with an aerospace employer.
- SB 515 (Hancock) – Requires schools and community colleges to demonstrate that at least half of CTE courses are directly linked to career areas identified as high priority workforce needs.
- SB 43 (Alquist)- Helps focus investment in medical professional pathways by improving data collection and availability to guide policy development for the new economy.<sup>17</sup>

**Virginia:** Governor Kaine has proposed a yearlong Renew Virginia initiative, and as part of this work has introduced several pieces of legislation about green jobs and renewable energy. These include: the Clean Energy Manufacturing Incentive, which increases existing incentive grants for manufacturing goods and equipment for energy efficiency as well as solar, biomass, wind, nuclear, and other clean energy sources; the Biofuels Incentive Grant, which changes and increases current incentives to favor production of biofuels from sources that are not also used for food; Renewable Energy System Income Tax Credits for both individuals and companies; and a Renewable Energy Equipment Sales Tax Exemption.<sup>18</sup>

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<sup>15</sup> See amended bill text from California Senate at [http://info.sen.ca.gov/pub/07-08/bill/sen/sb\\_16511700/sb\\_1672\\_bill\\_20080403\\_amended\\_sen\\_v98.html](http://info.sen.ca.gov/pub/07-08/bill/sen/sb_16511700/sb_1672_bill_20080403_amended_sen_v98.html)

<sup>16</sup> Matthew Yi, “Governor unveils green jobs program for youths”. San Francisco Chronicle, 17 March 2009. Retrieved 17 March 2009 from <http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2009/03/17/BAT116GO7K.DTL>

<sup>17</sup> Office of Sen. Darrell Steinberg, Press Release “Senate democrats unveil ‘Jobs of Tomorrow’ education bill package,” 5 Mar 2009. Retrieved 17 March 2009 from [http://dist06.casen.govoffice.com/index.asp?Type=B\\_PR&SEC=%7BF6FF3E1C-F0CF-4B93-91F3-DA32A1D3E8F8%7D&DE=%7B57778E99-8D38-4AB1-B2BF-14E1B6A70064%7D](http://dist06.casen.govoffice.com/index.asp?Type=B_PR&SEC=%7BF6FF3E1C-F0CF-4B93-91F3-DA32A1D3E8F8%7D&DE=%7B57778E99-8D38-4AB1-B2BF-14E1B6A70064%7D)

<sup>18</sup> Office of the Governor of Virginia, Press Release, “Governor Kaine Announces Legislation to Promote Green Jobs,” 12 January 2009. Retrieved 19 February 2009 from <http://www.governor.virginia.gov/MediaRelations/NewsReleases/viewRelease.cfm?id=850>

**New Mexico:** Governor Richardson created a Green Jobs Cabinet in January 2009 through Executive Order 2009-002. The Cabinet will provide the Governor with recommendations for improving New Mexico's green economy. The Cabinet positions are not paid but are filled by existing government secretaries or their designees.<sup>19</sup>

**Michigan:** The "No Worker Left Behind" program, a job training initiative in Michigan that began in August 2007, provides up to \$10,000 for unemployed or low-wage workers to train for high skill jobs. Through July 2008, 31,000 people had entered training programs. In its second year, the program has shifted its focus to specifically training workers for green jobs in three specific sectors: Alternative Energy Production and Efficiency, Green Building Construction and Retrofitting, and Agriculture and Natural Resource Conservation.<sup>20</sup> U.S. Senator Stabinow (D-MI), as a member of the Senate Finance and Appropriations Committee, ensured that there was funding that could be applied to the project in the American Recovery and Reinvestment Act of 2009.<sup>21</sup>

### **Green Jobs in the American Recovery and Reinvestment Act of 2009**

The Council of Economic Advisors estimates that overall 8,000 jobs will be created or saved in Vermont during the next two years as a result of the American Recovery and Reinvestment Act (ARRA) of 2009.<sup>22</sup>

According to the office of Vermont Senator Patrick Leahy, the ARRA has a number of provisions that Vermont can make use to create green jobs:

"[The Act] provides more than \$40 billion to the Department of Energy for the development of clean, efficient American energy. Vermont would also benefit from the inclusion of \$11 billion for electric grid modernization, \$3.8 billion in loans and grants for much needed water and waste disposal facilities, and \$6 billion for local clean drinking water infrastructure improvements. The bill also includes \$1.2 billion for the Environmental Protection Agency's nationwide environmental cleanup programs, including Superfund. Specifically, Vermont would receive nearly \$39 million for clean water and safe drinking water programs and over \$17 million for weatherization programs."<sup>23</sup>

The American Recovery and Reinvestment Act of 2009 does have a more than \$80 billion chunk saved for renewable energy. It has been estimated that over 500,000 jobs will be created in the

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<sup>19</sup> States News Service, "Governor Bill Richardson Releases Details of Green Jobs Cabinet," 22 January 2009. Retrieved 17 February 2009 from LexisNexis® Academic.

<sup>20</sup> Michigan "No Worker Left Behind Green Jobs Initiative" website. Retrieved 24 February 2009 from <http://www.michigan.gov/nwlb/0,1607,7-242-49026---,00.html>

<sup>21</sup> Office of U.S. Senator Stabenow, Press Release, "Stabenow Secures Funding for Green Collar Jobs Initiative in Economic Recovery Package," 27 January 2009. Retrieved 24 February 2009 from <http://stabenow.senate.gov/press/2009/012709recoverypackageoutofcommittee.htm>

<sup>22</sup> Recovery Accountability and Transparency Board, "Estimated Job Effect." Retrieved 5 March 2009 from <http://www.recovery.gov/?q=content/estimated-job-effect>

<sup>23</sup> States News Service, "Economic Recovery Plan Will Create And Sustain Jobs In Vermont And Relieve State's Budget Deficit" 13 February 2009. Retrieved 17 February 2009 from LexisNexis® Academic.

energy field across the United States by 2010 through this plan. Over the years, this number is expected to rise to 1.7 million. About 30% of these jobs would be construction jobs. The Act also includes tax incentives totaling \$20 billion for constructive use of energy efficiency and renewable energy.<sup>24</sup> Of the \$80 billion for renewable energy, \$6 billion will be used to weatherize homes, \$16 billion will be used to retrofit public housing with energy efficient devices and \$32 billion is set aside specifically for renewable energy and to create a better and smarter power grid.<sup>25</sup> The major fields that will be looked at are: reliable, efficient electricity grid, renewable energy loan guarantees, GSA federal buildings, local government energy efficiency block grants, energy efficiency housing retrofits, energy efficiency and renewable energy research, advanced battery loans and grants, energy efficiency grants and loans for institutions, home weatherization, smart appliances, GSA federal fleet, electric transportation, cleaning fossil energy, Department of Defense research, alternative buses and trucks, industrial energy efficiency and diesel emissions reduction.<sup>26</sup>

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Compiled in response to a request from Representative Keshia Ram by Hannah Fjeld and Jameson Halnon under the supervision of Professor Anthony Gierzynski on March 17, 2009.

Disclaimer: This report has been compiled by undergraduate students at the University of Vermont under the supervision of Professor Anthony Gierzynski. The material contained in the report does not reflect the official policy of the University of Vermont.

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<sup>24</sup> Renee Schoof, "Stimulus plan's focus on energy may add jobs." Miami Herald, 17 Feb 2009. Retrieved 19 March 2009 from <http://www.miamiherald.com/news/nation/story/907261.html>

<sup>25</sup> US House Committee on Appropriations, "Summary: American Recovery and Reinvestment," 15 Jan 2009. Retrieved 5 March 2009 from <http://appropriations.house.gov/pdf/PressSummary01-15-09.pdf>

<sup>26</sup> For further information on the details of the different fields and to view specific distributions of the funding see: <http://appropriations.house.gov/pdf/PressSummary01-15-09.pdf> Retrieved 5 March 2009.