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# Hot Jobs 2010

Promoting Economic Independence  
through Informed Career Decisions



Deborah Connolly Youngblood, PhD  
Vice President of Research and Innovation  
Crittenton Women's Union

**March 2010**



Crittenton Women's Union transforms the course of low-income women's lives so that they can attain economic independence and create better futures for themselves and their families.

We accomplish this by:

- Providing safe housing, caring supports, education, and training programs;
- Innovating new programmatic designs based on research and client experience;
- Using this knowledge and experience to shape public policy and achieve social change.

# HOT JOBS 2010 PROMOTING ECONOMIC INDEPENDENCE THROUGH INFORMED CAREER DECISIONS

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*Crittenton Women's Union defines "Hot Jobs" as careers that require two years or less of post-secondary education, pay a family-sustaining wage, and currently post high vacancy rates.*

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## I. HOT JOBS 2010

<b>JOBS</b>	<b>VACANCIES</b>	<b>WAGE 75<sup>TH</sup> PERCENTILE</b>	<b>EDUCATION/ TRAINING REQUIRED</b>
<b>Computer and Data Systems</b>			
Computer Support Specialists	194	\$70,180	AA
Computer Programmers	132	\$100,160	AA or BA
Network Systems and Data Communications	108	\$98,000	AA or BA
<b>Health Care</b>			
Registered Nurses	2,479	\$97,160	AA or BA
Radiologic Technologists and Technicians	140	\$78,750	AA
Diagnostic Medical Sonographers	104	\$84,210	AA
Dental Hygienists	117	\$85,550	AA
<b>Office and Administrative Support</b>			
First-line Supervisors/Managers of Office and Administrative Support Workers	101	\$63,880	On-the-job training, work experience in a related field
<b>Protective Services</b>			
Correctional Officers and Jailers	164	\$62,290	AA or on-the-job training
<b>Sales</b>			
Sales Representatives, Wholesale and Manufacturing (except technical and scientific)	127	\$84,160	AA or BA
Sales Representatives, Wholesale and Manufacturing (technical and scientific)	296	\$113,680	AA or BA

**TABLE 1**

## II. INTRODUCTION

In its work helping low-income women transform their lives by achieving economic independence, Crittenton Women's Union (CWU) has come to recognize that job seekers need practical guidance in identifying, preparing for, and obtaining jobs that pay enough to support a family without reliance on public assistance. To help them make informed career decisions, CWU undertakes a triennial survey of the Massachusetts labor market to ascertain which jobs are in high demand in the state and which hold future promise.

The CWU Hot Jobs report has become more critical than ever in the current economic environment. Massachusetts unemployment has risen

to its highest rate in more than 30 years, with a loss of more than 136,000 jobs since 2008, according to the Massachusetts Executive Office of Labor and Workforce Development. A rebound in job growth is not projected by most economists until at least the end of 2010. Dramatic fluctuations in the labor market since the last Hot Jobs report and the increased cost of living over the past three years have left those seeking to overcome poverty particularly uncertain about what career pathways offer the best opportunities.

Despite today's straitened job market, however, opportunities do exist. The *Massachusetts Department on Workforce Development 2009, 2nd Quarter Job Vacancy*

*Survey* estimates almost 50,000 vacant jobs in the state. More than 40 percent of these jobs are identified as “middle-skill” level, requiring more than a high school education but less than a four-year degree.

**CWU defines “Hot Jobs” as careers that require two years or less of post-secondary education, pay a family-sustaining wage, and currently post high vacancy rates. *Hot Jobs 2010* identifies 11 jobs in Massachusetts that meet these criteria.**

Each job listed pays a family-sustaining wage at the 75<sup>th</sup> percentile of the job’s wage range (meaning 75% of people are paid at or below the represented wage) and have high vacancy rates (more than 100 openings). The family-sustaining wage was determined using a new budget tool, the Massachusetts Economic Independence Index (Mass. Index).<sup>1</sup> Applying accessible and widely accepted public federal, state, and market rate data, the Mass. Index measures how much a Massachusetts family must earn a year to meet basic expenses (including housing, food, health care, child care, transportation, personal and household needs, and taxes) without supplemental government work supports.

Mass. Index values are calculated by specific geographic locations in the state—at the county level and for the city of Boston—and by specific family configurations, including 410 family types comprised of either one or two working adults and up to six children. According to the Mass. Index, the average annual income requirement for a single-parent family of three in Massachusetts is \$61,618—approximately three and one-half times the federal poverty level of \$18,310. *Hot Jobs 2010* uses this average annual income figure as the wage criterion for determining a Hot Job.

The report also provides information on educational requirements and occupational characteristics for specific Hot Jobs. It details current market trends in high-demand occupational opportunities that pay a family-sustaining wage in Massachusetts, and provides insights into sectors that have positions available currently that may develop into Hot Jobs in the future.

State policymakers will benefit from *Hot Jobs 2010* as they make funding decisions regarding programs like the Educational Rewards Grant Program, which provides education and training grants to help dislocated or low-income workers prepare for family-sustaining jobs. Additionally, *Hot Jobs 2010* was developed for workforce

development professionals and low-income workers seeking well-documented career pathways to economic independence. We have produced for the first time *Hot Jobs 2010 Briefs* by employment sector, which provide detailed information about education and training requirements, benefits, salaries, work schedules, and additional resources, available at [www.liveworkthrive.org](http://www.liveworkthrive.org).

## Key Findings:

- The number of occupations that meet the Hot Jobs criteria is dwindling. In 2007, there were 26 jobs on the Hot Jobs list. In 2010, there are just 11. This is likely due to the combined effect of the recession, rising costs of living, stagnant wages, increased workplace specialization, and increased demand for post-secondary education and training.
- Nine out of the 11 jobs in *Hot Jobs 2010* were on the 2007 list (see **Table 3** on page 10) as well, suggesting they are particularly recession-resilient and thus especially good bets for job seekers. However, the low number of new jobs added to the list suggests very limited new opportunities for middle-skilled workers to earn a family-sustaining wage.
- In 2007, 16 out of 26 Hot Jobs required no post-secondary education. In 2010, two of the eleven jobs require only a high school diploma: correctional officers and supervisors of administrative workers. However, job applicants for these positions who have some post-secondary education will find this beneficial. This clearly illustrates that, in Massachusetts’ increasingly knowledge-based economy, access to higher education for low-income working adults is a critical anti-poverty strategy.
- The majority of the 2007 Hot Jobs that didn’t meet the criteria in 2010 fell off the list because of low vacancy rates, most likely due to the recession. However, a few jobs no longer met the wage requirements and, in some cases, are now saddled with both low vacancy rates and wages that no longer meet family-sustaining criteria.
- Of the nine Hot Jobs included in both the 2007 and 2010 reports, eight of them have a significantly lower number of vacancies than in the prior report. Some

positions, such as registered nurses, experienced a reduction of approximately 50%. Hence, the job market for even these Hot Jobs is tighter during this economic recession, resulting in fewer career pathways out of poverty for middle-skilled workers.

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### III. PROMOTING ECONOMIC INDEPENDENCE IN A DOWN ECONOMY

Since Crittenton Women’s Union released its last report, *Hot Jobs, Good Wages*, in 2007, the U.S. economy has undergone substantial downward shifts in overall income, personal wealth, and production rates. From the beginning of the recession in December 2007, net wage and salary employment rates have significantly declined nationwide.<sup>2</sup> And many workers in Massachusetts have experienced the effects of the financial crisis firsthand. The Commonwealth has lost, on average, 13,000 jobs every month since September 2008.<sup>3</sup> The sectors with the largest decrease in payroll employment levels in Massachusetts are construction, administrative, and waste management. These sectors traditionally hire significant numbers of middle-skilled workers; hence there has been a correspondingly negative impact on low-income job seekers.

As job opportunities for middle-skilled workers are diminishing, health care, child care, and housing expenses and the overall cost of living have been rising.<sup>4</sup> Seventy-three percent of low-income families in Massachusetts, for example, expend more than one-third of their income on housing, which is more than every other state in the country except New Jersey.<sup>5</sup>

*Hot Jobs 2010* lists 11 high-demand occupations in today’s market that provide family-sustaining wages and

require two years (or less) of post-secondary education. This is 15 fewer jobs than just three years ago. Even as the number of these occupational paths dwindles, rising unemployment and stagnant wages mean increasing numbers of individuals are mired in poverty and in need of realistic pathways to economic independence.

The path from poverty to earning family-sustaining wages is not obvious or easy. Identifying a job that matches an individual’s skills and strengths and also has openings and pays a family-sustaining wage is challenging. Individuals are often encouraged by social service providers or required by federal and state regulations for government supports, such as Temporary Assistance to Needy Families (TANF), to get some job—any job—even if it maintains their low-income status. Indeed, for workers earning wages between \$11 and \$29 per hour, the resulting loss of government benefits often outpaces increased earnings, thus leaving an individual with fewer resources than before.<sup>6</sup> In this environment, concrete and realistic guideposts are essential in helping individuals make choices that truly promote economic independence.

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### IV. METHODOLOGY

*Hot Jobs 2010* is based on an in-depth analysis of the U. S. Department of Labor Bureau of Labor Statistics May 2008 *Annual Report on Occupational and Employment Statistics in Massachusetts*. This report lists 741 occupations and documents the number of individuals employed in each sector throughout the state, as well as the median, mean, entry, and

experienced annual salaries for each occupation. This occupation list was first filtered for occupations that required an associate’s degree or less to pursue.

In order to obtain this information, occupations were researched by using their Standard Occupational Classification code (SOC code) and title in the Bureau of Labor Statistics *Occupational and Employment*

*Statistics Handbook*. This decreased the list to 140 occupations. Vacancy rates were used to further filter the data, with estimates taken from the *Massachusetts Department on Workforce Development 2009, 2nd Quarter Job Vacancy Survey*. Occupations with 100 or fewer vacancies were removed from the list.

Finally, the data was analyzed using both an occupation's wage at the 75<sup>th</sup> percentile and the Mass. Index statewide average for a family-sustaining wage for a single-parent family with two children.<sup>7</sup>

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## V. CURRENT HOT JOBS

### A) Occupation Characteristics

For the first time, CWU is offering *Hot Jobs Briefs* to accompany this report. These briefs are designed to be user-friendly guides for individual job seekers, social service direct service workers, and workforce development professionals. They are organized by job type (e.g., health care, sales, computer and data communications) and offer specific information about occupation characteristics, salary, education/training requirements, and resources for getting more information. They are intended as handouts to job seekers who are exploring career options and wanting more information.

In addition, a general brief titled *Smart Track Jobs* provides job seekers with tips about how to assess any job for its potential advancement opportunities and how to assess their ability to maintain the job given their life circumstances (child care needs, transportation, hours required, etc.). Below is an abbreviated sampling of the *Hot Job Briefs* available at [www.liveworkthrive.org](http://www.liveworkthrive.org). See **Table 1** on page 3 for a complete listing of *Hot Jobs 2010*.

#### ***Computer and Data Systems: Computer Support Specialists, Computer Programmers, Network Systems and Data Communications***

- Work is generally conducted Monday–Friday in traditional 40-hour workweeks, although some support positions may require on-call and/or weekend shifts.
- These jobs require logical, mathematical, and detail-oriented skills.
- Individuals with a BA will be more competitive. But, in some cases, an AA coupled with experience is acceptable.

- Some employers offer tuition reimbursement for workers who want to further their education.
- Women make up approximately 25% of workers in these positions.<sup>8</sup>

#### ***Health Care: Registered Nurses, Radiologic Technologists and Technicians, Dental Hygienists, Diagnostic Medical Sonographers***

- Work can include day, night, and weekend shifts.
- Work involves close physical contact with patients and requires strong interpersonal skills.
- These jobs require the ability to lift heavy loads and be on one's feet for more than eight hours at a time.
- Individuals with criminal convictions are not eligible for jobs in the health care industry.
- All positions require a degree from an accredited college or university and passing a licensure exam.
- Some employers offer tuition reimbursement for individuals wishing to continue their education.
- These positions offer opportunities for advancement with further education, training, and specialization.
- Women make up the majority of individuals in these professions.

#### ***Office and Administrative Support: First-line Supervisors/Managers of Office and Administrative Support Workers***

- Work is generally conducted during the standard Monday–Friday, 40-hour workweek.
- Workers are generally expected to have strong computer, organizational, and interpersonal skills.

- Some positions are available to those with an associate's degree or less. These positions, however, are becoming rarer and are paid at the lower end of the scale.
- Advancement opportunities are available primarily through pursuing further education and skills training, particularly in computers and management. Also, one can advance through specialization in certain fields, such as legal or health care administration.

#### ***Protective Services: Correctional Officers and Jailers***

- Work is generally conducted on rotating shifts that include days, nights, weekends, and holidays. Overtime is sometimes available.
- Work is considered stressful due to interacting directly with inmates in jails and prisons.
- Individuals with felony convictions are not eligible for these jobs. Criminal background checks and drug tests are conducted.
- Correctional officers can enter a training program with a high school diploma if they pass physical and written exams. Alternatively, an AA is also a route to this career.
- Individuals can be promoted to sergeant and other supervisory roles after a successful tenure in an entry-level position.
- Women make up 30% of this workforce.

#### ***Sales: Sales Representatives, Wholesale and Manufacturing (except technical and scientific); Sales Representatives, Wholesale and Manufacturing (technical and scientific)***

- These positions may offer flexible hours; however, more than 40 hours are often required, as is extensive travel.
- Sales positions are generally highly competitive. Because wages are often a combination of salary and commission, income fluctuates.
- Sales representatives are promoted based on individual selling records. Therefore, experience and knowledge of the product are valued over further education.

- Sales representatives require very strong interpersonal skills, including the ability to connect with many different types of people.
- About 30% of employees in sales are women.

### **B) Making Ends Meet in a Knowledge-Based Economy**

In the Massachusetts economy, post-secondary education and/or training is all but required for employment that pays family-sustaining wages. In general, adults with no post-secondary education have experienced the greatest overall loss of employment since December 2007.<sup>9</sup>

The ability to command a family-sustaining wage with no post-secondary education has diminished dramatically. In the 2007 Hot Jobs list, 16 of the 26 jobs required no post-secondary education. In the 2010 list, only two jobs require less than an associate's degree (first-line supervisors of administrative workers and correctional officers). Although these occupations require less than an AA, post-secondary education, especially for supervisors, increases substantially the chances of obtaining employment and affords greater promotional opportunities.

It is clear that one of the best anti-poverty strategies is to provide access to higher education and support for educational success for adult students, especially parents. Yet, while state policymakers have long recognized the importance of higher education and training, they have not provided adequate funding and corollary supports to adult students supporting families. Indeed, Massachusetts ranks 49<sup>th</sup> in its higher education spending as a percentage of state income and 47<sup>th</sup> in its spending per capita.<sup>10</sup>

Thus, while higher education is becoming an increasingly essential component to promoting economic independence, it is also becoming increasingly unaffordable for many low-income families. Crittenton Women's Union's *Unlocking the Doors to Higher Education and Training for Massachusetts Working Poor Families* provides in-depth analysis of this problem, available at [www.liveworkthrive.org](http://www.liveworkthrive.org).

Massachusetts needs to invest in access to post-secondary education for adults as a key means of

fighting poverty. Crittenton Women's Union's specific recommendations include:<sup>11</sup>

1. Improve the alignment between education systems (elementary and secondary, adult basic education, and higher education) to promote efficient and successful transition into college.
2. Invest in career counseling, guidance, and support for adult learners.
3. Expand financial aid funding for adult learners, including funding for the Massachusetts Educational Rewards Grant Program.
4. Offer two years (or equivalent credit) of free community college for degree or certificate programs, with priority given to working adult learners.

### C) Understanding Educational Requirements

Five of the report's 11 jobs can be performed with either an associate's or a bachelor's degree, although in some working environments a BA is required. Therefore, it is critical to consider the likelihood of individuals being hired with an associate's degree when they may be competing with applicants who have more education.

**Table 2** on the following page lists these five occupations. In all of them, a bachelor's degree was highly desirable, although individuals without such a degree were still encouraged to apply for jobs, especially if they had previous related experience. Jobs that do accept candidates with an AA, e.g. registered nurses, are frequently limited to entry-level positions and may not be hired in all health care settings.

Additionally, it is important to note that educational requirements for jobs are based on national data. Massachusetts in general has a higher percentage of highly educated residents than many states. Indeed, 33.2% of all residents in Massachusetts over the age of 25 have a bachelor's degree or higher, nearly 10% more than the national average (24.4%).<sup>12</sup> Hence, the labor market in Massachusetts for job seekers with less than a bachelor's degree is that much more competitive. On a more positive note, for some occupations that value education and training, workers who enter the field with an associate's degree may be incented to further their education with employer-supported tuition assistance.

Sales representatives in the wholesale and manufacturing fields are among the occupations that stress personality and previous experience over higher levels of education. Almost all of these positions can be performed with an associate's degree, although individuals with more education will receive higher salaries and more advancement opportunities. Furthermore, some companies may use a bachelor's degree as a baseline screen when they have a large pool of candidates, especially if someone does not have relevant work experience.

In the computer industry, technical skill and experience are highly valued. For some positions, training certificates, coupled with experience, will fulfill hiring requirements. However, for computer programmers and network systems and data communications positions, candidates will be far more likely to be hired if they have a bachelor's degree, especially if they do not have relevant work experience.

Job seekers and workforce development professionals should consider this information and the effect it may have on an individual's ability to obtain a job and move up a career ladder. For example, for someone who is not interested in pursuing education beyond an associate's degree, an AA in computer programming may make them less employable than an AA in protective services.

### D) What Jobs Are Recession-Resilient?

Nine of the eleven 2010 Hot Jobs were on the 2007 Hot Jobs list (see **Table 3** on page 10). Seventeen occupations from the previous list were dropped and replaced by two new occupations (computers and data management). What makes nine of the jobs in the chart above continue to hold in a broken and uncertain economy, while 17 others that used to be hot no longer meet the baseline criteria?

Three factors determine an occupation's survival rate in the job market. The demand for the occupation's goods and services, the population it serves, and the characteristics of the occupation's labor force all contribute to its ability to expand or contract in the market.<sup>13</sup> For instance, health care positions, e.g. registered nurses and radiologic technologists and technicians, serve individuals from various backgrounds and age groups (including the ever-expanding elderly

**TABLE 2: Occupations That Require Either an Associate’s or a Bachelor’s Degree**

Occupational Name	Opportunities for individuals with an Associate’s Degree	Opportunities for individuals with a Bachelor’s Degree
Computer Programmers	An AA increases the possibility of being hired if the applicant has previous programming experience such as an internship. Entry-level jobs are more likely with limited advancement opportunities, unless education is continued.	In 2006, 62% of programmers had at least a bachelor’s degree. They have more opportunities for advancement.
Network Systems and Data Communications	An AA is an adequate degree to become a webmaster. Advancement would require a higher degree.	More job opportunities are offered to those with a bachelor’s degree or higher.
Registered Nurses	AA’s qualify for entry-level positions, receive less clinical training, and have less opportunity for advancement. Many employers offer tuition reimbursement for those interested in completing a BSN degree eventually.	BA’s have opportunities to specialize in various areas. They may be required to work in administration or to complete advanced master’s training, such as becoming a midwife or a nurse practitioner.
Sales Representatives, Wholesale and Manufacturing (except technical and scientific)	Previous sales experience is highly desirable. Personal characteristics such as friendliness have a high value for sales positions.	A BA is desired but not required to be hired as a sales representative.
Sales Representatives, Wholesale and Manufacturing (technical and scientific)	Same as above.	For technical and scientific sales positions, the preference for applicants with bachelor’s degrees is slightly more pronounced.

Information on this chart was taken from the *Occupational Outlook Handbook* at [www.bls.gov](http://www.bls.gov).

and infirm population), thus creating a high demand for services.<sup>14</sup> However, it is important to note that even though health care jobs remain strong on the list, the vacancy number for RNs and radiologic technicians dropped significantly between 2007 and 2009.

The type of product or service a job produces also determines its security. Technical and scientific jobs, such as computer support specialists, are more resilient during a recession because they are in fields of constantly advancing technology that demand individuals adapt to new developments. Skilled individuals in this field are an asset and are likely to remain so as technology advances.

While it is positive that these occupations still have openings, the deep decline in vacancy numbers indicates that the recession has taken a significant toll on potential routes out of poverty. For example, in the fourth

quarter of 2007, there were 551 vacancies for first-line supervisors of office and administrative workers. In the fourth quarter of 2008, there were 352 vacancies for this position. And, in the second quarter of 2009, there were 101 vacancies for these workers. Furthermore, the highest vacancy increase between 2007 and the second quarter of 2009 was fewer than 50 (for correctional officers). This suggests that prospective entrants to even Hot Jobs are likely to face strong competition in hiring and that there are fewer and fewer family-sustaining career options for middle-skilled workers in Massachusetts.

**TABLE 3: Recession-Resilient: Occupations in 2007 and 2010 Hot Jobs Report**

Occupational Name
Computer Support Specialists
Correctional Officers and Jailers
Dental Hygienists
Diagnostic Medical Sonographers
First-Line Supervisors/Managers of Office and Administrative Support Workers
Registered Nurses
Radiologic Technologists and Technicians
Sales Representatives, Wholesale and Manufacturing (except technical and scientific)
Sales Representatives, Wholesale and Manufacturing (technical and scientific)

### **E) Hot Jobs That Have Cooled Off**

While some jobs proved to be resilient, maintaining significant vacancy rates and wages even during the recession, other jobs from the 2007 Hot Jobs list no longer meet Hot Jobs criteria. (See **Table 4.**) According to the Commonwealth's Civil Service Division, budget cuts forced 12 communities across the state to lay off 112 firefighters and 118 police officers.<sup>15</sup> Those cuts may help explain why the firefighter, police and sheriff's patrol officer occupational categories experienced vacancy rate reductions of 290 positions (for firefighters) and 253 (for police and sheriff's patrol officers) from 2006 to 2008.

Postal carriers, executive secretaries, and licensed practical and vocational nurses are no longer on the list because the wages are not high enough to be family-sustaining. However, these last two positions may still be good stepping-stone jobs to positions that pay family-sustaining wages, especially for individuals willing to invest in education to specialize and advance. These occupations continue to have high vacancy numbers. The other jobs that have been removed from this year's Hot Jobs list no longer have vacancy numbers that meet the Hot Jobs criteria.

**TABLE 4: Previous Hot Jobs No Longer Included on the List**

Occupation Name	Reason for Removal from the New List
Bus and Truck Mechanics and Diesel Engine Specialists	Low vacancy and low wages
Cardiovascular Technologists and Technicians	Low vacancy
Carpenters	Low vacancy
Compliance Officers (except agriculture, construction, health and safety, and transportation)	Low vacancy
Electricians	Low vacancy
Executive Secretaries	Low wages
Firefighters	Low vacancy
First-line Supervisors/Managers of Non-retail Sales Workers	Low vacancy
First-line Supervisors/Managers of Production and Operating Workers	Low vacancy
Food Service Managers	Low vacancy and low wages
Heating, Air Conditioning, and Refrigeration Mechanics	Low vacancy
Legal Secretaries	Low vacancy
Licensed Practical and Vocational Nurses	Low wages
Plumbers, Pipefitters, and Steamfitters	Low vacancy
Police and Sheriff's Patrol Officers	Low vacancy
Postal Workers	Low wages
Respiratory Therapists	Low vacancy
Tool and Die Makers	Low vacancy and low wages

## VI. POTENTIAL HOT JOBS OF THE FUTURE

### A) Green Jobs

The clean energy industry may emerge as a new field of growth in the near future. The Obama Administration allotted \$100 billion towards federal environmental spending in the 2009 American Recovery and Reinvestment Act. “Green jobs”<sup>16</sup> have been touted by many as the future salvation of the United States economy and labor force. Indeed, many workforce development experts have singled out such jobs as having key potential for entry-level workers—jobs that will not require extensive post-secondary education but will pay a living wage. But there are still many unanswered questions about green jobs. It remains unclear exactly how many of these jobs will be created in Massachusetts,

what they will pay, and what their educational and experience requirements will be. However, as many workforce development experts argue, this is an important area to watch for future opportunities.

According to the Center for American Progress and the Political Economy Research Institute (PERI) at the University of Massachusetts, Amherst, green jobs are divided into six environmental initiatives including building retrofitting, mass transit/freight rail, smart grid, wind power, solar power, and advanced biofuels. Each field is expected to see growth in Massachusetts due to federal stimulus money. Three in particular, building retrofitting, wind power, and solar power, are expected to require the largest amount of financial and human

capital investment in Massachusetts.<sup>17</sup> However, even if specific jobs in the green industry are identified as providing a large amount of growth, it could take up to five years for them to become well established.

Also unclear are green job salaries and benefits. PERI used its study *Green Prosperity: How Clean-Energy Policies Can Fight Poverty and Raise Living Standards in the United States* to describe the eventual salaries that certain green jobs would generate. According to this study, mid-credential jobs (requiring at most an associate's degree) and low-credential jobs (requiring a high school degree or less) would result in 76.6% of all green jobs created through stimulus projects.<sup>18</sup> Furthermore, 28.7% of low-credential jobs are said to have decent earning potential, starting out at \$15 per hour and increasing thereafter.<sup>19</sup> The study also concludes that these low-credential green jobs will lead to more opportunities for advancement than other low-credential jobs.<sup>20</sup>

However, other sources are less optimistic. According to the report *High Road or Low Road? Job Quality in the New Green Economy*, a green job does not necessarily equal a well-paid job.<sup>21</sup> Good Jobs First, the organization that published this report, researched wages of twenty different wind and solar manufacturing plants across the United States. Out of the 20 plants whose production jobs they researched, more than one quarter did not pay employees enough to support a single parent/child household.<sup>22</sup>

One reason for such low pay in many of these plants is the lack of adequate wage requirements attached to economic subsidies.<sup>23</sup> Thus, it is quite possible that simply creating green jobs in an existing industry (such as construction) is not enough. Without adequate wage requirements, low-pay work could be the reality for green jobs everywhere—including Massachusetts. Lastly, since construction has taken such a big hit in the recession, there are significant numbers of unemployed or underemployed individuals with experience in the building trades who may seek any newly created green jobs. This forecasts that it may be difficult for newcomers to enter the field, at least in our current economy.

## B) Biotechnology/Biopharmaceutical Jobs

Biotechnology and biopharmaceutical companies have a large presence in Massachusetts. According to the Massachusetts Biotechnology Council ([www.massbio.org](http://www.massbio.org)), more than 430 biotechnology companies located in Massachusetts employ approximately 45,905 employees in the state and pay out over \$4 billion in payroll. In contrast to overall Massachusetts employment, which declined by 1.7% from 2001 to 2007, employment in the state's biopharmaceutical industry grew by 42.6% from 2001 to 2008.

To continue thriving here, biotechnology companies must keep hiring talented individuals. By one estimate of projected occupational growth in the life sciences, approximately 18% of all positions will require an associate's degree or less. However, individuals with a bachelor's degree will meet the educational requirements for close to half of all projected positions.<sup>24</sup>

The University of Massachusetts Donahue Institute created a list of 112 life science occupations projected for growth over the next ten years. From this list, we identified occupations that can be pursued with an associate's degree or less and the wages they pay. Included in **Table 5** on the following page are some examples of entry-level occupations as well as alternate job titles and approximate wages.

While the positions in the biotechnology industry that require an associate's degree or less do not meet the Hot Jobs wage criteria, they do represent solid stepping-stone jobs that offer good entry-level wages coupled with comprehensive benefits and advancement opportunities. For instance, a quality control analyst makes approximately \$37,070 a year on average, which is below the 2010 wage standard for self-sufficiency. But many biotechnology companies offer basic health and dental coverage, as well as professional development programs and tuition reimbursement. Furthermore, while many manufacturing sectors in the U.S. are becoming obsolete, pharmaceutical manufacturing is expected to expand in the coming years across the country.<sup>25</sup> Even if an entry-level salary for an individual is not high, engaging in this expanding line of work may be a secure means to support an individual and family over the long term.

**TABLE 5: Examples of Hot Jobs of the Future**

Name of Occupation	Alternate Job Titles	National Annual Average Salary at Pharmaceutical Companies <sup>26</sup>
Inspectors, Testers, Sorters, Samplers, and Weighers	Quality Control Analyst, Lead Manufacturing Technician	\$37,070
*Medical and Clinical Laboratory Technologists	n/a	\$52,080
Bill and Account Collectors	n/a	\$35,810
Purchasing Agents	Inside Sales Person	\$59,700
*Customer Service Representatives	Pharmaceutical Sales/Medical Device Sales Representatives	\$36,840
Bookkeeping, Accounting, and Auditing Clerks	n/a	\$39,620
Computer Support Specialists	Documentation Specialist	\$48,770

\*Strong preference for a bachelor’s degree, but may take individual with past experience in biotech or pharmaceutical companies.

A number of programs are already in place at community colleges and technical institutes for those who are interested in entering the biotechnology/biopharmaceutical field. Some are directed at training individuals to perform a specific task, much like the Boston Teaching Hospital Medical Laboratory Technician Initiative.<sup>27</sup> Other programs at community colleges prepare students to work in a biomedical

lab upon graduation or allow them to transfer to a four-year institution.<sup>28</sup> Technical institutes and community colleges offer courses towards advancing careers of individuals already in the biopharmaceutical/biotechnology field.<sup>29</sup> All these educational opportunities promote career advancement for those already working in biotechnology and those planning to enter this field.

## VII. CONCLUSION

The midst of a period of high unemployment is a difficult time to write a report on Hot Jobs. We are bombarded daily with reports on rising unemployment and increased financial hardship. The people hit the hardest during a period like this are always those most vulnerable, with little or no financial safety net, limited education, and limited employment skills.

But even while it is hard to report on diminished opportunities, it is clear that, more than ever, low-income workers need updated guidance about which industries are holding strong, where the job vacancies are,

what employers want in candidates for those positions, and how to invest wisely in education and training for jobs most likely to lead to economic independence.

This report and the accompanying occupation-specific briefs (available on [www.liveworkthrive.org](http://www.liveworkthrive.org)) are designed to help low-income women identify career pathways leading from poverty to economic self-sufficiency. It is also a guide for policy makers and workforce development professionals in forging additional and accessible routes toward economic independence.

## ENDNOTES

1. Prior Hot Jobs reports were based on The Family Economic Self-Sufficiency Standard (FESS), which was first published by the Women's Educational and Industrial Union in 1998 and then updated in 2003 and 2006 with partners Diana Pearce and Wider Opportunities for Women. The Standard provided an alternative to the federal poverty guidelines and was widely used by state agencies and nonprofit organizations. In 2009, Crittenton Women's Union contracted with Wider Opportunities for Women to develop an updated budget tool, the Massachusetts Economic Independence Index (Mass. Index). More information about FESS and the Mass. Index is available at [www.liveworkthrive.org](http://www.liveworkthrive.org).
2. Only Alaska and North Dakota have experienced increased employment levels, but these increases have been meager.
3. P.E. Harrington and N.P. Fogg, *Some Impacts of the National Economic Crisis on the Massachusetts Labor Market* (Boston, MA: Center for Labor Market Studies, Northeastern University, 2009).
4. *Consumer Price Index for All Urban Consumers (CPI-U)* reported that the cost of living increased 1.8 percent in the twelve months prior to November 2009, when it was updated. Bureau of Labor Statistics Web site: [www.bls.gov](http://www.bls.gov).
5. The Working Poor Families Project, *Working Hard Still Falling Short: New Findings on the Challenges Confronting America's Working Families* (Washington, DC: The Working Poor Families Project, 2008).
6. For more information on "cliff effects," please see *Fits and Starts: The Difficult Path for Working Single Parents* (Boston, MA: Crittenton Women's Union and the Center for Social Policy at the University of Massachusetts Boston, 2008) and *The Cliff Effect Experience: Voices of Women on the Path to Economic Independence* (Boston, MA: Crittenton Women's Union, 2009). Web site: [www.liveworkthrive.org](http://www.liveworkthrive.org).
7. Details on the methodology for developing the latest Mass. Index budgets are available at Web site [www.liveworkthrive.org](http://www.liveworkthrive.org).
8. Bureau of Labor Statistics, *Occupational Outlook Handbook* (Washington, DC: U.S. Department of Labor, 2008–2009). Web site: [www.bls.gov](http://www.bls.gov).
9. P.E. Harrington and N.P. Fogg, *Some Impacts of the National Economic Crisis on the Massachusetts Labor Market* (Boston, MA: Center for Labor Market Studies, Northeastern University, 2009).
10. Mary Lassen, *Massachusetts Community Colleges: The Potential for Improving College Attainment* (Boston, MA: The Boston Foundation, 2007).
11. Crittenton Women's Union, *Unlocking the Doors to Higher Education and Training for Massachusetts Working Poor Families* (Boston, MA: Crittenton Women's Union, 2007).
12. U.S. Census Bureau, *2000 Census of Population and Housing, Demographic Profile*. Updated every 10 years. Web site: <http://factfinder.census.gov>.
13. Bureau of Labor Statistics, *Tomorrow's Jobs* (Washington, DC: U.S. Department of Labor, 2009), 2. Web site: [www.bls.gov](http://www.bls.gov).
14. Ibid.
15. Office of Governor Deval L. Patrick, *\$20 Million in Federal Stimulus Funds Committed to Massachusetts Fire Departments* (Boston, MA: Commonwealth of Massachusetts, 2009). Web site: <http://www.mass.gov>.
16. Green jobs, also called **green-collar jobs**, are defined by the United Nations Environment Program as "work in agricultural, manufacturing, research and development (R&D), administrative, and service activities that contribute(s) substantially to preserving or restoring environmental quality. Specifically, but not exclusively, this includes jobs that help to protect ecosystems and biodiversity; reduce energy, materials, and water consumption through high-efficiency strategies; de-carbonize the economy; and minimize or altogether avoid generation of all forms of waste and pollution."
17. R. Pollin et al, *Green Economic Recovery Program: Impact on Massachusetts, Part of a National Program to Create Good Jobs and Start Building a Low-Carbon Economy* (Amherst, MA: Center for American Progress, Political Economy Research Institute, University of Massachusetts, Amherst, 2009).
18. R. Pollin et al, *The Economic Benefits of Investing in Clean Energy: How the Economic Stimulus Program and New Legislation Can Boost U.S. Economic Growth and Employment* (Amherst, MA: Center for American Progress, Political Economy Research Institute, University of Massachusetts, 2009), 38.
19. Ibid.
20. Ibid.
21. P. Mattera et al, *High Road or Low Road? Job Quality in the New Green Economy* (Washington, DC: Good Jobs First, 2009). The lowest wage that was researched was \$11.00 an hour at L.M. Glasfiber plant in North Dakota, while the highest hourly wage was \$22.28 an hour at Sanyo Solar in Oregon.
22. Ibid.
23. Ibid.
24. University of Massachusetts Donahue Institute, *Growing Talent: Meeting the Evolving Needs of the Massachusetts Life Sciences Industry* (Boston, MA: University of Massachusetts Donahue Institute, 2008), 14. Web site: [www.donahue.umassp.edu](http://www.donahue.umassp.edu).
25. Executive Office of the President, *Preparing the Workers of Today for the Jobs of Tomorrow* (Washington, DC: Executive Office of the President of the United States, Council of Economic Advisers, 2009), 6. Web site: [www.whitehouse.gov/administration/eop/cea/Jobs-of-the-Future/](http://www.whitehouse.gov/administration/eop/cea/Jobs-of-the-Future/).
26. U.S. Department of Labor, Bureau of Labor Statistics, 2008.
27. Program connects students to training both in the classroom and in hospital settings. University of Massachusetts Donahue Institute, *Growing Talent: Meeting the Evolving Needs of the Massachusetts Life Sciences Industry* (Boston, MA: University of Massachusetts Donahue Institute, 2008). Web site: [www.donahue.umassp.edu](http://www.donahue.umassp.edu)
28. For example, Bunker Hill Community College in Boston offers a biotechnology and biological sciences option. According to Bunker Hill's Web site, "This program offers two degree options: Biology Transfer and Biotechnology. Each option prepares students for employment and for transfer to four-year colleges and universities. It engages students in industry-level, inquiry-based laboratory activities in order to develop and strengthen their critical thinking as well as their industry skills." Web site: [www.bhcc.mass.edu](http://www.bhcc.mass.edu).
29. For example, Middlesex Community College offers an associate's degree in science, specializing in developing skills toward becoming a biotechnology technician. Middlesex Community College's Web site states, "Graduates of this program work in various departments and roles within the biotechnology industry. Some of the positions that MCC graduates have held include lab technician, cell culture technician, research technician, microbiology technician, chemistry associate, process operator, quality assurance manager and supervisors in various departments." Web site: [www.middlesex.mass.edu](http://www.middlesex.mass.edu).

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