

April 2013

Ensuring America's Competitiveness: Latinos Solving the Workforce Crisis in the Oil and Natural Gas Industry

Daniel M. Lind, CHCI-API STEM Graduate Fellow

Abstract

Energy security and workforce development of the Latino population are important to the U.S. energy industry as well as the economic development of the U.S. The oil and gas industry offers many career paths to those interested in pursuing opportunities in the energy industry, and many of these jobs typically pay above-average salaries. One of the biggest barriers to Latino involvement in the industry is the low high school graduation rate, in addition to the lack of knowledge of the available opportunities in the oil and gas industry and the sheer impact that the industry has on the daily life of people in the U.S. The oil and gas industry will continue to grow throughout the coming decades and has the opportunity to accelerate economic growth through the policy recommendations mentioned in this brief. The development of the Latino workforce can also be improved both in the short and long term by the policy recommendations and best practice examples included in this brief. This brief serves to educate policy-makers and stimulate discussion on how to ensure America's energy security in the present and future, as well as how to better the lives of a growing segment of America's population, which by 2050 could be almost one-third of Hispanic descent (29%), thereby advancing economic development of the US.¹

Hispanic Employment, Education, and Earnings in the U.S.

Latinos made up almost 15% of the U.S. labor force in 2010 and are projected to make up almost 19% by 2020, adding 7.7 million jobs, and accounting for the vast majority (74%) of workers added in this timeframe. This fact is due to the relative youth and higher growth rate of the Hispanic population.² The Latino workforce size was at 20.7 million, as of the fourth quarter of 2011; an increase of 6.5% over the two years prior.³ In 2011, the unemployment rate in the U.S. was 8.9% (13.7 million people) and Hispanic unemployment was at 11.5%. While about 90% of Whites, Blacks, and Asians age 25 and older in the labor force had at least a high school degree, only 69% of Hispanics had completed high school. Similarly, Hispanics have the lowest bachelor's degree completion rate at just 16%.⁴

The share of the Hispanic population with a high school education lags the national average by 23 points as of 2011.^{5 6} Organizations such as the Society of Hispanic Professional Engineers (SHPE), Latinos in Science and Engineering (MAES), Society for Advancement of Chicanos and Native Americans in Science (SACNAS), and Great Minds in STEM (GMIS) are just a few of the organizations working to combat this problem, while promoting student interest in Science, Technology, Engineering,

and Mathematics (STEM) As an example, SHPE holds events called Noches de Ciencias (translated: Nights of Sciences) across the country to work on educating students and parents alike while GMIS holds Viva Technology Days, full of hands-on educational and engineering activities for students.^{7 8} For reference, SHPE alone has 9,400 members nationwide as of 2011–2012; therefore these organizations have strong networks to reach the Hispanic student community.⁹ Federal agencies are getting involved as well, such as the Naval Sea System's Command, a part of the U.S. Navy, that has recently committed to hosting 150 of the SHPE events. The Department of Energy is doing similar work in K–12 grades to get *teachers* excited about *teaching* STEM; focusing on the key elements of exposure to STEM related topics and activities, as well as training instructors to have a "STEM mindset." At the industry level, there are examples of organizations, such as Hispanics in Energy, being created to increase the numbers of Latinos that assist the development of Latinos in the oil and gas industry.¹⁰

Engagement has been identified as a key step in high school dropout prevention. Factors that have been identified as critical to addressing high school dropouts include: low total engagement of students and a lack of programs that are geared toward addressing students at-risk of dropping out. In order to more fully

Up to half of the technical jobs in the industry will be turning over in the next 7–10 years, creating a large number of job opportunities to be filled by new talent.²⁰

engage students, mentorship, case workers, afterschool activities, in-school pullout programs, peer mentorship, and programs that address the range of academic, social, and personal issues that students may face, are identified as having a positive effect on high school dropout prevention.¹²

The median weekly earnings of full-time wage and salary workers that are Hispanic was \$549 in 2011, the lowest of all racial ethnic groups. However, Hispanics have a significant potential to increase their earnings with higher education, with the median usual weekly earnings of a Hispanic 25 or older increasing 239% when compared to a worker with less than a high school diploma (earning \$419) and a worker with a bachelor's degree or higher (earning \$1,000).¹³ Therefore, despite the fact that workforce trends project positive growth for Latinos and the potential for Latino families to earn more is vast, education is the primary catalyst in granting Latinos the available opportunities to progress, as Latinos are not completing high school and are not aware of the careers possible in the oil and gas industry with varying levels of educational attainment.

Oil and Gas Industry Overview

The oil and gas industry could add nearly 1.4 million jobs by 2030 through policies that encourage development of domestic oil and gas resources, which is three times the number of jobs projected under current policies. As of 2010, 38% of the U.S. liquid fuel supply consisted of imports from the rest of the world. Under the current energy policies in effect today, by 2024, the U.S. is expected to reduce this amount to 24%. With accelerated development policies in place, the U.S. could reduce this amount all the way to 0%, thus supplying all of its own liquid fuel demand and possibly becoming a net ex-

porter.¹⁴ The energy self-sufficiency of the U.S. is directly linked to the need to have more U.S. workers support the oil and gas industry. An example of the promise of domestic energy development is currently taking place in North Dakota, which has the nation's lowest unemployment rate, at 3%, and has a surplus of \$1 billion – all because of horizontal drilling and hydraulic fracturing technology used to tap resources in the Bakken shale formation.¹⁵

A basic educational requirement for many jobs in the industry is a high school diploma; with a diploma in-hand, an individual's career can progress in the oil and gas industry, specifically in construction and extraction, through well-established career paths that lead to promotions and other job paths through on-the-job skills training.¹⁶ As workers gain more on-the-job experience, they can move up to higher paying jobs that require greater skill. For example, a *roustabout* (typically, a new worker on an oil field) may become a rotary helper and advance to *derrick operator* and then *driller*. A similar progression is available to service workers as well.¹⁷

The U.S. refining sector of the oil and gas industry alone supports over 500 thousand jobs with an average annual income of almost \$95,000.¹⁸ In 2011, jobs created in the oil and gas industry paid \$12,000 higher than the national average. Currently in North Dakota, the average salary of workers in an oil and gas occupation is double the average salary of others in non-oil and gas occupations.¹⁹

Up to half of the technical jobs in the industry will be turning over in the next 7–10 years, creating a large number of job opportunities to be filled by new talent.²⁰ For every direct job created, three or more indirect and induced jobs are also created in the U.S. economy; and for every direct

job offshore, the industry supports three indirect and induced jobs onshore.²¹ These jobs range from drilling engineers who extract oil and gas, to machinists who create manufacturing equipment, to information technology support personnel, to cooks, suppliers, and other service personnel that work in the energy field.²²

The responsibility of preparing the future workforce and increasing awareness of opportunities also falls on the industry itself. The industry has to spread knowledge of the many opportunities available in the energy field and how the oil and gas supply chain affects businesses, workers, and communities.

Hispanic Employment in the Oil and Gas Industry

Among the top fifteen states with highest employment impact from the oil and gas industry are 10 of the most highly populated Latino states.^{23 24} Nearly half (47%) of all Latinos live in California and Texas alone, which are the top two states with highest employment impact from the oil and gas industry as of 2009 (the latest information available at the time of this brief) and are also among the top three states conferring certificates or degrees to Latinos (as of 2009–2010).^{25 26}

The baseline potential job creation in the upstream oil and gas industry for Hispanics between 2010–2020 is projected to be 60 thousand jobs (or 26% of the total industry growth); however, with pro-development policies in place, this raw number more than doubles to 126 thousand jobs during the same timeframe (or 24% of the total industry growth).

Hispanic employment growth is projected to show such large gains due to the rapid growth of the Hispanic population, the

Between 2001–2010, Hispanics accounted for 8.6% of all bachelor degrees earned in the U.S. and 8.8% of all degrees earned that are directly applicable or related to the oil and gas industry (such as petroleum engineering and earth sciences).

high labor force participation rate (2.5 points above the U.S. average, due to the young average age of the Hispanic population), and the relatively low projected unemployment rate (currently about 2 percentage points above the national average, but projected to narrow to 0.8 percentage points by 2020). Over half of these projected jobs would be skilled and semi-skilled blue collar jobs; a high school education combined with some additional training could establish the competitiveness of workers for many of these well-paying jobs.²⁷ Hispanics accounted for over 136 thousand of the oil and gas industry's labor force as of 2010 (or 18.9%), with more than three-quarters (77%) of the 136 thousand jobs being blue-collar jobs (skilled, semi-skilled, or unskilled; such as first-line supervisors, carpenters, electricians, crane operators, roustabouts, welders, truck drivers, construction laborers, and others).

Between 2001–2010, Hispanics accounted for 8.6% of all bachelor degrees earned in the U.S. and 8.8% of all degrees earned that are directly applicable or related to the oil and gas industry (such as petroleum engineering and earth sciences). Latinos accounted for 14.3% of all associate degrees and certificates awarded during this timeframe and 10.1% of those where skills could be applicable to the oil and gas industry (although it should be noted that nearly all of these skills are also applicable to other parts of the economy, especially the construction sector, therefore the oil and gas industry must compete for this labor pool of workers with associate degrees or certificates).²⁹

Policy Recommendations

Pro-development policies, a return to pre-moratorium levels of drilling and permitting in the offshore Gulf of Mexico, preventing unduly burdensome environmental regulation of future oil and gas

exploration both on and offshore, and allowing permitting levels to be at sufficient rates to develop resources in a timely manner are all identified as key federal policy issues to accelerate the growth of the oil and gas industry through 2030. As a recent article in *Oil and Gas Journal* indicates, "Policies to restrict carbon emissions potentially could inhibit significant production growth from U.S. shale gas formations."³⁰

In the coming decades, a sustained federal effort focusing on STEM related disciplines starting in primary education and continuing through secondary school, vocational training and 2-year and 4-year college programs is necessary in order for the growing Latino population to remain a competitive workforce in the oil and gas industry and help meet the growing energy demands of the U.S.³¹

At the higher education level, the following points and recommendations should be considered:

1. At the federal level, increased investments in minority serving institutions such as Hispanic Serving Institutions (HSIs) have been identified as a viable option to broaden participation in the STEM fields, in addition to increased financial support for minority undergraduate STEM students, improved transition to graduate school, and increased availability of research assistantships for minority STEM students.³² "Over half (53%) of Latino undergraduates were enrolled at Hispanic Serving Institutions (HSIs) in 2010–2011 and HSIs are very concentrated geographically, with almost 75% of them located in California, Texas, New Mexico, and Puerto Rico."³³ However, it is important to note that focusing on HSIs may not be the complete solution, as this would create a gap in serving the Latino undergraduates (47%) across the other 47 states in

the country; ensuring that students at HSIs are mobile enough to move to job opportunities outside of the most concentrated regions is another key point to consider in legislation.

2. At the industry level, the responsibility lies on industry leaders to increase exposure to the available opportunities in the oil and gas industry. A recent example is the formation of The President's Council on Jobs and Competitiveness (Jobs Council). The Jobs Council was created to provide non-partisan advice to the President on continuing to strengthen the nation's economy, ensure the competitiveness of the United States and on creating jobs, opportunity, and prosperity for the American people. All the companies that are represented on this council have committed to doubling their engineering internships for students in STEM fields, in order to aid in reaching President Obama's goals of graduating and retaining 10,000 more engineers annually.³⁴ Private companies taking such initiative give a clear message that they are investing in the country and in the students whom they hire for internships, which makes a strong impression on students in terms of the career decisions they make.

At the secondary education level, the following points and recommendations should be considered in regards to federal policymaking.

1. Creating a network of support and enrichment for secondary school students whose families cannot provide the appropriate resources can be accomplished by an increase in the investment made on students in K–12 education; specifically, a 50% increase in the national average of per pupil expenditures (as compared to 2006 levels of investment in K–12) would make a significant contribution toward this goal.³⁵

Factors identified as positively influencing the success of minority students in STEM include increased parental involvement, bilingual education availability, culturally relevant pedagogy (or cultural congruity), minority role models, minority relations staff, early exposure to STEM fields, and STEM-related educational opportunities and support programs.^{37 38}

2. Incentivizing public-private partnerships which promote excellence in STEM education, developing STEM networks which facilitate and strengthen effective programs and collaboration and increasing grant funding to encourage educational technology innovations, are all concepts demonstrated by the proposed legislation in the House of Representatives, specifically in the Stepping Up to STEM Education Act, and which all have a great potential in increasing the STEM workforce for the future in the US.³⁶

3 Factors identified as positively influencing the success of minority students in STEM include increased parental involvement, bilingual education availability, culturally relevant pedagogy (or cultural congruity), minority role models, minority relations staff, early exposure to STEM fields, and STEM-related educational opportunities and support programs.^{37 38} Consequently, Congress asked the National Academies in 2010 to identify the top priority policy issues to address these issues and increase minority STEM participation, which include improved teacher preparedness, better advanced courses and academic advising for minority students. These areas should remain the focus of federal policy programs.

4. Increasing innovation funds that promote engagement of students through dropout prevention and even credit recovery (for those students who are deemed 'disconnected youth' who have dropped out, to return to school) are key federal recommendations in order to improve the Latino dropout rate and grant Latinos a better chance at taking advantage of the job opportunities in the oil & gas industry.

5. Increasing STEM education at an early age is critical for future workforce development. For example, industry led coalition building, specifically the manufacturing industry, partnered with vocational-tech high schools in order to renew interest and excitement in STEM; there have also been innovative ideas to accomplish this renewed spirit in STEM, such as a mobile training unit tour bus used for hands-on introduction to manufacturing, in addition to taking students on plant tours of industry facilities. Industry can also have a voice at the table by joining K-12 school advisory boards.³⁹ Additionally, media can be an important tool to employ, as movies and television reach a majority, if not all, of the people living in the US; 'cool' role models like the recent *Iron Man* movies, have the potential to inspire future generations to pursue STEM fields, as research shows media can "exert a demonstrable impact on children's occupational knowledge and role identification."⁴⁰ An example of proposed legislation currently in the House of Representatives focused on early STEM education is the Elementary Educator STEM Content Coach Act, which aims to develop STEM skills and knowledge in teachers to effectively and efficiently teach elementary students.⁴¹

Finally, at the current workforce level, the following points and recommendations should be considered in federal policy-making:

1. The U.S. Department of Labor's Employment and Training Administration developed programs such as the Hispanic Worker Initiative (HWI) and the High Growth Job Training Initiative (HGJTI), aimed at worker training and career development resources which help workers gain the skills needed to build successful careers. Both of these programs have had connections to the oil and gas

extraction industry in the past, offering two examples at the High Plains Technology Center in Oklahoma and the San Juan College Regional Training Center in New Mexico — these schools offered "bilingual, energy-related courses and hands-on training programs, and work with local oil and gas employers for job placement, retention and advancement opportunities."⁴² Although evaluation of the HWI and HGJTI programs show mixed results, government initiatives such as these have the potential to lead to results for Latino workforce development in the oil and gas industry if appropriate monitoring and grant-awarding processes are implemented.^{43 44}

2. Vocational training and certificate programs that teach the required skills necessary to enter the oil and gas industry, where one is then able to continue their on-the-job skills learning, can be a viable segway for Latinos to enter the industry and provide the missing link for Latinos to get their 'foot in the door' of an oil and gas career.

3. Public-private partnerships between educational institutions and industry companies can help fill the needs of particular areas where labor supply is needed. For example, The University of Houston created the nation's first subsea engineering certificate and degree program in response to the needs of the offshore petroleum industry, with courses being taught by industry leaders.⁴⁵

Summary

The oil and gas industry, as well as the Latino population in the US, are both booming in terms of their significance for the energy security and economic development of the US. The Latino workforce is a large and underutilized resource of the U.S. labor supply, and the Latino work-

The fastest growing jobs in the industry are skilled and semi-skilled blue collar jobs. There are significant opportunities for Latinos throughout the oil and gas industry currently and well into the future at each level of education and training.

force is only expected to become larger in the near future.⁴⁶

Concurrently, oil and gas is, and will continue to remain, the main source of fuel for decades while alternate forms are developed to be more, cost effective. A high school education combined with some additional post-high school vocational training could establish the competitiveness of workers for many of the well-paid jobs in the oil and gas industry. The fastest growing jobs in the industry are skilled and semi-skilled blue collar jobs. There are significant opportunities for Latinos throughout the oil and gas industry currently and well into the future at each level of education and training.

Pro-development policies at the federal level are identified as key in order to accelerate the growth of the oil and gas industry through 2030. Latinos have the lowest high school graduation rates, and this needs to be remedied in order for the growing Latino population to meet the workforce needs of the oil and gas industry. In the coming decades, a sustained federal effort focusing on STEM related disciplines starting in primary education and continuing through secondary school, vocational training and 2-year and 4-year college programs is necessary in order for the growing Latino population to develop into its full potential as a competitive workforce in the oil and gas industry. The industry also needs to act more to broadcast the impact the oil and gas industry has on everyday lives and the workforce opportunities available for Latinos to consider. By overcoming the educational barriers, Latinos can solve the upcoming workforce crisis in the oil and gas industry and can play a pivotal role in the energy industry and economic development of the United States.

Endnotes

1. Pew Research Social & Demographic Trends. "A Milestone En Route to a Majority Minority Nation." Released November 7, 2012. Accessed January 17, 2013. <http://www.pewsocialtrends.org/2012/11/07/a-milestone-en-route-to-a-majority-minority-nation/>
2. Kochhar, Rakesh. "Labor Force Growth Slows, Hispanic Share Grows." Pew Research: Social & Demographic. February 13, 2012. Accessed on February 5, 2013. <http://www.pewsocialtrends.org/2012/02/13/labor-force-growth-slows-hispanic-share-grows-2/>
3. Kochhar, Rakesh. "The Demographics of the Jobs Recovery: Employment Gains by Race, Ethnicity, Gender, and Nativity." Pew Research Center: Pew Hispanic Center. March 21, 2012.
4. Solis, Hilda L., and Galvin, John M. U.S. Department of Labor, U.S. Bureau of Labor Statistics. "Labor Force Characteristics by Race and Ethnicity, 2011." August 2012. Report 1036.
5. Latino and Hispanic are used interchangeably throughout this report.
6. IHS Global Inc. "Employment Outlook for African Americans and Latinos in the Upstream Oil and Natural Gas Industry." November 2012. Pg 35.
7. Society of Hispanic Professional Engineers (SHPE). "SHPE: Noche de Ciencias (Science Night)" Accessed on March 4, 2013. <http://www.shpefoundation.org/pre-college/noches-de-ciencias-family-science-nights/>
8. Great Minds in STEM. "K-12 Education" Accessed on March 4, 2013. <http://www.greatmindsinstem.org/k-12/viva-technology-student-day>
9. Society of Hispanic Professional Engineers (SHPE). "SHPE 201 Presentation: In-depth review of what SHPE offers you!" Accessed March 4, 2013. <http://shpe.org/index.php/shpe-201>
10. Hispanics in Energy. http://hispanicsinenergy.com/Home_Page.html Accessed March 18, 2013.
12. Fernandes-Alcantara, Adrienne L. and Gabe, Thomas. "Disconnected Youth: A Look at 16- to 24-Year Olds Who Are Not Working or In School." December 16, 2011. 7-5700: R40535. Congressional Research Service, www.crs.gov
13. Institute of Education Sciences (IES). "IES Practice Guide: Dropout Prevention." NCEE 2008-4025, U.S. Department of Education. September 2008.
14. Solis, Hilda L., and Galvin, John M. U.S. Department of Labor, U.S. Bureau of Labor Statistics. "Labor Force Characteristics by Race and Ethnicity, 2011." August 2012. Report 1036.
15. American Petroleum Institute (API). "Energy Security." Accessed on January 17, 2013. http://api.org/~media/Files/Policy/American-Energy/Energy_Security_Update.pdf
16. American Petroleum Institute (API). "American Made Energy Report to the Platform Committees." Accessed on January 17, 2013. http://api.org/policy-and-issues/policy-items/american-energy/~media/Files/Policy/American-Energy/American-Made-Energy_HiRes.ashx
17. Bureau of Labor Statistics. "What Oil and Gas Workers Do." Accessed January 17, 2013. <http://www.bls.gov/ooh/construction-and-extraction/oil-and-gas-workers.htm#tab-2>
18. Bureau of Labor Statistics. "How to Become an Oil and Gas Worker." Accessed January 17, 2013. <http://www.bls.gov/ooh/construction-and-extraction/oil-and-gas-workers.htm#tab-4>
19. Wood Mackenzie, "Outsourcing U.S. Refining? The Case for a Strong Domestic Refining Industry," June 2011. Available at: http://www.api.org/~media/Files/Oil-and-Natural-Gas/Refining/API_Case_for_US_Refining_WoodMackenzieReport.pdf
20. U.S. Department of Labor, Bureau of Labor Statistics, "Quarterly Census of Employment and Wages," 2011. Available at: <http://www.bls.gov/cew/>

21. Jack Gerard delivers State of American Energy address. January 8, 2013. <http://www.api.org/news-and-media/testimony-speeches/2013/jack-gerard-state-of-america-energy-address-jan-8-2013> Accessed March 18, 2013.
22. PricewaterhouseCoopers LLP, "The Economic Impacts of the Oil and Natural Gas Industry on the U.S. Economy in 2009: Employment, Labor Income and Value Added," May 2011. Available at: http://www.api.org/policy/americanatowork/upload/EconomicImpacts_of_Industry_on_US_Economy_in_2009.pdf
23. Quest Resources, "The State of the Offshore Oil and Gas Industry, An In-depth Study of the Outlook of the Industry Investment Flows Offshore," December 2011. Available at: http://energytomorrow.org/images/uploads/Quest_2011_December_29_Final.pdf
24. Motel, Seth. "Statistical Portrait of Hispanics in the United States, 2010." Pew Hispanic Center; February 21, 2012. Table 13. <http://www.pewhispanic.org/2012/02/21/statistical-portrait-of-hispanics-in-the-united-states-2010/>
25. PricewaterhouseCoopers (pwc), "The Economic Impacts of the Oil and Natural Gas Industry on the US Economy in 2009: Employment, Labor Income and Value Added," May 2011. Available at: http://www.api.org/policy/americanatowork/upload/EconomicImpacts_of_Industry_on_US_Economy_in_2009.pdf
26. Motel, Seth and Patten, Eileen. "Statistical Portrait of Hispanics in the United States, 2011." February 15, 2013. <http://www.pewhispanic.org/2013/02/15/statistical-portrait-of-hispanics-in-the-united-states-2011/> Accessed on February 26, 2013.
27. Santiago, Deborah and Soliz, Megan. "Finding Your Workforce: The Top 25 Institutions Graduating Latinos in STEM by Academic Level – 2009-2010." Excelencia in Education, July 31, 2012: pg. 1.
29. IHS Global Inc. "Employment Outlook for African Americans and Latinos in the Upstream Oil and Natural Gas Industry." November 2012. 102 pgs.
30. The IHS Global Inc. report on "Employment Outlook for African Americans and Latinos in the Upstream Oil and Natural Gas Industry" only considers the upstream oil and gas industry. The upstream oil and gas industry in IHS' report takes into account the oil and gas extraction industry, the support activities for the mining industry, and other industries that are involved in oil exploration and site preparation.
31. IHS Global Inc. "Employment Outlook for African Americans and Latinos in the Upstream Oil and Natural Gas Industry." November 2012. Pgs 62-63.
32. Oil & Gas Journal. "Carbon policies may limit shale gas production growth, expert warns." November 29, 2012. Accessed January 17, 2013. <http://www.ogj.com/articles/2012/11/carbon-policies-may-limit-shale-gas-production-growth-expert-warns.html?cmid=EnLNGDecember182012>
33. IHS Global Inc. "Employment Outlook for African Americans and Latinos in the Upstream Oil and Natural Gas Industry." November 2012. 102 pgs.
34. Gonzalez, Heather B. and Kuenzi, Jeffrey J. "Science, Technology, Engineering, and Mathematics (STEM) Education: A Primer." November 15, 2012. 7-5700: R42642. Congressional Research Service, www.crs.gov
35. Excelencia in Education. "Hispanic-Serving Institutions (HSIs): 2010-11." Accessed January 17, 2013. http://edexcelencia.org/sites/default/files/hsilist-factsheet-2010-11-final_0.pdf
36. The Jobs Council, "Implementation – Developing Talent." <http://www.jobs-council.com/implementation/> Accessed March 18, 2013.
37. Gandara, Patricia. "Strengthening the Academic Pipeline Leading to Careers in Math, Science, and Technology for Latino Students." *Journal of Hispanic Higher Education*, 2006; 5:222. DOI: 10.1177/1538192706288820. Sage Publications.
38. "Rep Honda Re-Introduces the Stepping Up to STEM Act and the Elementary Educator STEM Content Coach Act" Congressman Mike Honda, United States House of Representatives. March 12, 2013. http://honda.house.gov/index.php?option=com_content&view=article&id=1308:rep-honda-stem-coach&catid=19:press-releases&Itemid=555 Accessed March 18, 2013.
39. Gonzalez, Heather B. and Kuenzi, Jeffrey J. "Science, Technology, Engineering, and Mathematics (STEM) Education: A Primer." November 15, 2012. 7-5700: R42642. Congressional Research Service, www.crs.gov
40. Cole, Darnell and Espinoza, Araceli. "Examining the Academic Success of Latino Students in Science Technology Engineering and Mathematics (STEM) Majors." Project Muse: *Journal of College Student Development*, Volume 49, Number 4, July/August 2008, pp. 285-300 (Article). Published by The Johns Hopkins University Press, DOI: 10.1353/csd.0.0018
41. Maier, Larry. "Building STEM Coalitions." *STEM News*; National Defense Industrial Association (NDIA) News: Associated Briefs. May 2009, pg. 47.
42. Kitzinger, Haran, Chimba, and Boyce. "Role Models in the Media: An Exploration of the Views and Experiences of Women in Science, Engineering and Technology." Cardiff School of Journalism, Media and Cultural Studies, Cardiff University. UK Resource Centre for Women in SET. March 2008; ISBN 978-1-905831-16-6.
43. "Rep Honda Re-Introduces the Stepping Up to STEM Act and the Elementary Educator STEM Content Coach Act" Congressman Mike Honda, United States House of Representatives. March 12, 2013. http://honda.house.gov/index.php?option=com_content&view=article&id=1308:rep-honda-stem-coach&catid=19:press-releases&Itemid=555 Accessed March 18, 2013.
44. Maslowski, Andy. "Hispanic Work Crews." <http://wellservicingmagazine.com/featured-articles/2006/01/hispanic-work-crews/> January 2006.
45. Coffey Consulting and Excelencia in Education, "Evaluation of the Limited English Proficiency and Hispanic Worker Initiative Final Report." December 2009. Prepared for the U.S. Department of Labor Employment and Training Administration.
46. U.S. Department of Labor, Office of Inspector General – Office of Audit, "Selected High Growth Job Training Initiative Grants: Value Not Demonstrated." April 29, 2008. Report Number: 02-08-204-03-390.
47. University of Houston, Cullen College of Engineering, "Subsea Engineering." <http://www.egr.uh.edu/academics/subsea> Accessed March 18, 2013.
48. Gonzalez, Heather B. and Kuenzi, Jeffrey J. "Science, Technology, Engineering, and Mathematics (STEM) Education: A Primer." November 15, 2012. 7-5700: R42642. Congressional Research Service, www.crs.gov