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OF THE  
UNITED STATES OF AMERICA

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October 18, 2011

The Honorable Elton Gallegly  
Chairman  
House Judiciary Committee  
Subcommittee on Immigration Policy and Enforcement  
Washington, DC 20515

The Honorable Zoe Lofgren  
Ranking Member  
House Judiciary Committee  
Subcommittee on Immigration Policy and Enforcement  
Washington, DC 20515

Re: For the hearing record, concerning the October 5, 2011 hearing on:  
***STEM the Tide: Should America Try to Prevent an Exodus of Foreign  
Graduates of U.S. Universities with Advanced Science Degrees?***

Dear Chairman Gallegly and Ranking Member Lofgren:

On behalf of the U.S. Chamber of Commerce, we would like to express our view that immigration reform is one of the most significant areas where Congress can legislate to stimulate job creation and we implore you to take action. The Chamber applauds the Committee for holding this hearing on a topic with direct impact to our nation's economic recovery, and requests that this letter be included in the hearing record, along with the attached (electronic version) of the Executive Summary of our study *Regaining America's Competitive Advantage: Making our Immigration System Work*.

The U.S. Chamber of Commerce is the world's largest business federation, representing more than three million businesses of every size, sector and region across the United States.

As this Committee is undoubtedly aware, the U.S. Chamber has long advocated for workable visa programs for both higher skilled and lesser skilled immigrant workers, both of which play a role in the vitality of the American economy. Neither high-skilled nor lesser skilled worker programs currently function appropriately, or even rationally.

In August 2010, the U.S. Chamber, in conjunction with the American Council on International Personnel, published a study entitled *Regaining America's Competitive Advantage: Making our Immigration System Work*<sup>1</sup> which highlighted that the competition for high-skilled labor is global, not domestic, and that our immigration policy must be amended to reflect this reality. Echoed by other economists, high-skilled immigrants as a group have uniformly been found by empirical evidence to play an important role in innovation.<sup>2</sup> Such workers contribute to creating new jobs as well as retaining positions for U.S. workers.

As recently explained at an event at the U.S. Chamber of Commerce, “Economists typically don’t think that free lunches exist; but permitting more skilled immigrants to enter and stay is about as close as you can get to a free lunch.”<sup>3</sup> As recognized by this Committee, in holding hearings concerning agricultural workers, there is also essential need in our country for lesser skilled workers to perform the hard work in many sectors of our economy with insufficient numbers of U.S. workers.

Our statement today, however, focuses solely on the topic of the hearing: whether reforms are necessary to retain sufficient numbers of Master’s and Doctorate graduates from American universities needed by U.S. businesses in STEM fields (Science, Technology, Engineering and Mathematics). The answer is a resounding yes, and reforms should be made to both our immigration and education system.

## **NEED FOR STEM GRADUATES**

We are witnessing a globalization of research, where both universities and commercial enterprises form transnational agreements to encourage collaborative and interdisciplinary research across borders and in public-private partnership.<sup>4</sup> Coupled with a dramatic shift in both Master’s and Doctoral level research from individual curiosity-driven inquiries to team research on marketable projects,<sup>5</sup> the trend is toward graduate-level STEM degree holders being positioned to make important contributions to U.S. businesses. This certainly complements what U.S. Chamber member companies report about their hiring needs, which are often focused on Master’s level graduates. For example:

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<sup>1</sup> [http://www.uschamber.com/sites/default/files/reports/100811\\_skilledvisastudy\\_full.pdf](http://www.uschamber.com/sites/default/files/reports/100811_skilledvisastudy_full.pdf). Study prepared for the Chamber and ACIP by Stuart Anderson, Executive Director of the National Foundation for American Policy. The study also rebuts misleading allegations by the AFL-CIO concerning the H-1B program.

<sup>2</sup> See, e.g., *From Brawn to Brains*, March 2011, P. Orrenius and M. Zavadny, at Page 11; *Regulating the Recruitment and Employment of Immigrant Workers*, June 2010, Migration Policy Institute, at Page 1.

<sup>3</sup> Comments at U.S. Chamber of Commerce event, *Immigration and American Competitiveness: the Challenge Ahead*, Sept. 28, 2011, by the Federal Reserve Bank of Dallas, Pia Orrenius, PhD.

<sup>4</sup> See, e.g., *Science and Engineering Indicators 2010*, Chapter 2, Higher Education in Science and Engineering (Globalization and Doctoral Education).

<sup>5</sup> See, e.g., *id.*

- ❖ An immigrant who completed a Master's of Science in the U.S. was a sought-after business process innovator, working in the pharmaceutical industry. This individual's business process transformation expertise has been integral to the success and profitability of the life sciences activities of his employer. Moreover, he has made vital contributions to the underlying model for pharmaceutical development in our country, improving health care quality and potential outcomes while reducing costs.
- ❖ A U.S. company established its own Center for Energy, Efficiency and Sustainability in order to integrate best practices for the long-term use of energy and other resources for the company, their customers, and the communities in which the company operates and serves. In recruiting for a position at the Center, the ideal candidate emerged with U.S. Master's level studies and post-completion employment experience in residential thermal energy management, a close connection to one of the company's products. With the academic research record and employment experience, he was uniquely placed to identify breakthroughs in the net-zero energy home space for the company.
- ❖ A Chinese-born engineer developed expertise through his U.S. Master's electrical engineering studies by research projects on excitation controllers and generator excitation systems which directly relate to a U.S. company's power electronics business.

The 2000 census indicated that immigrants comprise approximately half of the scientists and engineers in the U.S. with doctorates, “a remarkable statistic given that they otherwise represent only 12% of the U.S. population.”<sup>6</sup> A focus solely on workers who possess a Doctorate is misplaced, though, since only about 2% of computer, mathematical, and engineering employment is geared for individuals who have earned a Ph.D.<sup>7</sup> Critically, more than 15% of workers in computer, mathematical, and engineering occupations are required to possess a Master's degree.<sup>8</sup> International students presently earn between one-third and one-half of Master's level degrees in fields corresponding to these occupations.<sup>9</sup> To the extent these workers increasingly are foreign-born, U.S. employers need our immigration system to facilitate the lawful hire and promotion of these high potential individuals.

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<sup>6</sup> *Immigrants' Success in Science Education and Careers*, University of California at Berkeley's Center for Research on Teaching Excellence, <http://escholarship.org/uc/item/2m14z6np#page-7> . See also *Immigration Myths and Facts*, U.S. Chamber of Commerce May 2011, at Page 1, [http://www.uschamber.com/sites/default/files/reports/16628\\_ImmigrationMythFacts\\_OPT.pdf](http://www.uschamber.com/sites/default/files/reports/16628_ImmigrationMythFacts_OPT.pdf)

<sup>7</sup> 2008 American Community Survey.

<sup>8</sup> Distribution of workers possessing a Master's degree: 17.7% computer and mathematical science occupations, 16.9% architecture and engineering occupations. 2008 American Community Survey.

<sup>9</sup> See, Stuart Anderson, *Keeping Talent in America*, National Foundation for American Policy, October 2011, at Page 6, and *Science and Engineering Indicators 2010*, Chapter 2, Higher Education in Science and Engineering (Graduate Education, Enrollment, and Degrees).

Foreign student flows into the U.S., especially in graduate STEM fields, result in high levels of foreign students interested in remaining in the U.S. and contributing to American business. Moreover, “the United States can no longer assume that the world’s most talented people naturally want to work in America. As China and India grow faster than the United States, they will be able to offer engineers and mathematicians, both their own and those from third countries, more job opportunities and higher incomes.”<sup>10</sup>

Sponsorship of H-1B specialty occupation workers, the current feeder category for green card sponsorship, mirrors the diversity of skill sets for which employers have found that the most qualified candidate happens to be a foreign national.

Under current law, an employer who has found that the most qualified candidate for a STEM position happens to be a foreign national will utilize the H-1B category and then pursue employer sponsorship for green card status. It is important to note that U.S. company STEM needs are not just in computer-related occupations. Many Chamber companies engaging in STEM-related business activities, report that they hire individuals in project management or business analysis roles where the ideal skill set is formed through completion of an undergraduate STEM degree and graduate studies in a business discipline. For FY2009, the last year for which USCIS publicly released data breaking down H-1B sponsorship, 34.6% of new H-1B petitions were for computer-related occupations, but the remaining new petitions for initial H-1B classification were for architects and other engineers (12.5%), project leaders, technical and professional managers (12.5%), teachers (12.5%), public administration and other administrative specialties (11.6%), medicine and health jobs (9.4%), life sciences occupations (4.1%), mathematicians and physical scientists (3.1%), economists and other social scientists (2.5%), along with a variety of other occupations (less than 2% each).<sup>11</sup> It appears that around 65%-75% of H-1B sponsorship is in STEM occupations.

Presently, the H-1B category is widely used as the sole means to hire a STEM professional who is a foreign national already lawfully in the U.S., either as a student or as an H-1B worker for another company, following completion of a competitive recruitment by the employer. An artificial H-1B cap,<sup>12</sup> along with an artificial cap for employment-

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<sup>10</sup> Bruce Stokes, *The Global Skills Chase: The United States imports a big share of its technical talent. What if these immigrants don't want to come?*, National Journal, September 24, 2011, Page 31.

<sup>11</sup> *Characteristics of H-1B Specialty Occupation Workers for FY2009*, USCIS April 2010. <http://www.uscis.gov/USCIS/Resources/Reports%20and%20Studies/H-1B/h1b-fy-09-characteristics.pdf> .

<sup>12</sup> The H-1B cap has been met prior to the end of the government’s fiscal year in FY1997-FY2000 and FY2004-FY2011 and will undoubtedly be met prior to the end of FY2012 as well. Demand for H-1B visas, though, varies from year to year based on employer and market needs and not based on the cap. For example, in the few years where Congress enacted a higher ceiling for H-1Bs, employers did not hire additional skilled foreign nationals simply because the annual cap was higher. In the fiscal years when the cap was set at 195,000 many visas went unused. Specifically, in FY2001, FY2002, FY2003 the H-1B cap was set at 195,000 and in each year, respectively, 163,600, 79,100 and 78,000 new H-1B workers were sponsored, following the business cycle mandates.

based green cards, does not reflect the 21<sup>st</sup> century reality on the movement and availability of STEM workers.<sup>13</sup>

## **COUPLING EDUCATION REFORM WITH IMMIGRATION REFORM**

To the extent that graduate education or university study in certain fields is a prerequisite to the specialized skills and expertise needed in today's knowledge economy, pushing the interest and development by U.S. students in these fields starting at the K-12 level and continuing into higher education is an economic imperative. As suggested by the National Science Foundation's annual report on Science and Engineering Indicators, the ratio of natural sciences and engineering (NS&E) degrees to the college-age population is one measure of the technical skill level of those entering the workforce. "Over time, the United States has fallen from one of the top countries in terms of its ratio of NS&E degrees to the college-age population to near the bottom of the 23 countries for which data are available. In 1975, only Japan had a higher ratio than the United States of NS&E degrees per hundred 20-24 year-olds (the college-age population). By 1990, a few other countries had surpassed the U.S. ratio, and by 2005 nearly all had done so."<sup>14</sup>

In the United States, undergraduate science and engineering degrees have consistently accounted for about one-third of all Bachelor's degrees for the past 15 years. By comparison, recent data shows that more than half of all Bachelor's degrees are awarded in science and engineering in Japan (63%), China (53%) and Singapore (51%).<sup>15</sup> Similarly, only about 5% of the Bachelor's degrees awarded in the United States are specifically for engineering, where as in Asia nearly 20% of Bachelor's degrees issued are in engineering disciplines. With the high number and share of science and engineering Bachelor's degrees in other countries, it makes sense that only a very small share of science and engineering degrees at the Bachelor's level in the U.S. are awarded to foreign students, approximately 4%.<sup>16</sup> To increase the number of native-born Master's and Doctoral students in science and engineering disciplines, we need to work to enlarge the pool of native-born science and engineering Bachelor's level graduates.

Many companies already attempt to address these skill gaps on their own. Some Chamber companies make education support programs a top priority.<sup>17</sup> For example,

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<sup>13</sup> See, e.g., *Regaining America's Competitive Advantage: Making our Immigration System Work*, at Pages 11, 17, 30, 32 (published by the U.S. Chamber and ACIP, Aug. 2010).

<sup>14</sup> Science and Engineering Indicators 2010, Chapter 2, Higher Education in Science and Engineering (International Changes in the Ratio of Natural Science and Engineering Degrees to the College-Age Population).

<sup>15</sup> Science and Engineering Indicators 2010, Chapter 2, Higher Education in Science and Engineering (International Science and Engineering Education).

<sup>16</sup> Science and Engineering Indicators 2010, Chapter 2, Higher Education in Science and Engineering (Undergraduate Education, Enrollment, and Degrees).

<sup>17</sup> See the Compete America coalition website for a summary of what some of the nation's largest high tech companies are doing to support education and workforce development.

<http://www.competeamerica.org/workforce/american-workforce>.

Microsoft runs its own Partners in Learning, DigiGirlz, and Club Tech programs, among others, to encourage K-12 STEM education. Additionally, Microsoft focuses on hands-on learning by co-founding, with Georgia Tech and Bryn Mawr College, the Institute for Personal Robots in Education and co-founding, with NYU and other universities in New York, the Games for Learning Institute (G4LI).

Another large diversified manufacturing company has taken the following steps: While the company typically recruits only graduate students for its professional jobs, it also has created a program where it seeks out highly qualified candidates with undergraduate degrees who the company puts through a two-year corporate professional management program for recruited university graduates in the fields of engineering, manufacturing, finance, and other business specializations to expose participants to rotational assignments throughout the organization to develop both technical and management skills and create a diverse, knowledgeable global talent pool. Additionally, the company is a major contributor to U.S. colleges and universities and academic research projects.

The U.S. Chamber of Commerce has its own educational arm, the Institute for a Competitive Work Force (ICW), which promotes the rigorous educational standards and effective job training systems needed to preserve the strength of America's greatest economic resource, our workforce.

Recently, ICW released a report addressing what kind of business involvement it would take to truly make a difference in K-12 schooling. *Partnership is a Two-Way Street: What it Takes for Business to Help Drive School Reform*<sup>18</sup> explains and analyzes how business can function as a critical customer, a partner, or a policy advocate in primary and secondary education. As discussed in the report, leaders in Texas, Tennessee, and Massachusetts adopted each of these roles, thus stepping up to make a big difference in K-12 schooling. In each case, business leaders talked seriously and bluntly with educators. They recruited respected experts to lead the reform efforts. They built sustainable structures, brought top-level executives to the table, and stayed engaged. They tackled tough questions, understood that some steps would be political and unpopular, and took the heat when there was pushback.

Among its other ongoing activities, ICW conducts regional training for local and state chamber and business leaders, to create a leadership network in as many states as possible that is focused on the role business can play in improving education and workforce training. Also, ICW conducts an ongoing assessment of K-12 education in all 50 states and the District of Columbia through its *Leaders and Laggards*<sup>19</sup> report. To encourage students to be ready for post-secondary education, ICW maintains active

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<sup>18</sup> *Partnership is a Two-Way Street: What it Takes for Business to Help Drive School Reform*, U.S. Chamber of Commerce, Institute for a Competitive Workforce June 2011

[http://icw.uschamber.com/sites/default/files/Partnership%20is%20a%20Two%20Way%20Street\\_2011.pdf](http://icw.uschamber.com/sites/default/files/Partnership%20is%20a%20Two%20Way%20Street_2011.pdf)

<sup>19</sup> <http://www.uschamber.com/reportcard>.

participation in coalitions focusing on both S&E and K-12 education, including Change The Equation, the Coalition for a College and Career Ready America, and the Business Coalition for Student Achievement.

## **RECOMMENDATIONS**

By 2018, the U.S. economy will generate rising demand for highly-educated workers and, as more baby boomers retire, there is risk of substantial skill shortages.<sup>20</sup> The Chamber joins those economists who conclude that “improvements in worker skills and increases in educational attainment could help maintain and spur the creation of higher-paying jobs, which has numerous potential benefits for individual citizens and the economy as a whole.”<sup>21</sup> Thus, taking steps to ensure Americans are receiving appropriate education to match with expected employer demands for workers should not be ignored. Of the 22 occupations with the highest projected annual growth to 2018 and beyond, the occupation classification with the second highest demand for workers is expected to be computer science, the fifth highest demand area is life and physical science occupations, and thirteenth highest growth area is architecture and engineering occupations.<sup>22</sup> To the extent that a large segment of graduate students in these fields are not native-born, Congress should take action to reform our laws so employers are able to hire the staff needed in these expected growth areas.

Addressing the needs for STEM professionals that allow U.S. employers to hire staff central to business success, without ignoring the educational reform also needed in our country, is within reach. Reforming our immigration laws to address the needs of U.S. employers for STEM graduates at the Master’s or high levels would allow the very individuals to remain in the U.S. who are interested in making contributions to the American economy, who have already successfully navigated American culture, who have already shown they speak English, and who have already started adopting American research and business philosophies through their graduate studies, research, and training experiences. Given the economic imperative for immigration reform, now is the time to act on areas of common agreement concerning the impact of STEM employment on the nation’s immigration system, including:

- ❖ Exempt Master’s or higher graduates of U.S. institutions in certain fields from the H-1B quota, without a numerical limit, such as those in the natural sciences and engineering fields.
- ❖ Create a visa category, allowing both nonimmigrant and immigrant status, for entrepreneurs who have completed Master’s or higher degrees from U.S. institutions in certain fields, such as those in the natural sciences and

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<sup>20</sup> *Future Skill Shortages in the U.S. Economy?* National Bureau of Economic Research, July 2011, <http://www.nber.org/papers/w17213>. © David Neumark, Hans P. Johnson, Marisol Cuellar Mejia.

<sup>21</sup> Id. at Page 37.

<sup>22</sup> Id. at Figure 2.

engineering fields. Entrepreneurs would need to show they are qualified to establish a U.S. business and ultimately show they have created employment for Americans. Entrepreneurs who have garnered venture capital support from their employers, should also qualify for entrepreneur classification if the new business unit creates employment for Americans and it can be documented that the entrepreneur can be credited with establishing the new business unit.

- ❖ Create a new Employment-Based First Preference immigration category for Master's or higher graduates of U.S. institutions in certain fields, such as those in the natural sciences and engineering fields.
- ❖ Ensure that cap exemptions for Master's or higher graduates of U.S. institutions in STEM fields include recognition of employer demand for undergraduate STEM degrees in the relevant fields followed by graduate business training, where the individual has been offered U.S. employment by a company engaged in a STEM business activity.
- ❖ Protect the market place by ensuring that Master's or higher graduates of U.S. institutions who are not entrepreneurs are only entitled to cap exemptions when they have a job offer, since U.S. employers are well placed to determine the skill sets, quality of credentials, and quantity of workers needed for business operations.
- ❖ Exclude spouses and dependent children as part of the employment-based green-card quota, which would raise the percentage of workers relative to annual Lawful Permanent Residents. While even with this change, the ratio of workers to overall annual lawful immigration is still too small, it is a minor change that will have a huge impact on the long lines that immigrants and their employers currently face to obtain a green card, without conducting a major overhaul of the current employment-based system.
- ❖ Require USCIS to allow early filing of Adjustment of Status applications for employment-based immigrants in First, Second and Third Preference for Employment-Based immigration, to allow sponsored workers to file for Adjustment once an I-140 Immigrant Visa Petition is approved according to new "adjustment cut off dates" (after the date of I-140 approval but in advance of the State Department's "qualifying date," which is when the State Department determines if a consular processing applicant is documentarily eligible). This would allow USCIS to accurately report to the State Department concerning how many immigrants are documentarily eligible for permanent resident status at any given time. With pending Adjustment requests, employment based immigrants could complete their immigration paperwork, be adjudicated documentarily eligible, and obtain interim benefits as a pending

permanent resident once security clearances were completed, but no immigrant would obtain permanent resident status early or out of turn.

- ❖ Raise the H-1B cap by including a market escalator, so that the cap moves going forward based on actual use – for example if cap met then next year increase 20%, if cap not met then revert to prior year numerical limitation or another set percentage decrease.

We look forward to working with you and supporting the STEM immigration reform process.

Sincerely,



Randel K. Johnson  
Senior Vice President  
Labor, Immigration and  
Employee Benefits



Amy M. Nice  
Executive Director  
Immigration Policy

Attachment: Executive Summary for *Regaining America's Competitive Advantage: Making our Immigration System Work*

[http://www.uschamber.com/sites/default/files/reports/100811\\_skilledvisastudy\\_execsummary.pdf](http://www.uschamber.com/sites/default/files/reports/100811_skilledvisastudy_execsummary.pdf)