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California Facing Looming Talent Deficit in Key Industries

*Lack of Workers in Science, Technology, Engineering, Math
Could Prolong the State's Economic Woes*

(LOS ANGELES, CA – June 25, 2009) A new report finds that California's colleges and universities are not producing enough graduates in science, technology, engineering and mathematics – or STEM – fields, which could result in a talent deficit in key industries in the state. The need for STEM graduates is detailed in the new study entitled "Technical Difficulties: Meeting California's Workforce Needs in Science, Technology, Engineering and Math (STEM) Fields," released today by the Campaign for College Opportunity, the Sacramento State Institute for Higher Education Leadership and Policy (IHELP), and the Bay Area Council.

According to the report, California is not keeping pace with the increasing demand for skilled workers in STEM-related fields—such as health care, science, engineering, architecture, accounting, and computer science—which fuel much of the state's economic growth and job creation. The shortage could be so acute in the coming years, that it may leave many STEM jobs in the state unfilled, which would have a devastating effect upon California's \$1.7 trillion economy.

"STEM jobs are critical to the health of California's economy," says Nancy Shulock, director of IHELP. "Their higher rates of pay coupled with their connection to innovation make them indispensable to the California economy and threaten our position as a global economic leader."

The study details the important role that higher education will play in preparing the next generation for STEM positions, including increasing the numbers of Latinos and women who pursue degrees in STEM-related fields.

The report found that during the next decade employment in STEM-related occupations will grow faster than in non-STEM occupations. In fact, between 2006 and 2016, there will be on average approximately 46,100 job openings in STEM occupations that require a postsecondary education each year. While the number of STEM jobs will grow 20% during this period, the number of non-STEM jobs will increase by only 14%.

There are three significant factors fueling this growth:

- California's increasingly complex knowledge-based economy

- The retirement of its proportionately better-educated workforce (the baby boomers)
- An increasingly aging population with growing healthcare needs.

“A highly educated generation of baby boomers is retiring from fields that are in demand, creating room for a new generation to step in and take their place,” says Michele Siqueiros, executive director of the Campaign for College Opportunity. “Our students will be able to fill this void only if they receive the opportunity to go to college and graduate in these critical fields.”

In recent years, California has been one of the nation’s leaders in STEM-related employment. In fact, several geographic areas of the state – including the Silicon Valley region of the Bay Area, the Tech Coast area of Orange County, and San Diego’s biotechnology community – depend upon STEM graduates to fill the positions that enable high tech innovation and investment.

“There’s every reason to believe that as we recover from the recession the nation will experience another economic boom, and we want California to remain a leader of this new economy,” says Jim Wunderman, president and CEO of the Bay Area Council. “California will need talented and educated workers in the technical fields whose creativity and innovation will produce the next generation of cutting-edge businesses.”

The report notes that as national and international demand for STEM workers continues to rise, California will not be able to rely on the migration of skilled workers from other states and countries, as it currently does. In fact, according to the report, of the 123 STEM occupations requiring a postsecondary education identified by the U.S. Department of Labor and the California Employment Development Department, nearly half will likely face labor shortages. To meet this need, the state will need to award up to 90 percent more STEM degrees and certificates.

Also contributing to the shortage of STEM degrees, according to the study, is the underrepresentation of Latinos and women graduating in STEM fields.

Although the Latino population is the fastest growing segment in the state, their numbers remain low in California’s colleges and universities. The study points out that though Latinos make up nearly half of the state’s college-age population, they represent less than one-third of the students enrolled in the University of California (UC), California State University (CSU), and California Community College (CCC) systems. Compounding the STEM shortage is that Latinos by and large are not choosing STEM fields of study. For example, only 15% of bachelor’s degrees awarded to Latinos in 2007 were in STEM fields, compared to 22% of degrees awarded to whites, and 34% of degrees awarded to Asians/Pacific Islanders.

The report notes that while women earned more associate and bachelor’s degrees than men did during the past few years, a significantly smaller portion of these were in STEM-related fields when compared to men. Even though women were awarded more associate degrees in STEM fields than men, the increase was due largely to a surge in women entering health care. In fact, of the STEM associate degrees awarded to women, 80 percent were for health care-related occupations.

“The key engine of future growth in the Bay Area – innovation – has not been materially threatened by the recession,” Wunderman says, “and the recession may in fact accelerate the shift in focus to new areas such as clean technology and green industries. We must prepare the workforce of the Bay Area and all of California for this boom in the science, technology, engineering and math [STEM] fields.”

Even though expected cuts to education resulting from the current state budget shortfall will undoubtedly negatively impact the STEM workforce, the study finds that higher education will play a major role in

preparing the next generation of STEM workers. Yet, this could be difficult given California's current financial issues.

The UC and CSU systems are already planning to trim enrollment by tens of thousands of students this fall, and STEM programs may be disproportionately affected due to their comparatively high costs. Because half of the expected job openings in STEM will require at least a bachelor's degree, these cuts could prove costly to the state's overall economy. Data also shows that STEM degree increases are slowing in the CCC system. One notable exception is in healthcare fields, where media attention and statewide policy investments have generated an increase in preparation of new students. Despite this increase, the number of healthcare graduates is not expected to be able to meet future demand.

But, according to the report, if California is to meet the demand for highly trained STEM workers, investment must be made in all three parts of the state's public higher education system. This is particularly true for the CCC system, which plays such a vital role in providing certificates, health workforce education, and preparing students to transfer to four-year schools.

"Through aggressive and strategic actions by the state's leadership, the public higher education system can educate more students and ensure that STEM workforce needs are met," Shullock says.

The report concludes with specific policy suggestions to increase the number of STEM graduates—and therefore the STEM workforce—in the state. They include:

- Developing a statewide public agenda for higher education focused on setting goals to increase the number of college educated Californians (minimizing any budget cuts to student access) and prioritizing the workforce needs in high demand fields like STEM and Healthcare
- Supporting a student success agenda to increase the number of students who succeed in transferring from a two year to a four year college and are prepared for the workforce
- Better preparing students in K-12, particularly in math and science
- Improving communication about opportunities in STEM
- Creating financial incentives for students, colleges, and universities to increase the supply of STEM workers
- Increasing STEM achievement by underrepresented groups
- Providing needed financial support for educational programs that are critical to meeting workforce needs
- Improving the coordination between industry and educational institutions
- Encouraging people with STEM degrees to enter and remain employed in STEM fields.

"Studies continue to show that an investment in higher education is an investment in job creation and innovation," Siqueiros says. "If we choose to ignore the data and not act upon it, we are guaranteed to have a workforce unprepared for the demands of the future."

"Our students are competing in a global system with students in schools all over the world for the jobs of the future," Wunderman says. "California needs to do all it can to meet the challenges of preparing the next generation of workers for the technical fields."

To view the executive summary and complete report, please visit the Campaign for College Opportunity website at www.collegecampaign.org/stem. For a list of STEM fields that will be in high demand as the economy recovers, see page 8 of the Executive Summary of this report.

About IHELP: The Institute for Higher Education Leadership & Policy (IHELP), located at Sacramento State University, seeks to enhance leadership and policy for higher education in California and the nation, with an emphasis on community colleges in recognition of their importance to providing an educated and diverse citizenry and workforce. IHELP aims to produce information and services relevant to policymakers, practitioners, and educators. For more information, visit: www.csus.edu/ihe.

About the Campaign for College Opportunity: The Campaign for College Opportunity is a broad-based, bipartisan coalition, including business, education and labor leaders, and is dedicated to ensuring the next generation of Californians has the opportunity to go to college. The Campaign works to create an environment of change and lead the state toward effective policy solutions. It is focused upon substantially increasing the number of students attending two- and four-year colleges in the state and significantly impacting the rate that students succeed and achieve their post-secondary education objectives. For more information, visit: www.collegecampaign.org.

About the Bay Area Council: The Bay Area Council is a business-sponsored, public-policy advocacy organization for the nine-county Bay Area. The Council proactively advocates for a strong economy, a vital business environment, and a better quality of life for everyone who lives in the Bay Area. For more information, visit: www.bayareacouncil.org.

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