

## EDUCATION – THE GATHERING STORM

This past year, the National Academy of Sciences was asked by Senator Lamar Alexander and Senator Jeff Bingaman of the Committee on Energy and Natural Resources, with endorsements by Representatives Sherwood Boehlert and Bart Gordon of the House Committee on Science to respond to the following questions:

- 1) **What are the top 10 actions that federal policy makers could take to enhance the science and technology enterprise so that the United States can successfully compete, prosper and be secure in the global community of the 21<sup>st</sup> century.**
- 2) **What strategy, with concrete steps, could be used to implement each of those actions?**

After receiving this request, the National Academies created the Committee on Prospering in the Global Economy of the 21<sup>st</sup> Century to respond. This charge constitutes a challenge to ensure that the quality of life in America, including our prosperity, health and security, can be strengthened. This committee included three Nobel Prize winners and their findings were interestingly similar to what the Tennessee Business Roundtable has realized in relation to educating our students in Math and Science and preparing for a future workforce. This report entitled, *The Gathering Storm: Energizing and Employing America for a Brighter economic Future*, will be the topic of our 2006 CEO Summit on Education where we will inform and convince business leaders that they must become involved to make a difference for our future economy and prosperity.

### RECOMMENDATIONS OF THE COMMITTEE

- 1) **Increase America's talent pool by vastly improving K-12 math and science education.**
  - a) Recruit 10,000 science and math teachers by awarding 4-year scholarships.
  - b) Strengthen the skills of 25,000 teachers through training and education programs.
  - c) Increase number of students taking AP and IB science and math courses.
- 2) **Sustain and strengthen the nation's traditional commitment to long-term basic research to maintain the flow of new ideas that fuel the economy, provide security and enhance the quality of life.**
  - a) Increase federal investment in research by 10% a year over the next seven years.
  - b) Provide new research grants.
  - c) Institute a National Coordination Office for Research Infrastructure to manage a centralized research-infrastructure fund.
  - d) Allocate at least 8% of the budgets of federal agencies to discretionary spending.
  - e) Create the *Advanced Research Projects Agency-Energy* in the Department of Energy.
- 3) **Make the United States the most attractive setting in which to study and perform research so that we can develop, recruit and retain the best and brightest students, scientists, and engineers from within the US and throughout the world.**
  - a) Increase the number of US citizens who earn science and math degrees by providing 25,000 new 4-year undergraduate scholarships to US citizens attending US institutions.
  - b) Increase the number of US citizens pursuing graduate study in these areas by funding 5000 new graduate fellowships each year.
  - c) Provide a federal tax credit to encourage employers to make continuing education available to practicing scientists and engineers.
  - d) Continue to provide visa processing for international students and scholars.

- e) Provide a 1-year automatic visa extension to international students who receive doctorates in these areas and pass security-screening tests to remain in the US to seek employment.
  - f) Institute a new skill-based preferential immigration option.
  - g) Reform the current system of “deemed exports”.
- 4) **Ensure that the US is the premiere place in the world to innovate; invest in manufacturing and marketing; and create high-paying jobs that are based on innovation by modernizing the patent system, realigning tax policies to encourage innovation and ensuring affordable broadband access.**
- a) Enhanced intellectual-property protection for the 21<sup>st</sup> century global economy.

The Tennessee Business Roundtable believes that the future of Tennessee’s economy is directly tied to the health and performance of our public education system. Without a better-educated and well-prepared workforce, we cannot expect to attract the high-tech industries of the future. It is imperative that businesses across the state expand their partnerships and alliances with public education. We can no longer sit back and criticize the system without being part of the solution.

### **WORRISOME INDICATORS**

- For the cost of one engineer in the US, a company can hire about 5 chemists in China or 11 engineers in India.
- Chemical Companies closed 70 facilities in the US in 2004 and have tagged approximately 40 more to be shut down. Of the 120 chemical plants being built around the world of \$ billion or more, one is in the US and 50 are in China.
- Fewer than one-third of the US 4<sup>th</sup> and 8<sup>th</sup> grade students performed at or above a proficient level in math.
- In 1999, only 41% of the US 8<sup>th</sup> grade students received instruction from a math teacher who specialized in math, considerably lower than the international average of 71%.
- In a recent study, low-wage employers such as Wal-Mart (nation’s largest employer) and McDonalds, created 44% of the new jobs, while high-wage employers created only 29% of the new jobs.
- In 2004, China graduated over 600,000 engineers, India-350,000 and in the US only 70,000.
- In 2001, US industry spent more dollars on tort litigation than research and development.

These are the facts have lead us to understand the seriousness of our economic dilemma and the needed involvement of the business community. At our 2006 CEO Conference on Education in Nashville this August, we will continue to tackle this statewide problem and offer opportunities for you and your business to work with us on this urgent issue. Please be on the lookout for conference information and education updates. This is an event that will be important for you and your business.

