



Tom McCarty Senate Testimony:

My name is Tom McCarty and I am the President of the Society of Professional Engineering Employees in Aerospace. We represent more than 25,000 aerospace professionals in California, Kansas, Oregon, Utah, Texas and Washington. I've personally worked as a Boeing engineer since 1973.

I'm here today to testify about the importance of scientific, technical, engineering and math education to our nation's national security and economic future.

The Space Race and the Cold War both served to focus national attention and national resources on scientific, technical, engineering and math education. Public investments created private sector employment and a workforce equipped for those jobs. The resulting growth in technological advancement put men on the moon, won the Cold War and produced technology that has transformed the world.

I was caught up in that transformation. And I have a clear memory as an 8<sup>th</sup> grader of watching the Russian Sputnik satellite streak across the night sky in October fifty five years ago. American schools took up the challenge across the country. There was a universal commitment that we had to catch up with the Russians and that resulted in a new emphasis on mathematics and science education our schools. I personally benefited from that transformation and I was one of the thousands and thousands of students who were able to receive an affordable education as the result of public funding and corporate sponsorship.

American society has been reaping the benefits of these investments for decades. However, our nation is at risk of losing its preeminent position in the global economy due to the changing demographics of the aviation workforce. In short, we're getting old. I'll speak specifically of the workforce that my union represents but the trends are generally applicable to the entire aerospace industry. Nearly 40% of the engineering workforce at Boeing will be eligible to retire in the next few years. As this workforce moves into retirement, it's not just their bodies that leave. The baby boomer retirement also represents a tremendous migration of intellectual capital out of the aerospace workforce.

America's position as the premier manufacturer of consumer goods has been seriously challenged in the last 50 years. Now our position as the high-technology aerospace supplier is threatened by credible, emerging high-technology development and manufacturing capability in South America and Asia. One of the larger markets for our high-technology output has been China. But for the past two decades, China has been

aggressively implementing a plan to become a high-technology manufacturing leader in its own right. Whether we know it or not, we are engaged in a technology race that replaced the arms race once dominating our technology development. And just like the arms race, this is not a contest we can afford to lose. The consequences of that would be equally unacceptable for us and our children.

Our employers generally recognize the need for continuing employee training. We need to work with them to insure these programs will continue to be funded. We need to help develop programs and policies to ensure education and retraining funding is available to the workforce on a continuing basis. Engineering and technical workers have made a serious commitment of their own resources to acquire and maintain their technical skills. It is vital to maintain our ability to compete. We cannot do this unless we help these workers maintain the technical capabilities of our American workforce.

A critical factor enabling the economic growth of this nation was the commitment of society to fund universal education. The labor movement always recognized the importance of education and training and fought for universal education. In 1900, the goal was a literate workforce. A workforce of high-school graduates was considered more than adequate for the shops and mills at the turn of the century. That this is no longer sufficient for a high-tech workforce has been evident for quite awhile. Today, we see an alarming trend to reduce public funding for education at the very time we can least afford it.

It is once again time for the American labor movement to pressure the public and private sectors to adequately fund the education of the American worker. It is not acceptable that qualified students are denied entry into our state universities for lack of funding. Our members are passionate about education. We have become a stronger and more effective force for change through our collective action. SPEEA members are already making their concerns known and are working for a better future. We serve on college advisory boards, we are members of school boards and volunteers from K-12, and we teach graduate courses at universities. We are partnering with our employers to provide more career growth opportunities in the workplace.

The ability of American industry to compete is based on the investment in the American workforce. Technology is a moving target. Unless we constantly learn new skills and new ways to think about how we create our products, we will lose our ability to compete. This learning process has to be accomplished by actually designing and building aerospace products. The knowledge we bring to the job is only the starting point. That ability is refined and developed by the collaborative environment of problem-solving in the workplace.

When technical work is outsourced, this begins the process of losing capability in that area which was outsourced. If this was not bad enough (and of itself it is), it gets worse because while our work force is losing this opportunity to grow its skill base in this area, somewhere else, the work force is now advancing its capability. In effect, we are falling behind at twice the rate. It's not hard to imagine that soon we will have created a self-



fulfilling prophecy. We will *need* to outsource the work because someone else can do it cheaper, faster or better.

There is a critical mass of talent associated with a particular product or service. When that mass is achieved, a self-sustaining organization is created. New people join and bring new ideas and skills, and they are integrated into the experience base of the organization. In return, the experienced people share the specialized knowledge acquired over decades of product development and manufacture. This model has served American manufacturing very well, but now it is at risk. Outsourcing of the traditional work disrupts the flow of information and experience in both directions. The experienced workers lose the exposure to the emerging technologies, and the new workers do not get the full benefit of the tribal knowledge held by the experienced workers. When work is selected for outsourcing, these factors need to be carefully considered or the technical and innovative capabilities of the workforce can be drastically impacted.

The solution is going to take teamwork. The players are the employee, business, schools and government - each has a critical role. It's necessary for all of us to understand that role and become active partners in finding those solutions if we are going to preserve our position of leadership in high technology manufacturing.