

# THE MOST IMPORTANT LEGISLA

**Keeping our  
brainpower  
advantage—  
and our jobs from  
going overseas**

**by Senator  
Lamar Alexander**

In August 2007, the Senate unanimously passed a piece of legislation we called the America COMPETES Act. The House of Representatives passed it by a vote of 367 to 57. And the president signed it without delay. Anyone familiar with our all-too-dysfunctional legislative process must think: Well, that must either be not very important or not very hard to do.

Nothing could be further from the truth. I would suggest that the America COMPETES Act will be as important as any piece of legislation the Congress passed in that year, that it took as much work as any piece of legislation that passed in that year, and that it's likely to be the most important legislation that has come out of Congress in some time that you've never heard of. And none of it would have been possible without bipartisan leadership, especially by Representative Bart Gordon of Tennessee, chairman of the Science Committee in the House of Representatives.

The point of the America COMPETES Act is very simple. It helps America keep its brainpower advantage so we can keep our jobs from going overseas to China and India and other countries.

The U.S., even in these troubled times, is producing about one-fourth of all the money in the world. The International Monetary Fund says that about 25 percent of all the wealth in the world is produced in our country, measured in terms of gross domestic product, for just 5 percent of the world's population.

So imagine if you are living in China or India or Ireland or any other country in the world, and you are looking at the United States. It is not so hard to look at other countries today with the Internet and travel and television as they are. Someone in one of those countries could say: "How can those Americans be producing 25 percent of all the wealth for themselves when they are only 5 percent of the world's population? They have the same brains everybody else does. They cannot work any harder than anybody else does."

What is it? We have a variety of advantages in this country. But most people who look at this country, since World War II, believe our standard of living, family incomes, and great wealth

come primarily from our technological advances, the fact that it has been in this country that the automobile, the electric lightbulb, the television set, the Internet, and Google have been invented. Or the pharmaceutical drugs that help cure disease all over the world, which have come mostly from this country.

That innovation has given us our standard of living and given the rest of the world a high standard of living. Our brainpower advantage is located in some pretty obvious places. One place, of course, is our system of higher education, the great university system. We have not only many of the best universities in the world but almost all of them. Another place is our great national laboratories, from Oak Ridge National Laboratory in Tennessee to Los Alamos in New Mexico and others across our country.

Another is the great corporations of America where research is done, whether in pharmaceuticals or agriculture. Those great engines of research and innovation and the entrepreneurial spirit and free market have given us this great advantage.

We therefore talk a lot about pro-growth policies. What causes our economy to grow? We Republicans talk a lot about low taxes. I believe that is important and vote that way. When I was governor of Tennessee, we had one of the lowest tax rates in the country. But I found very quickly that low taxes by themselves do not create a high standard of living, because we had some of the lowest taxes but were the third poorest state. I also found that better schools and better research were the keys to better jobs. That is what this bill is about. As a result of the America COMPETES Act, over the next few years, we will have done something pretty remarkable.

We asked the National Academies, which include the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, as well as other business leaders in our country exactly what it would take to keep our brainpower advantage, and they have told us, and we have done it.

We authorized spending \$34 billion over three fiscal years to help keep our brainpower advantage by investing in science and technology.

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Most of that money is designated to set our major scientific research agencies, the National Science Foundation, the National Institute of Standards and Technology, and the Department of Energy's Office of Science, on a course to double over a seven-year term. Those funds will support increased research at laboratories and universities across the country, including at Oak Ridge National Laboratory, the University of Tennessee, and Vanderbilt University. It will also support professional science master's degree programs at schools like Middle Tennessee State University.

The funding will also help to prepare thousands of new teachers and provide current teachers with content and teaching skills in math and science through teacher training programs at universities like MTSU. It will establish an advanced energy research projects agency, a nimble and semiautonomous research agency at the Department of Energy, to engage in high-risk, high-reward energy research. This is modeled after what we call DARPA at the Department of Defense, which produced stealth technology and the Internet. We should do the same as we look for new energy technologies.

It expands programs at the National Science Foundation to enhance the undergraduate education of our future science and engineering workforce, including at universities like MTSU. There are many provisions in the law to broaden participation in science and engineering fields at all levels.

There are new competitive grant programs to enable partnerships to implement courses of study in math, science, engineering, technology, and critical foreign languages. There are competitive grants to increase the number of math and science teachers serving high-need schools. The law expands access to Advanced Placement courses and International Baccalaureate courses by increasing the number of qualified teachers in high-need schools.

It expands early-career research grant programs. It strengthens interagency planning for research infrastructure.

In plain English, the America COMPETES Act will help more children, including those who come from families with less money, have a

chance to take the Advanced Placement courses that will give them a route into college, high achievement, and the ability to produce jobs, not just for themselves but for the rest of us.

Now, one might say: Where did all these ideas come from? Did a senator from New Jersey just wander in one day and say, "I have a great idea. Let's stick it in?" Or did a senator from Arkansas say, "Well, we have a little program over at Little Rock that we all like, so let's have some money for it?" Or did a senator from Tennessee say, "I was down at the Oak Ridge National Laboratory yesterday, and someone gave me an idea, so let's have \$10 million for that?"

That is not the way we did it. Two years ago, Senator Bingaman and I, and Representatives Bart Gordon and Sherwood Boehlert of the House of Representatives, two Democrats and two Republicans, literally went to the National Academy of Sciences, and we asked this question: "Tell us exactly what we need to do to keep our brainpower advantage, to keep our jobs from going to China and India?" And they took us seriously.

The National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine appointed a distinguished committee of 21 Americans chaired by Norm Augustine, the former chairman and CEO of Lockheed Martin and a member of the National Academy of Engineering. On that committee were some of America's most distinguished business leaders, three Nobel laureates, the president emeritus of MIT, teachers, and others, who gave up their summer, reviewed hundreds of proposals, and, in priority order, told us the 20 things we needed to do to keep our brainpower advantage.

All of that was presented to us in a report called "Rising Above the Gathering Storm," now well-known at universities, in schools, and in the business community as a wake-up call for the United States of America. It says we have been good, in fact, we have been way ahead of the rest of the line, but if we do not watch out, China, India, Ireland, England, and many of the other countries in the world are going to catch up with us, because there is no preordained



*Lamar Alexander is the senior U.S. senator from Tennessee and chair of the Senate Republican Conference. He served as Tennessee's governor from 1979 to 1987 and as U.S. Secretary of Education from 1991 to 1993.*

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**If all of our elected officials participate on other big issues as we did with the America COMPETES Act, our government will work much more effectively, and America will be a stronger country.**

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right for Americans to produce 25 percent of the world's wealth for just 5 percent of the people.

In the summer of 2006, I went with a delegation of senators to China, where we met with President Hu and No. 2 leader Mr. Wu, chair of the National People's Congress, for an hour each.

What was interesting to me was that in those sessions with the No. 1 and No. 2 leaders in China, where our conversations ranged from Iraq to Iran to North Korea to Taiwan, all the issues one might expect, the issue that animated the leaders of China the most was their efforts over the next 15 years to create an innovation economy. They wanted to talk about how China is catching up with America's brainpower advantage because they know their skills, they know they are good, they know they can do it, and they are doing it their way.

The month before, President Hu had walked over to the Great Hall of the People and assembled their national academies of science and engineering and said: "We are going on a 15-year innovation plan. We are going to invest 4 percent of our gross domestic product in research and technology. We are going to improve our colleges and our universities and our schools. We are going to create a brainpower advantage for China that gives us a higher standard of living."

We did it a different way. Two years ago, we walked down to our National Academies. We invited them to give us this report, "Rising Above the Gathering Storm." We took the recommendations of the Council on Competitiveness, which was already working. The president of the United States gave his recommendations in his American Competitiveness Initiative. And then we went to work in the American way. We don't announce 15-year plans here; our way, democracy, can be a little messier. So we had to go through three committees here in the Senate and two in the House of Representatives.

It is not a simple thing to take the recommendations of the National Academies and actually pass them in both bodies; yet that is what we have done. Not only did we start two years ago in a Republican Congress, but we passed this legislation during a Democratic Congress almost without missing a step. What happened was a bill that was sponsored by the leaders: last time it was Frist and Reid; now it is Reid and McConnell. They just changed the names because we had worked so well together with not

only each other but also the Bush administration that it was hard to tell whose bill it was.

At one time, this legislation that Senators Domenici and Bingaman first introduced had 35 Republican cosponsors and 35 Democratic cosponsors, and the Speaker of the House Nancy Pelosi, when she was the Democratic leader, was one of the first to support it. It is especially gratifying to me that Tennesseans in the House of Representatives, led by Representative Bart Gordon, were such an important part of the legislation's success.

This legislation, the America COMPETES Act, is bringing Tennessee opportunities for hundreds of math and science teachers and thousands of students to go to summer academies and institutes of math and science. It will mean opportunities for thousands of students who now can't afford to take Advanced Placement courses in science and technology to be able to do so and for hundreds of teachers who aren't trained to teach those courses to have that training.

It will mean distinguished scientists will hold joint appointments at the University of Tennessee and Oak Ridge National Laboratory, for example. It will mean support for a residential high school for science and math, which we have wanted in our state ever since I was governor 20 years ago.

It will mean steady growth over seven years in research funding, new support for early-career research grants in science and technology, and more support for all the kinds of studies that create the jobs that will keep our standard of living. That is what it means for Tennessee.

The bipartisan consensus we have seen here happens more often than most Americans know, but it doesn't happen as often as it should.

When we work hard and focus on big issues, we in Congress are perfectly capable of acting the way the rest of the country would hope we would act. We compromise on our differences and come up with a result that benefits family after family. Working on this legislation is the kind of thing I hoped to do when I came to the Senate. I think each of us hopes when we come here to get up every day and do a little something constructive, go home at night, and come back the next day to see if we can find something more to do along the way. If all of our elected officials participate on other big issues as we did with the America COMPETES Act, our government will work much more effectively, and America will be a stronger country. ■