



**U.S. SENATE COMMITTEE ON  
COMMERCE, SCIENCE & TRANSPORTATION**  
*Senator Maria Cantwell, Chair*

---

**U.S. Senator Maria Cantwell**

**Senate Committee on Commerce, Science, and Transportation  
CHIPS and Science Implementation and Oversight**

**Witnesses:**

**Secretary Gina Raimondo, U.S. Department of Commerce  
Dr. Sethuraman Panchanathan, Director of the National Science Foundation**

**Wednesday, October 4, 2023**

**Opening Statement**

**[VIDEO](#)**

Welcome, Secretary Raimondo and Director Panchanathan. Thank you for being here today.

A little more than a year ago, Congress passed the landmark CHIPS and Science Act. It was a clear commitment to America's competitiveness and the idea that we need to innovate in the United States.

Clearly, we were doing a lot in innovation, we were publishing a lot, but we needed to translate more, patent more and really help our manufacturing base be competitive for the future.

The two witnesses before us today led on the delivery of those commitments and are here to tell us today about the substantial progress their agencies are making during the first year of the implementation of this act.

We have already seen the CHIPS and Science Act spur more than \$200 billion dollars in private sector investment from semiconductor [companies] across the country, to other investments. And the federal government's role in this is so important because the commitment to the CHIPS program office within the Department of Commerce is generating more than 500 statements of interest from companies looking at new projects and innovation.

Today, we will have a chance to ask the Secretary about those proposals, building resiliency, and a long-lasting semiconductor ecosystem in the United States. Since we had a chance to discuss this earlier, I'm pretty sure we are going to hear today about how we're never going to be in this problem again, as it relates to [advanced] chips. That we are going to have a good plan to help on a supply chain development for that. That our DoD stature is going to continue being on the cutting edge of chips. And I think you are going to tell us that the diversity of applications and the robustness of it, means that the ecosystem that we are trying to restore and grow is alive and well.

We have also seen NSF begin to roll out Innovation Engines. With more than \$43 million going to planning grants to tap into innovation across the country. I love that the Director during our efforts basically coined the phrase "innovation anywhere, opportunity everywhere." And I definitely think that is what we are looking for in this legislation, both in the spreading of the amount of EPSCoR funding and in diversifying a workforce... across the United States.

For example, in the State of Washington, a Spokane company won a Regional Innovation Engine [planning] award to advance energy and decarbonization. We all know that innovation and expertise helps us generate jobs and tackle some of our most pressing problems.

And we know that what we have to do on this Committee, besides hearing from these witnesses today, is push our colleagues to fully fund the aspects of CHIPS and Science that were funded.

In fact, the Committee's two previous attempts at competitiveness bills fell short because the funding was not realized. One, because we faced an economic downturn and then the other, our very first effort on competitiveness, also didn't make the mark from an appropriations perspective.

We know that our foreign adversaries are not waiting. We know that our strategic competitors are also moving ahead. And we need to make this investment to – what we would say – de-risk the supply chain, and make sure we are innovating and translating our science faster.

As we look to the future, we need to work together to ensure that the U.S. remains competitive in the global marketplace on other issues like artificial intelligence, 5G wireless systems and quantum computing.

That will require the United States to do a couple of things: the ability of the U.S. to produce chips to support this innovation. That is why the advancement, and hearing where we are with the applications, is so important. Second, we need a resilient supply chain that can withstand disruptions like we saw in the past, either geopolitical tensions, natural disasters, global pandemics, whatever, we need a more independent supply chain. And a workforce that is well-skilled and technical to the types of technologies that are being used today.

I personally believe this is one of the biggest gaps left to be addressed in the CHIPS and Science Act. We have some money, both for semiconductor training and workforce advancements and some on the science side through NSF, but a

lot more needs to happen. In the United States, the jobs of tomorrow are here today, but the skill level of the workforce to do them is not.

And so, the more that we can take advantage of the job creation that's happening, by marrying that up, something the Secretary knows from her days as governor – the more we can streamline that and marry that up together -- the more this engine is going rev and keep affecting the U.S. economy.

Today, the U.S. manufacturers only 12% of the world's semiconductors, compared to where we were in the 1990s at 30%. The question really today is, are we seeing the right level of investment to make a return to the market share that we think is important?

My guess is we're going to hear -- both from the private sector investment that has already been made and the robust response to the programs -- that the investments want to be in the United States.

I think we can't emphasize enough how important it was to bring this manufacturing back. Consumers saw car prices rise as much as 40%. Truck manufacturers like PACCAR in my state weren't able to get semiconductors... literally weren't able to ship product.

Supply chain resiliency also created deadlocks for other industries and impacted national security.

I hope that we will all work together on better tools for the future. I will have some questions about that in my question and answer period. But the semiconductor industry today is facing a gap of 67,000 people by 2030. That's just semiconductors.

I know we in my state, as it relates just to STEM, have a gap of 60,000 workers across various sectors, not just semiconductors. Clearly, we need to make the investments in the scholarship programs and in the STEM apprentice workforce for tomorrow to realize all this investment that is now being made in the United States of America.

## **Question and Answer**

### **[VIDEO](#)**

**Cantwell:** Secretary Raimondo, supply resiliency depends on security. There is a lot discussion around here in the last several months that's about how to best get that, particularly when it could be backdoor attempts to get information and communication technology. And data that can be used illegally for surveillance or espionage or various things.

We have looked at this issue and it has been suggested to us from the Administration that something like the GUARD Act, which would give [Department of] Commerce... When we think about this information technology and export and import controls, one thing is clear, you need a little better tool on the control of flow of what could be a backdoor of information. Or information that is just used in a way for purposes not

friendly to our country, like illegal and foreign surveillance. We are concerned about targeting of military members, their families, immigrants.

What do you think we should do about this, and what do you think about the GUARD Act proposal?

**Secretary Raimondo:** I'm very supportive of the GUARD Act proposal. I am often asked, should we outlaw TikTok? This is bigger TikTok. Certainly TikTok poses national security risks to be clear. But, we need a comprehensive plan to update, as you say, the threats are different today than they were 10 years ago. And so the right way to do this is to empower us with a statutory set of tools, to have a comprehensive approach to these connected apps that pose the national security risks, you say, TikTok and others. I'm supportive of attacking it in a comprehensive statutory way.

**Cantwell:** I appreciate that.

Dr. Panchanathan, we are oversubscribed on the NSF side. We are oversubscribed. I suggest we have more conversation about this.

But how do we, from a scientific side, tell our colleagues on the appropriations side that we have shortfalls? I loved all these questions about where we go. Obviously, the bill is about creating a distributed generation of R&D. We already are pretty competitive, way better than a top-down model, of say other countries. But, I always say two guys named Bill created our economies. Bill Boeing and Bill Gates. You never know where the next Bill is going to come from. And so that's why we want a more distributed generation of R&D.

But what are we going to do about the shortfall with our appropriators that there's so much in the pipeline that could be effective?

**Dr. Panchanathan:** On so many levels. I'm so glad, Chair Cantwell, you have been a strong supporter and the champion of the CHIPS and Science Act. And I know how hard you worked, so thank you very much. On behalf of the science and technology community, we owe you a debt of gratitude, and all the folks that supported this.

But let me take the basic research, paradigm 50,000 proposals, we found 11,000 of them, 20,000 of them are being told that we should fund them, they're highly meritorious. We're leaving them on the chopping floor, which means a huge loss. And our competitors are taking advantage of that.

On the Regional Innovation Engines and Regional Technology Hubs that the Secretary talked about, they have 400 proposals, we had 700 proposals, and then we had another 130 proposals in Type II. We are not going to be able to find all the top quality proposals that needs to be invested in. These are ideas that are being left behind.

**Cantwell:** Here's what I suggest. We get an answer from the scientific community about the science necessary on these proposals. Like yes, you get an A on your paper. It is definitely where we should be investing, but we don't have the resources.

**Dr. Panchanathan:** Yes.

**Cantwell:** That's what I think we need. Not that we want some people to have failing grades on these proposals, but so that we're prioritizing and people can see that this is really needed.