EXPORT CONTROLS ON SATELLITE TECHNOLOGY

HEARING

BEFORE THE

SUBCOMMITTEE ON TERRORISM, NONPROLIFERATION AND TRADE

OF THE

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EXPORT CONTROLS ON SATELLITE TECHNOLOGY

THURSDAY, APRIL 2, 2009

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON TERRORISM,
NONPROLIFERATION AND TRADE,
COMMITTEE ON FOREIGN AFFAIRS,
Washington, DC.

The subcommittee met, pursuant to notice, at 1:05 p.m., in room 2175, Rayburn House Office Building, Hon. Brad Sherman (chairman of the subcommittee) presiding.

Mr. SHERMAN. Folks, maybe we could sit down and start the hearing.

As a preliminary matter, two organizations have requested inclusion of written statements for the record of this hearing. They are the National Association of Manufacturers and the Aerospace Industries Association. Without objection, those statements will be made part of the record.

I know our witnesses will deliver oral testimony. They are also invited to present what I expect will be longer written testimony and to append to their testimony whatever materials they would like.

With that, I should note that we are the only country that controls satellite exports as if they were armaments. Critics of this policy question whether it is an appropriate way to deal with national security. It is important to remind us of what I think our witnesses well know, and that is in the 1990s we experimented briefly with controlling satellites not as munitions under State Department jurisdiction, but rather as dual-use items under Commerce Department jurisdiction. Soon after that change was made, there was a breach of security in which the Chinese military was provided with sensitive information after a failed launch of a United States-built satellite. The response was to reclassify satellites as munitions.

This is what we tend to do in Congress. When a horse escapes a barn, after that we close the barn door, and we tend to close only the barn door that that horse escaped from, not concerning ourselves with any other barn doors. Keep in mind, those involved in the 1990s incident provided information because they had a financial stake in the future success of the Chinese launch program.

Well, we certainly have not prevented American companies with any technological knowledge from having such a stake. We have just prohibited them from having a stake as owners of the satellite or builders of the satellite. It continues to be legal for American

companies to insure a satellite being launched on a Chinese-launched vehicle, or sell derivatives based on the success or failure of the Chinese launch program, or take any other action that might tempt them to be rooting for and perhaps adding to the success of the Chinese launch program.

Most people aware of our restrictions on satellite exports would assume that it is to protect the content of the satellite, to prevent people from looking inside the box. There are ways to prevent countries from looking inside the box without treating the satellite itself as a munition.

We have in effect an embargo on U.S. satellites, or satellites containing U.S. components, from being launched with Chinese rockets because we have a law against the export of munitions to China. What we ought to have is an overall system that balances our interests first in protecting our satellite technology and then in protecting our technology for launch applications from going to the wrong places.

This can be done in the case of the contents of the satellite through an appropriate monitoring system, monitoring until launch. And with regard to the launch technology, we either have to trust people with a financial interest in the success of the Chinese launch system not to reveal information because it is sensitive; and, frankly, the big headlines of the 1990s by themselves may have closed that door. I don't think anyone in the future could say, "Oops, I slipped," and avoid prosecution should they repeat pretty much the same fact pattern we saw in the early nineties.

But we can, if we wish, go to the point of saying no U.S. company that has any technological capacity, whether it is an insurance company, whether it is an investment bank selling derivatives, whether it is a company that has contracted to own the satellite only after it is launched, whether it is a communications firm that has a favorable contract to use the satellite, whatever, that no company can have a stake in the success of a Chinese launch.

Now, the space industry has made credible arguments that the International Traffic in Arms Regulations, known as ITAR, has hurt business and the space industrial base. This claim is echoed in private at least by the Intelligence Community who sometimes find it more and more difficult to source satellite-related equipment domestically.

ITAR has hurt the industry to some degree. Part of the perceived harm arises from the fact that the use of controlled American parts or technology in a product means that American laws follow that entire product. This has hurt second- and third-tier suppliers.

Europeans and other buyers would just rather avoid U.S. regulations. They therefore have focused on an ITAR-free movement. European satellite maker Thales Alenia is now promoting satellites and satellite components that are "ITAR free." What does ITAR free mean? It means the product has been put together, carefully discriminating against U.S. suppliers.

I would wonder whether the United States military should, except when absolutely necessary, do business with a company that has announced a policy of discriminating against U.S. suppliers whenever it can. Perhaps we should discriminate against that supplier whenever we can. This is especially true when the discrimina-

tion against the U.S. suppliers not only hurts us economically and violates the spirit of free trade, but is also specifically designed to thwart U.S. foreign policy.

Now, at the core of this problem is that the Chinese have the Long March rocket, not a big winner in terms of reliability, but a big winner in terms of cost. This Long March rocket technology is the result of Chinese Government subsidies, and one clear response for us is to simply subsidize our own launch capacity, keep those jobs, that technology, and the national security aspects all in the United States; that is to say, the national security knowledge in the United States.

So we do have, I think, a need to legislate. One way is to kick this back to the executive branch and allow satellites to be on the munitions list or not on the munitions list, subject to the same administrative process as other similar goods. We have to remember, though, that the last time this happened we saw it explode in the headlines. So I look forward to getting new ideas about how to balance our economic interests in a thriving economic space industry, with our national security interest in a way that is logical, that prevents the Chinese and others from knowing what is inside the satellite, and prevents U.S. persons from having an incentive to provide technical knowledge to the Chinese or others who should not receive it.

Now I want to turn this over for an opening statement to a gentleman who has demonstrated his patience by watching me go well over the 5-minute limit, our ranking member, Mr. Royce.

Mr. ROYCE. Thank you, Mr. Chairman. Thank you also for calling this hearing today. I think you are continuing the work on export controls that this subcommittee began in the last Congress.

This effort, I think we should note, spurred the previous administration into some reform, but more is needed and I look forward to exploring how satellite technology might be better handled.

Many are warning that the U.S. export control system is broken, that it is a relic from a past economic and business era. Numerous GAO reports have concluded this. We will hear today that satellite export controls needlessly target items that are readily available anyway on the world market, that they unduly restrict international cooperation, and that they frustrate access to needed foreign technology.

Several other countries are making impressive technological breakthroughs. France, for example, Russia, China, and others have built and they have orbited satellites using their own launch capabilities. The playing field for this $120-billion-a-year industry clearly is more crowded and it is more competitive than it has ever been before, and our export control system has poorly responded.

The economic impacts of export controls are tough to measure. The Pentagon, though, has found that satellite export controls have hurt U.S. aerospace companies, their business, and long-term ability to innovate in those businesses.

Several factors are at play, but it is fair to ask if Congress' toughening of satellite licensing 10 years ago has played a role in reducing American leadership in satellite communications. Our economic competitiveness is tied to our national security. Simply put,

we will not remain a military superpower without a world-class technology base, including satellites.

A top U.S. military official recently testified to Congress that U.S. export controls are hurting the space industrial base, threatening national security. His view should carry considerable weight.

Any system, especially one devised to counter the former Soviet Union, requires constant reform. No doubt a bureaucratic culture is a poor match for a world of ever rapidly evolving technology. The tendency in a bureaucracy is to play it safe, but bureaucratic safety does not promote national security if it is stifling innovation.

We will hear about the licensing system's shortcomings, including delays, redundancies, inconsistencies and static control lists. Many of these are valid charges. So let's hear from our witnesses on the reform proposals. But we should keep in mind that while the growing complexity of satellite technology and production does complicate regulation, complexity in and of itself does not argue for liberalization. China is central to this debate.

As one witness will testify, China's strategic intentions and proliferation record and the PLA's rapid growth and potential to improve its missile force through international cooperation factored into the decision to further restrict satellite exports. So that witness is right on that point.

Today China's satellites direct a kill weapon, a sophisticated missile, targeted at our naval fleet. Unfortunately, our allies are eager, only too eager, to provide China with advanced satellite technology. My concern is that the State and Commerce Departments, frankly, are naive about China.

Misguided faith in the validated end-user program is one example. Chinese spying is pervasive. We knew that here a year ago. The whole world knows it today. Chinese spying is pervasive. Export control reforms should be made with a very clear-eyed view of Chinese capabilities and intentions.

Mr. Chairman, satellites are essential to our national defense. So I look forward to working with you, beginning today, to find the way to control this critical technology that maximizes our security.

Thank you.

[The prepared statement of Mr. Royce follows:]

Statement of Representative Ed Royce
Ranking Member, Subcommittee on Terrorism, Nonproliferation and Trade
April 2, 2009
Export Controls on Satellite Technology

Thank you for calling today's hearing, Mr. Chairman. You are continuing the work on export controls the Subcommittee began last Congress. This effort spurred the previous Administration into some reform. More is needed. I look forward to exploring how satellite technology might be better handled.

Many are warning that the U.S. export control system is "broken," a relic from a past economic and business era. Numerous GAO reports have concluded this. We will hear today that satellite export controls needlessly target items that are readily available on the world market, unduly restrict international cooperation and frustrate access to needed foreign technology. Several other countries are making impressive technological breakthroughs: France, Russia, China and others have built and orbited satellites using their own launch capabilities. The playing field for this $120 billion a year industry clearly is more crowded and competitive than ever. Our export control system has poorly responded.

The economic impacts of export controls are tough to measure. The Pentagon though has found that satellite export controls have hurt U.S. aerospace companies --their business and long-term ability to innovate. Several factors are at play, but it's fair to ask if Congress' toughening of satellite licensing ten years ago has played a role in reducing American leadership in satellite communications.

Our economic competitiveness is tied to our national security. Simply put, we won't remain a military superpower without a world-class technology base, including satellites. A top U.S. military official recently testified to Congress that U.S. export controls are hurting the space industrial base, threatening national security. His view should carry considerable weight.

Any system, especially one devised to counter the Soviet Union, requires constant reform. No doubt, a bureaucratic culture is a poor match for a world of ever-rapidly evolving technology. The tendency is to "play it safe." But bureaucratic safety doesn't promote national security if it stifles innovation.

We'll hear about the licensing system's shortcomings, including delays, redundancies, inconsistencies and static control lists. Many are valid charges. So let's hear the reform proposals. But we should keep in mind that while the growing complexity of satellite technology and production does complicate regulation, complexity in of itself doesn't argue for liberalization.

China is central to this debate. As one witness will testify, China's strategic intentions and proliferation record, and the PLA's rapid growth and potential to improve its missile

force through international cooperation, factored into the decision to further restrict satellite exports. He's right. Today China's satellites direct a "kill weapon," a sophisticated missile, targeting our naval fleet. Unfortunately, our allies are eager to provide China with advanced satellite technology.

My concern is that the State and Commerce Departments, frankly, are naive about China. Misguided faith in the validated end-user program is one example. Chinese spying is pervasive. Export control reforms should be made with a very clear-eyed view of Chinese capabilities and intentions.

Mr. Chairman, satellites are essential to our national defense. So I look forward to working with you, beginning today, to find the way to control this critical technology that maximizes our security.

Mr. SHERMAN. Thank you, Mr. Royce, and thank you for pointing out that this hearing builds on prior hearings and that those prior hearings, I think, have been successful in getting the State Department to move more quickly on these export applications. But I think we have more to do if we are going to strike the right balance and help our economy.

I want to acknowledge former Senator Warner of Virginia who is here with us today and thank him for his attendance. We have a member of the full committee who is not a member of the subcommittee but, given his interest, probably should be, completing our full Southern California panel, Dana Rohrabacher, who I know wants to make a brief opening statement.

Mr. ROHRABACHER. I got that "brief" part there.

Mr. Chairman, first of all I am a member of the Foreign Affairs Committee and have been for 18 years now. But let me also note that I am a senior member of the Science Committee and served as chairman of the Space Subcommittee of Science for 8 years, so I know about this issue, I have followed it, I take it very seriously. So let's be frank. Let's not beat around the bush about what we are really talking about here.

If you don't want export control reform to focus on China—if you do want to focus on China, that is fine—but if you don't want us to focus on China and you want to focus on how we can reform export controls generally, then take China right off the table, right off the bat.

So any reform that is going to be really effective and that we have a chance of succeeding has got to be a two-tiered approach. It is as simple as that. That has been something that the industry has been unwilling to accept and to take seriously. Because what is happening in China and the threat that China poses is something that we cannot ignore, yet that should not be the controlling factor of how we regulate high-tech and especially our policies dealing with satellites and in our dealings with all the other countries of the world.

Last week the heads of the world's largest satellite operators said that they want to launch their satellites on Chinese rockets. They want to do that because it is cheaper. In fact, every time these sat-

ellite operators are given the chance to discuss ITAR reforms, they always tell us that they want permission to launch on the Long March rocket. It doesn't take a rocket scientist to deduce that the leading edge of reform efforts in terms of ITAR, then, is actually an effort to permit satellites to be launched on Chinese military rockets.

Is that what the debate is really all about? Because you can count on me to be working with all of you to try to make sure that we decrease the regulations on America's ability and other people's ability to sell our technology to other countries.

But let's be serious and talk about China. It is somewhat offensive for me to hear the SES whose holding company, I might add, is in Luxembourg, or Telsat, a Canadian company, or Eutelsat, which is French, of course, and then Intelsat, which, of course, pays its taxes in Bermuda, it is kind of disturbing to hear all of these people lecture us about how we are trying to save jobs in the United States by letting foreign companies take advantage of cut-rate military launches.

First of all, these people aren't concerned about jobs in the United States. But what about the jobs in the United States? Don't they count? What about the people who work in our launch industry? They should be part of the equation when we are talking about this.

Now, as a Republican and a believer in free markets, I do not begrudge satellite operators who are making millions of dollars of profit, I don't begrudge them that profit. But the fact is that we should not be compromising the security, long-term security interests of our country for that short-term profit, and that is why we have to focus on China.

Benjamin Franklin is quoted as saying, "Sir, please don't burn down my barn to cook your eggs." Well, we have Eutel Satellite basically asking us to endanger our national security in order to fatten profits. And Eutelsat, as I say, is making a profit.

So let's take a look at what policies we should have about China and let us not forget that the reason why there are the restrictions on China that we have got is because China remains a vicious dictatorship. It is the same Chinese regime today that massacred the reform movement in China at Tiananmen Square, and that is why these restrictions were put on in the first place.

So I would suggest that those who are very serious about trying to make sure that we pay attention to the cumbersome restrictions that ITAR puts on high-tech companies, I suggest let's talk about setting up a two-tier system where they are freed from those restrictions and have a realistic policy toward China.

Thank you very much, Mr. Chairman.

Mr. Chairman, if I could indulge you, I notice that the administration is not represented here today, and I have a series of questions that I would like to submit for the record that we would like the administration to answer in terms of this issue.

Mr. SHERMAN. They will, without objection, be made part of the record.

Whether those who are not here have an obligation to answer, I leave to the Parliamentarian, but certainly I would urge you to send those to the administration in the form of a letter, and often

the administration takes seriously the obligation to respond to such letters.

We now have been joined by Congressman Connolly of Virginia, who will not only be making an opening statement now, but he will be chairing these hearings at 2 o'clock until about 2:15 when I have to go vote in the Financial Services Committee.

The gentleman from Virginia is recognized.

Mr. CONNOLLY. I thank the distinguished chairman, and thank you for holding today's hearing. I also want to join in welcoming my friend, the former senior Senator from Virginia, John Warner. I am delighted to see Senator Warner here today.

I believe the subject of this hearing highlights once again the law of unintended consequences. Here we have a case in which a previous Congress, well-intentioned as it might have been, imposed tighter export restrictions on the commercial communications satellite industry in the interests of protecting national security based on accusations of improper technology-sharing with China.

I appreciate and support the need to safeguard the propriety of our military technologies. However, the practical effect of the International Traffic in Arms Regulations appears to have been to stifle innovation and America's competitive edge in the global satellite marketplace.

The U.S. share of worldwide satellite manufacturing revenue has fallen by one-third since these restrictions became law. A DoD survey showed the industry attributes more than $.5 billion in annual lost revenue due to administrative problems and the changes in regulation. According to the industry, the technology beaming the deliberations of this legislative body to television sets back home is now more regulated than those industries developing new weapons.

During the last decade, competitors in other nations stepped in to fill the void left by the shrinking U.S. commercial satellite industry. While their technology may not be quite on par with American production, it comes with none of the restrictions in selling to unfriendly nations. So while we succeeded in preventing American companies from inadvertently providing technology to China or other restricted nations, we also helped fuel our global competitors, some of whom do not share our concerns for supplying unfriendly regimes.

As if this dynamic were not enough to warrant a fresh review from the new administration, we are now hearing from leaders within the defense and intelligence agencies who believe the American satellite industry has been so weakened that it is now threatening the sustainability of the very security we are trying to protect.

Mr. Chairman, this is a sobering reminder that good intentions are not enough. Whether it is the overly rigid parameters of No Child Left Behind, the lack of regulation for derivatives and no-fault swaps—which I was just talking about in the Government Reform and Oversight Committee—or the oversight of commercial satellites, it seems to me that it is incumbent upon those of us writing the laws to ensure they are more than the enshrinement of good intentions. They must be focused on efficacy.

In this particular case I would say we are overdue for revisiting this export policy at the start of a new administration, and our up-

coming review of the State Department budget provides just such an opportunity. I hope today's hearing will be the start of that important discussion, and I thank you for holding it.

[The prepared statement of Mr. Connolly follows:]

April 2, 2009
Congressman Gerald E. Connolly
Opening Statement
HFCA Terrorism, Nonproliferation and Trade Subcommittee
Export Controls on Satellite Technology

Mr. Chairman,

Thank you for holding today's hearing, which I believe highlights once again the law of unintended consequences.

Here we have a case in which a previous Congress, well intentioned as it might have been, imposed tighter export restrictions on the commercial communications satellite industry in the interest of protecting national security based on accusations of improper technology sharing with China. I appreciate and support the need to safeguard the propriety of our military technologies. However, the practical effect of the International Traffic in Arms Regulations appears to have stifled innovation and America's competitive edge in the global satellite market place. The U.S. share of worldwide satellite manufacturing revenue has fallen by one-third since these restrictions became law. A DoD survey showed the industry attributes more than half a billion dollars in annual lost revenue due to administrative problems from the changes in regulation. According to the industry, the technology beaming the deliberations of this legislative body to television sets back home is now more regulated than those industries developing new weapons technology.

During the last decade, competitors in other nations stepped in to fill the void left by the shrinking U.S. commercial satellite industry. While their technology may not be quite on par with American products, it comes with none of the restrictions on selling to unfriendly nations. So while we succeeded in preventing American companies from inadvertently providing technology to China or other restricted nations, we helped fuel our global competitors, some of whom do not share our concerns for supplying unfriendly regimes.

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In this particular case, I would say we are overdue for revisiting this export policy. The start of a new administration and our upcoming review of the State Department budget provide such an opportunity. I hope today's hearing will be the start of that important discussion. Thank you.

Mr. SHERMAN. I thank the gentleman from Virginia.

I am about to recognize our witnesses. I will ask them, kind of in reference to the comments of Mr. Rohrabacher, if they can weave into their opening statements whether there is a way to achieve the jobs objective if we completely shut out China, but otherwise make changes; and, second, whether we are talking here not just about opportunities for the companies, but try to tell us whether we are creating U.S. jobs rather than just profits for U.S. companies.

Without objection, we will enter into the record the opening statement submitted by Mr. Manzullo, who is a member of this subcommittee, and also a copy of today's New York Times article on the subject of these hearings.

[The prepared statement of Mr. Manzullo follows:]

COMMITTEE ON FOREIGN AFFAIRS
SUBCOMMITTEE ON TERRORISM, NONPROLIFERATION AND TRADE
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, D.C. 20515

Donald A. Manzullo (IL-16)
Opening Statement

April 2, 2009

Mr. Chairman, thank you for calling this important hearing to examine the implications of export controls on national security and the industrial base.

The current export control system has been particularly troublesome to the commercial satellite industry here in the United States. When Congress made the mistake of moving commercial satellites and their components from the jurisdiction of the Commerce Department over to the munitions list regulated by the State Department in 1998 – a move that I opposed – the goal was to keep sensitive technologies out of the hands of our enemies. That shift, much as I predicted, has damaged America's space industrial base and caused the U.S. to falter in its global space leadership and contributed little to our national security. Other foreign commercial satellite manufacturers simply took orders and jobs away from American firms.

Today, America's long-held superiority in exploring and commercializing space is slipping away. Our efforts to deny space technology to our potential enemies through export controls have hampered U.S. companies and limited sales of hardware made in America. In 2007, 53 American-built satellites were launched. That's less than half of the number launched in 1998. And, according to a joint report by the National Security Space Office and the Commerce Department, International Traffic in Arms Regulations (ITAR) have hit U.S. space component manufacturers and exporters to the tune of $600 million a year.

ITAR-free satellites and rockets are being sold by non-U.S. manufacturers. Even Canadian officials have said they should be "hedging their bets" by pursuing ITAR-free acquisition strategies that make it possible to market products and services globally without restrictions.

Furthermore, our export controls are impacting academic institutions and research facilities. We are pushing space research and development out of the universities and into foreign countries.

Last year's report from the Center for Strategic & International Studies on the health of the U.S. space industrial base really underlined the extent to which export controls have impacted the space industrial base. I look forward to hearing Mr. Chao's testimony on this issue.

Last fall, I joined with my fellow co-founders of the Export Control Working Group – Earl Blumenauer of Oregon and Joe Crowley of New York – to request that the Defense Technology Security Administration (DTSA) conduct an analysis of the satellite payloads, components and related items that could be safely and smartly transferred from the U.S. Munitions List to the Commerce Control List. We also wanted justification for each suggested move of an item or category of items and welcomed any suggestions on how to best distinguish

between military and civil space components. A sensible approach to reviewing U.S. Munitions List products, particularly satellite-related components, is both feasible and necessary.

DTSA's response, however, indicated that the agency was disinclined to undertake such a study without a strong signal that Congress will reconsider the existing statutes. In the meantime, though, I believe the industry is making moves to compile a similar list. There is room here for much cooperation, and I hope we will be able to find a sensible solution to an obvious problem. More than 80 percent of the respondents in a recent survey conducted by the Space Foundation confirmed that ITAR is well-intentioned by needs significant reworking to reflect the current environment, and I couldn't agree more.

This is one slice of a larger problem with our current export control system, but I am glad that we are continuing to seriously consider this issue. Mr. Chairman, thank you again for convening a hearing on this vitally important topic.

[The article referred to follows:]

The New York Times

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April 2, 2009

For U.S. Satellite Makers, a No-Cost Bailout Bid

By WILLIAM J. BROAD

Officials in Washington are moving to revitalize yet another faltering American industry: the business of making the communications satellites that hover above Earth and knit the planet into a global community.

But this rescue would not cost taxpayers hundreds of billions of dollars. In fact it could be virtually free — if Congressional Democrats succeed in lifting export controls that classify satellite technology as weapons and have handicapped American manufacturers since the last days of the Clinton administration.

House hearings on the controls are to begin Thursday. Proponents of change are optimistic, pointing to a campaign pledge by President Obama and the support of respected figures like Brent Scowcroft, national security adviser to Presidents Gerald R. Ford and George Bush.

But the export revision is by no means a sure thing. The national security arguments cited in imposing the limits still resonate with conservatives who believe strict regulation is needed to keep China and other countries from stealing secret technology.

Since the rules took effect in 1999, the legal complications involved in selling commercial communications satellites and components abroad have contributed to a sharp decline in American companies' share of the market, from nearly 90 percent to about 50 percent. The drop in sales has coincided with a reversal in America's balance of trade in high technology, which went negative in 2002 and has stayed there.

During the presidential campaign, Mr. Obama issued a policy statement that faulted the rules as having "unduly hampered the competitiveness of the domestic aerospace industry" and cost the nation billions of dollars. As president, he said, he would push for change.

Now the administration is tapping a leading proponent of export revisions, Representative Ellen O. Tauscher, a California Democrat who is chairwoman of the centrist, 67-member New Democrat Coalition. Ms. Tauscher recently announced that she would give up her House seat to become under secretary of state for arms control and international security — a key post overseeing the export bureaucracy.

Before her nomination, Ms. Tauscher said the issue was one of her top priorities. "It's an enormously big deal," she said in an interview.

But some lawmakers still have jitters about putting satellites into the hands of Washington's adversaries, and in particular those of Beijing.

"In the political environment we operate in, China is the third rail," Thomas C. Moore, a satellite export specialist for the Senate Foreign Relations Committee, told a Washington conference in November. "We

have members who know China tests weapons in space, and they don't want to be accused of giving them any assistance."

Advocates of easing the export rules say they have damaged rather than enhanced national security and hobbled a field that was once a proud symbol of American innovation.

The first communications satellite to soar into stationary orbit was invented by Harold A. Rosen, then an engineer at Hughes Space and Communications. It flew in 1964.

Once as small as wash tubs, the satellites now can rival a truck in size, weigh tons and cost $200 million. In space, their solar panels can unfurl to half the length of a football field. Each year, 10 to 30 are sold.

From a height of 22,300 miles, the spacecraft beam signals over vast distances, relaying trillions of phone calls and linking ships to shore and soldiers to families. They send electronic school lessons to rural Africa, the Olympic Games live around the globe and convey TV shows to broadcasters, cable operators and homes equipped with dish antennas.

The spacecraft have been honored as quiet forces promoting development and democratic values.

Jonathan McDowell, a Harvard astronomer who tracks satellites, said the United States had built 428 of the craft launched successfully into orbit — the vast majority. It sold one-third to other nations, which typically used the satellites as stepping stones to development.

In 1984, a European rocket lofted one of the American craft, starting a trend to launcher globalization.

The strict export controls arose from a political fight over how far to open the field to China, which in the 1980s began offering cheap rides into orbit on low-cost rockets. A main issue was whether Beijing could be trusted, like a letter carrier, to make deliveries without peeking inside.

President Ronald Reagan approved three satellite transfers to China. The first President Bush permitted nine more.

President Bill Clinton sought to regularize such exports. In early 1996, he directed that the licensing shift from the State Department to the Commerce Department, signaling the importance of economics.

Starting in early 1998, a series of upsets brought the expanding trade to a halt.

Two American satellite makers — Hughes and Loral — were accused of illegally giving China advice about making not only commercial rockets, but also military missiles.

As a federal grand jury investigated, the Republicans, who controlled Congress, held hearings. They warned that satellite exports threatened a hemorrhage of secret materials and information, and said that China might have already stolen encryption secrets.

"It's critical that safeguards are in place," Senator John McCain of Arizona, chairman of the Senate commerce committee, said at a hearing in September 1998.

A month later, the Republicans attached to a defense bill a rider that sought to license commercial satellites

as weapons and give Congress authority to supervise the exports.

Mr. Clinton, weakened by calls for his impeachment, signed the bill into law. But he called the move unnecessary, saying it threatened to "hamper the U.S. satellite industry."

Many Democrats and aerospace experts agreed.

"They were out to get Clinton," said James A. Lewis, a former Commerce Department official now at the Center for Strategic and International Studies in Washington. "It really didn't have anything to do with export controls or national security."

The new regulations quickly hurt American satellite makers. Boeing lost a $450 million order. Canadian firms pulled out of at least four projects.

In June 2000, William A. Reinsch, then an under secretary of commerce, told the Senate that, from 1998 to 1999, satellite export sales had fallen by 40 percent. The drop, Mr. Reinsch said, harms "the high-tech industries upon which our military and intelligence agencies depend."

The decline accelerated as other countries, driven by pride and the allure of profits, joined the business. Around 2002, Alcatel Space, based in France, started building communication satellites free of American parts and thus free of American export restrictions. It soon landed a $145 million order from China. Other satellite makers joined the de-Americanizing trend.

The "anachronistic restrictions," Manmohan Singh, India's prime minister, told his nation's space scientists, have "spurred you to greater heights." India now has many communications satellites in orbit, and a science probe circling the Moon.

In 2003 — as American satellite exports fell to $215 million from $1.05 billion in 1998 — the Commerce Department reported that the nation's annual balance of trade in high technology goods had declined for the first time. Hughes, the satellite pioneer (now a unit of Boeing), had 11 commercial satellite orders in 1998 and none in 2007, according to Futron, an aerospace consulting firm in Washington.

"The United States invented this industry," said Peggy Slye, director for space and telecommunications at Futron. "To see that lead eroded because of regulatory policy is very regrettable."

The losses are even potentially risky. Congressional investigators examined the military's growing reliance on foreign communication satellites and warned that technical and political upheaval "could affect the availability." Some commercial satellites had already suffered intentional disruption, the report said.

In January, the National Research Council, an arm of the National Academy of Sciences, called relaxation of the export policies a matter of urgency. The rules, it said in a report, weaken national security and discourage innovation, isolating domestic industries in "a self-destructive strategy of obsolescence and declining economic competitiveness."

Mr. Scowcroft, the former national security adviser who is the report's co-chairman, said the government should reverse itself and assume that technology and information are harmless unless proven otherwise.

"Instead of saying, 'Is it all right to let this bit of information out?' we should say, 'Is there any compelling reason why we should not?' " he said in an interview. "Our default position ought to be openness."

Some analysts still urge extreme caution. Baker Spring, a national security analyst with the Heritage Foundation, a conservative research group in Washington, advocates a country-by-country approach in which close allies could buy or launch satellites but not nations like China.

The hearing on Thursday, before the House Foreign Affairs trade subcommittee, features supporters and critics. But its chairman, Representative Brad J. Sherman, a California Democrat, told a satellite conference in Washington last week that the hope of new jobs could spur regulatory change.

Dr. Rosen, the technology's inventor, who at 83 still consults for Boeing, said he believed that the policy would shift and that the industry would rebound.

"I'm an optimist," he said. "The reason I keep consulting is that I enjoy interacting with the young engineers, and they're as good as ever."

Cornelia Dean contributed reporting.

The picture caption with an earlier version of this article gave an incorrect date for the launching of the Galaxy IIIC satellite.

This article has been revised to reflect the following correction:

Correction: April 4, 2009
A picture caption on Thursday with an article about export controls on satellite technology referred incorrectly to the launching of the Galaxy IIIC communication satellite, built by Boeing. It was launched in 2002; it is not "scheduled for a late-May launch."

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Mr. SHERMAN. With that, let us welcome our first witness, Pierre Chao, Senior Associate with the International Security Program of the Center for Strategic and International Studies. Mr. Chao was a co-chair of the working group on the health of the U.S. space industrial base and the impact of export controls.

Mr. Chao.

STATEMENT OF MR. PIERRE CHAO, SENIOR ASSOCIATE, CENTER FOR STRATEGIC AND INTERNATIONAL STUDIES

Mr. CHAO. Mr. Chairman, Mr. Royce, members of the subcommittee, thank you for inviting me to testify before you. If I can have my written testimony and a copy of that study included for the record, I would be grateful.

I was asked to talk about this study that we undertook in 2007–2008. A lot of the conclusions and findings I am hearing quoted, so from that perspective that is a good thing. At the time I was a full-time employee of the Center for Strategic International Studies. I am now a non-resident senior associate at CSIS.

The study started in response to mounting concerns on the part of the National Security Space Community about the health of its industrial base and the rumblings that space-related export controls were causing problems within the industry. We put together a working group that we thought was very well balanced, that represented all the different constituencies, because there are multiple viewpoints. So we made sure we had on that working group people from the Defense Department, people from the State Department, people from large companies and small companies, people with congressional experience, people from the new space community.

We were also able to leverage some outstanding data analysis generated by the Bureau of Industry and Security. It was a survey done of the industry, the first time anybody had done it, and the fact that your CEO would go to jail if they didn't answer it made sure we had a 100 percent response rate. So we had a lot of good data related to it.

We also approached the problem with a couple of key principles: First, leadership in space is critically important to U.S. national security.

Two, there are deep interdependencies between the defense space, intelligence space, civil space and commercial space communities. Weakness in one represents a weakness in all, because we share the same industrial base.

Third, it is important to have a strong industrial base.

Four, a prudent export control policy is important and necessary.

Finally, we also looked at this whole issue through the lens of national security. It was very clear in that 1999 legislation, the intent of the Congress was very clear. It said that national security trumps economics in this case, so therefore we examined everything from a national security lens to see are we meeting the goals we wanted.

So what were some of our findings? One, the overall health of the industry is good. We put quotes around the word "good" because there is a certain amount of fragility to it. There is a lot of capacity, not enough work. And we did recognize some very noticeable weaknesses in the second and third tier of the industries, where

there is the beginnings of single points of failure which should be of concern.

Two, the U.S. space industrial base has returned to being very dependent and tied to the defense market. Where once upon a time it was more broadly based, now 60 percent of the revenues are related to defense, 90–95 percent are related to U.S. Government. We are arsenalizing the industry. Philosophically you can make a policy decision and say that is the way I want to do it, but there is a price we have to pay for that. And we have to be honest about the price in order to keep it as part of an arsenal, or we let it complete more broadly in the global marketplace and diversify and broaden its competitiveness.

Third set of findings. Space capabilities continue to proliferate globally. Mr. Chairman, you talked about that. And we are rapidly losing the ability to control that proliferation. Many of the countries that have gained capability in space got it from the Russians or others.

So from that perspective, the intent of the Space Export Control System has not prevented the rise of these other powers. It may have slowed them down, it may have increased the cost of achieving those capabilities, but it has certainly not stopped the arrival of other players.

In fact, in some of the more striking findings they found that the Export Control Regime had a perverse—to use your words—a perverse unintended consequence of encouraging others to develop indigenous capabilities, when they told us they would have been more than happy to buy American equipment because it is far better; but because of the friction in the system, they couldn't rely on American components. So we were very much struck by that.

Another set of findings related to the fact that the export control regime makes it very difficult to engage in cooperation with our close allies, in some cases contrary to what the U.S. national space policy is, which says to encourage international cooperation. Again, there is a friction in place.

Then the last set of findings we found is that regardless of what study you look at—and I don't care which one you find—the U.S. satellite industry has been losing global market share over the last couple of years. And in particular, the biggest burden has landed on the second and third tier of the industry that don't have the resources of the big guys to wind their way through the export control system; that really rely on being able to participate in the global marketplace in order to generate the profits to invest back in plants and research and development.

So we came up with a series of recommendations and I would like to highlight a couple of key ones.

One, it is time for the administration and the Congress to sort of review and reconcile the strategic intent of these goals.

Two, take the technologies and identify the components that you want to restrict for China, or for anybody else, because that is what we want to get at, rather than putting the entire satellite on it, which turned out to be an extremely blunt instrument, because once you put a satellite on the munitions list, every component down to the simplest bolt becomes a munition. So let's stop what we want to stop going out, which is the critical technology

componentry, allow the overall satellite to be moved back, and if someone doesn't want to put critical technologies on it, they don't have to and they can sell it, and we are still protecting technology while generating jobs in the grand scheme of things.

You need an annual review. This committee has talked about that in prior reform. Why? Because the technology changes quite a bit.

Finally, there are other amendments or changes that you can do in terms of time of licenses, et cetera, that you have referred to, and other reform legislation that you actually—because you have a piece of legislation related to the space industry—insert related to this topic.

So, I thank you for allowing me to present our study and thank you for taking up this very important topic, and I look forward to your questions.

Mr. SHERMAN. I thank you for that presentation.

[The prepared statement of Mr. Chao follows:]

Written Testimony for Pierre Chao,
Non-Resident Senior Associate, Center for Strategic and International Studies
Before the House Foreign Affairs Committee –
Subcommittee on Terrorism, Non-Proliferation and Trade
Hearing on Export Controls on Satellite Technology
April 2, 2009

Mr. Chairman, Mr. Royce and distinguished members of the Subcommittee, thank you for inviting me to testify today on the critical issue of satellite export controls.

I was asked to discuss the findings, conclusions and recommendations of a study titled "The Health of the U.S. Space Industrial Base and the Impact of Export Controls" that I co-chaired in 2007 and early 2008. At the time of the study I was a full time employee of the Center for Strategic and International Studies as a Senior Fellow and Director of the Defense-Industrial Initiative Group. I am no longer a full time employee of CSIS but remain a Senior Associate, Non-Resident. I am currently a Managing Partner with Renaissance Strategic Advisors, an aerospace/defense strategy consulting firm, which I would note, in the interest of full disclosure, currently has no clients in the satellite industry.

The study was undertaken in response to mounting concerns on the part of the national security space community about the health of its space industrial base and the rumblings that the space related export control regime was causing problems within the industry. I was fortunate to have an outstanding working group on this study; a well balanced group that represented the myriad constituencies and interests on this topic. My co-chairs were Tom Young and Bill Ballhaus, two very well known and respected authorities in the space community. We had individuals who brought a Department of Defense perspective, such as Paul Kaminski, General Tom Moorman, General John Tilelli and Jeffrey Bialos; who brought a State Department perspective, such as Lincoln Bloomfield; the perspective of industry, such as John Douglas of the Aerospace Industries Association, John Klineberg, Tom Marsh of Lockheed Martin, and J.R. Thompson of

Orbital Sciences; that of component manufacturers, such as Dick Albrecht of Moog and David Danzillio of Emcore Photovoltaics; the viewpoint of the "new space" community, such as Lon Levin of SkySeven Ventures; and the Congressional perspective, brought forth by Robert Walker. We were also able to leverage some outstanding data and analysis generated by the Bureau of Industry and Security at the Commerce Department and the Air Force Research Laboratory. It is important to note that the findings and recommendations are a consensus set of findings and recommendations, the result of long discussion but ones which all the members of the group stand behind.

The working group approached the problem with a few key principals. First, leadership in space is critically important to U.S. national security. Second, there are deep interdependencies between the four pillars of the space community – defense-related space, intelligence-related space, civil space and commercial space. The same industrial base and infrastructure supports all four and therefore a U.S. weakness in one sector impacts the others. Third, it is important to have a strong space industrial base. Fourth, a prudent export control policy is important and necessary. Finally, we looked at the issue of the health of the space industrial base and export controls through a national security lens rather than an economic viewpoint. The Congress in its 1999 legislation related to space export controls was very clear in its intent when it noted that national security should trump economics when it comes to this topic. Therefore, we first tried to assess whether the national security and strategic goals on the U.S. were being served by the space export control policy.

We had thirteen findings, I will group some of them together for sake of brevity:

- The overall financial health of the top tier of the space industry was "good". The good was in quotes because there was a fragility to that health. Although the industry was recovering from the telecom boom bust of the late 1990s, early 2000s and defense-related space was on the upswing there was still more capacity than work. Furthermore there are well documented human capital and program execution issues in the industry. Finally, there are some noticeable weaknesses,

- The U.S. space industrial base has returned to being very dependent and tied to the defense market. Sixty percent of the industry's revenues are tied to national security, include civil government space and 90-95% of the industry's revenues are tied to the U.S. government. Clearly the industry was founded on supporting the government – whether for defense needs or NASA and other civil agencies, but in the 1990s there was a broadening of the industrial base. Today the services component of the space industry is very commercial and global. The U.S. space industrial base is becoming "arsenalized". This raises a key strategic point. If we continue down this path then the national security community will "own" the industry and will have to provide for its health. The alternative is encourage and enable the U.S. space industrial base to participate more in the global market place and broaden its economic base, increasing its viability and competitiveness.
- Space capabilities continue to proliferate globally. There are rapidly emerging foreign space capabilities and the US does not control their proliferation. And in certain sectors where the U.S. once had preeminence and a very far lead, the gap is beginning to close as other nations gain the ability to place satellites in orbit and gain sophisticated monitoring technologies and communications capabilities.

  The current space export control system has not prevented the rise of these other space powers. It may have slowed them down or increased the cost of developing these space capabilities, but it has not stopped them. In fact, in one of the more striking findings, the U.S. space export control regime may have actually encouraged the development of overseas space capabilities when that country was initially happy to use American components. From that perspective, through a perverse set of unintended consequences, the export controls may have triggered the exact opposite of the strategic intent of the controls.
- The current space export control regime makes it difficult to engage in cooperation with our close allies and is constricting U.S. engagement and partnership with the rest of the global space community on the civil and

- Regardless of what study one looks at, the U.S. satellite industrial base has been losing global market share and the U.S. space industrial base has been withdrawing from the global market place at the 2nd and 3rd tier because of the friction of participating in global projects.

  In fact, it is the 2nd and 3rd tier of the industry that are suffering the most from the friction in the system. As small businesses they have less resources than the large players to work their way through the export control system, and are more dependent on having as broad of a business base in order to sustain the necessary investments in factories and research and development. Once again, there has been an unintended consequence – the way the export control regime is constructed, once a satellite was designed a munition by legislation, every part and component (including a simple bolt) is by definition a munition. This was not the intent according to those who were involved in the drafting of the original legislation, but it has nonetheless been the result. The instrument that was used to achieve the U.S.'s goals has turned out to be too blunt of an instrument.
- It is important to have export controls to protect sensitive national security space capabilities. There should be a way to improve the process and regime without harming national security.

In summary, we found evidence that strategic goal and national security imperative of the space export control policy were not being achieved, and worse, may be encouraging the exact opposite of its intent. And that it was having unintended consequences by harming our own industrial base, particularly the small businesses in the industry.

We had a series of recommendations in our report. I will highlight a few key ones.

- The Administration and Congress should review and reconcile the strategic intent of space export controls. It has been a decade since the

- Critical space technologies should be identified and should remain on the Munitions List and under the State Department ITAR process. Rather than use the blunt instrument of making the entire satellite a munition, identify the critical technologies and components that the U.S. needs to protect and put those on the munitions list.
- Remove from the Munitions List commercial communications satellite systems, dedicated subsystems, and components specifically designed for commercial use; provide safeguards by having Defense Department identify critical space components and technologies that should always require licensing and referral. Once the critical technologies are identified, the overall satellite can be controlled under the dual-use regime with the safety net that key components are still protected under the ITAR regime.
- Annually review the appropriateness of designating specific satellite and other space systems, components, and capabilities as Munitions List items based on criticality of items and on their availability outside the U.S. The technology changes rapidly enough that a periodic and constant review is necessary.
- Additionally, Congress could amend the legislation related to satellite export licensing and adopt some of the best practices being used in other processes – set timelines, technology thresholds, de minimus rules, and special licensing vehicles. To the extent that the Congress does not want to change the overall legislation, it could be amended to embed best practices that permit a smoother functioning of the export control regime.
- The Secretary of Defense and NASA Administrator, in addition to the Secretary of State, should have the authority to grant real-time, case-by-case, specific time period exemptions for anomaly resolutions deemed to be in the national interest based on criteria from the National Space Policy.

- Create a special program authority to permit timely engagement of U.S. participants in multinational space projects. A broad program license could permit more engagement in cooperative programs.
- Increase the dollar threshold for satellite exports Congressional notification and establish a mechanism to allow the threshold to adjust with inflation.
- Relevant space-related government agencies should collaboratively undertake an annual assessment of their industrial base.

I thank you for allowing me to present our study and I thank you for taking up this very important topic. Thank you for the opportunity to testify, and I look forward to your questions.

Mr. SHERMAN. I would note that the reason Congress put satellites on the munitions list had, believe it or not, nothing to do with the component of the satellite and everything to do with preventing any U.S. entity from having an interest in the success of the program. So it wouldn't really matter whether it was great technology or poor technology that was inside the satellite. If you bought the rationale for the law we passed in the nineties, you would maintain it.

With that, let us go to Dr. Larry Wortzel, vice chairman of the U.S.-China Economic and Security Review Commission. He is a retired U.S. Army colonel with extensive experience in technological security and counterintelligence. He served two tours of duty as a military attaché at the American Embassy in China.

STATEMENT OF LARRY M. WORTZEL, PH.D., VICE CHAIRMAN, U.S.-CHINA ECONOMIC AND SECURITY REVIEW COMMISSION

Mr. WORTZEL. Thank you, Mr. Chairman. Chairman Sherman, Ranking Member Royce, satellites form a really major part of military command, control, communications, information gathering and targeting systems or C4ISR systems. And I am going to draw from some of the conclusions in the annual reports of the U.S.-China Economic and Security Review Commission, and I will provide you some of my own views in discussing how satellite exports bear on the strength of the Chinese People's Liberation Army, or the PLA.

Now, the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 turned control over satellite export licensing to the State Department under the Arms Export Control Act. Factors driving Congress to make this change were concerns about the rapid growth of the PLA, China's strategic intentions, potential threats to the United States, and the potential for proliferation of weapons and delivery systems by China.

Congress also expressed concerns that cooperation with China in space and missiles could improve accuracy in Chinese missile programs, assist with the development of multiple independently targeted reentry vehicles, and assist with the development of submarine-launched ballistic missiles.

I see no reason to change the decision to have satellite exports remain on the munitions list. Satellites are now an integral part of China's military architecture. They are used to support intelligence collection, control forces, direct precision missile strikes, and for data transfers that improve combat effectiveness.

The PLA has research that suggests using ballistic missiles with maneuvering reentry vehicles to attack U.S. aircraft carrier battle groups. A sensor architecture based on satellites would guide such attacks. Right now, the PLA has only two tracking and data relay satellites in orbit. That is not enough to give them a real time global intelligence collection capability, but is it is more than adequate to support their plans to target American aircraft carrier battle groups with both hypersonic cruise missiles and those maneuvering ballistic missile warheads.

Now, given the way that satellite programs are being used in China, exports of dual-use technologies that would improve China's remote sensing satellite capabilities still require careful control. Our Commission's 2006 annual report concluded that China has

recognized the effectiveness of force multipliers like C4ISR and it is enhancing its own capabilities to make its military a more formidable fighting force. These improvements depend directly on satellites.

In 2007, the Commission's annual report concluded that China has developed an advanced anti-satellite program that consists of an array of weapons that could destroy or incapacitate an enemy's satellites.

My own research shows that China's military strategists see the United States as the most likely potential adversary. A research paper that I did for the American Enterprise Institute documents that PLA strategists contemplate maneuvering satellites in space, among other measures, as a means to degrade an adversary's C4ISR programs.

Mr. Chairman, I ask that copies of my research be made part of the record.

Mr. SHERMAN. Without objection, so ordered.

[The information referred to is not reprinted here but is available in committee records.]

Mr. WORTZEL. Although China has not successfully tested a submarine-launched ballistic missile, it has fielded two new ballistic missile submarines. A decade ago the House expressed concern that satellite cooperation with China could improve its submarine-launched ballistic missile program.

I also recommend examining more closely how the United States controls the dual-use satellite-related technology. China is working with Iran on space and satellite programs, plus other countries.

Last week, Dr. Eugene Arthurs, who is CEO of the International Society for Optical Engineering, told our Commission that technologies used in satellites, such as high-powered chips that support lasers, can be part of a space-based weapons system.

I urge you to keep satellite export controls in the Department of State and also to look into implementing some of the findings of the "Beyond Fortress America" report related to ensuring that export control processes are more timely, distinguish among technologies, and that regulations are updated to account for advances in technology and development.

I would note in response to Mr. Rohrabacher's concerns that in Fiscal Year 2000, the Congress, despite where satellite controls were placed, decided they wanted to move forward and push satellite and space cooperation with Russia, and through executive decisions were able to do that, regardless of where the system was administered.

Thank you very much for the opportunity to be here and testify.

Mr. SHERMAN. Thank you.

[The prepared statement of Mr. Wortzel follows:]

Export Controls on Satellite Technology

Testimony before the Subcommittee on Terrorism, Nonproliferation and Trade
Committee on Foreign Affairs

House of Representatives

By

Larry M. Wortzel
Vice Chairman
U.S.-China Economic and Security Review Commission

April 2, 2009

Rayburn House Office Building

Chairman Sherman, Ranking Member Royce, satellites form a major part of military command, control, communications, information gathering and targeting systems (or C4SIR systems) in 21st century military operations. I will draw from conclusions in the annual reports of the U.S.-China Economic and Security Review Commission and will provide my own views in discussing how satellite export controls bear on the strength of the Chinese People's Liberation Army, or PLA.

The Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 returned control over satellite export licensing from the Department of Commerce to the State Department under the Arms Export Control Act. [1] Factors driving Congress to make this change were concerns about the rapid growth of the PLA, China's strategic intentions, potential threats to the United States and allies, and the potential for proliferation of weapons and delivery systems by China. Congress also expressed concerns that cooperation with China in space and on missiles could improve accuracy in Chinese ballistic missile programs, assist with the development of multiple independently-targeted reentry vehicles, and assist with the development of submarine-launched ballistic missiles.

I see no reason to change the decision to have satellite exports remain on the Munitions List. Satellites are now an integral part of China's military architecture. They are used to support intelligence collection, control of forces, direct precision missile strikes, and for data transfers that improve combat effectiveness. The PLA has research that suggests using ballistic missiles with maneuvering, independent reentry vehicles to attack moving U.S. aircraft carrier battle groups. A sensor architecture based on satellites would guide such attacks.[2] Right now, the PLA has only two tracking and data relay

satellites in orbit.[3] That is not enough to give them a real-time intelligence collection capability. However, it is adequate to support the PLA's plans to target American aircraft carrier battle groups with hyper-sonic cruise missiles or the nascent capability to use maneuvering ballistic missile warheads. Given the way that the satellite programs are being used in China, exports of dual-use technologies that would improve China's remote sensing satellite capabilities still require careful control.

The 2006 Annual Report to Congress of the US-China Economic and Security Review Commission concluded that China has recognized the profound effectiveness of force multipliers such as C4ISR and is enhancing its own capabilities to make the PLA a more formidable fighting force. Such improvements rely directly on satellites.[4] In 2007, the Commission's Annual Report concluded that China has developed an advanced anti-satellite program consisting of an array of weapons that could destroy, damage, or temporarily incapacitate an adversary's satellites. My own research shows that China's military strategists see the United States as the most likely potential adversary.[5] A research paper I did for the American Enterprise Institute on China's space warfare program documents that PLA strategists contemplate using maneuvering satellites in space, among other measures, as a means to degrade an adversary's C4ISR programs.[6] Mr. Chairman, I ask that copies of this research, which I provided to the Subcommittee, be ordered part of the record.

Although China has not yet successfully tested a submarine launched ballistic missile, it has fielded two new ballistic missile submarines. The House Select Committee on U.S. National Security and Military/Commercial Concerns with the People's Republic

of China,[7] expressed concerns a decade ago that satellite cooperation with China could improve its submarine launched ballistic missile program.

I also recommend examining more closely how the United States controls dual-use satellite-related technology. Last week, Dr. Eugene Arthurs, CEO of the International Society for Optical Engineering, told the U.S.-China Economic and Security Review Commission that some of the dual-use technologies used in satellites, such as high power chips that support lasers, can be part of a space-based weapons system.

I urge you to keep satellite export controls in the Department of State, to conduct vigorous oversight into the export of related dual-use technologies, and to look into implementing some of the findings of the "Beyond Fortress America" report related to ensuring that export control processes are more timely and that regulations are updated to account for rapid advances in technology and foreign development.

China has increased its defense spending by double-digit percentages since the FY 1999 Defense Authorization Act. This led to significant improvements in strategic and space systems. With respect to satellite technology that would improve space sensor systems and assist the PLA, it is important to keep in mind that China's military can support deployed forces with remote sensing from space. A military remote sensing expert from the People's Liberation Army, Major General Wang Xiaotong, wrote in the Communist Party newspaper *Guangming Ribao* about how important it is that the PLA be able to process remotely captured images of the battlefield in real time.[8] In fact, with the launch of properly positioned tracking and data relay satellites, the PLA will be able to conduct real-time remote sensing, signals intelligence collection and imagery

collection from space, process the information, and distribute it to combat forces, ships and aircraft. All of this depends on satellite systems. PLA experts expect that as new, integrated "space-ground military remote sensing survey and mapping technology," comes on line, intelligence processing, handling and distribution for Chinese armed forces "will be more automatic, more intelligent, and more real-time."[9]

China has made considerable progress in developing and refining a nonproliferation policy, establishing internal control programs, and developing its export control system. Panelists attested to that progress at the U.S.-China Economic and Security Review Commission's May 2008 hearing to examine China's nonproliferation policies.[10] Last week, at the Commission's offices, I met with representatives from China's Arms Control and Disarmament Association, China National Aero-Technology Import and Export Corporation, and China National Machinery and Equipment Import and Export Corporation. These representatives made it clear that they understand the need for internal controls on exports and the importance the United States places on respect for intellectual property rights. Awareness of these issues is changing in China. At this time, however, I cannot recommend moving satellite export controls back to the Department of Commerce. Some satellite systems are dual-use, but they are an inherent military combat multiplier.

Congress also must monitor the space and satellite cooperation programs that the Chinese government and government-controlled industries have with other countries. The general in charge of China's strategic rocket forces has visited Brazil and Argentina in recent years. At one time both countries had serious ballistic missile programs. They are now cooperating with China on space and satellite programs.[11] In China, the missile

and space programs fall under the purview of the strategic rocket forces and the Commission of Science, Technology and Industry for National Defense. China and Iran have cooperative programs on space and satellites, as documented by the Federation of American Scientists.[12] Therefore, even if China has improved its nonproliferation practices, its cooperative efforts with other countries warrant continued examination and retaining satellite export controls on the U.S. Munitions List.

The National Research Council of the National Academies has made available a prepublication copy of its report *Beyond "Fortress America": National Security Controls on Science and Technology in a Globalized World.*[13] The report has a number of good suggestions about our export control systems that I believe deserve deeper exploration, including a coordinating center for export controls, required justifications for maintaining items on export control lists, an export appeals panel that can break logjams in the approval process, and industry-government panels to review whether the United States truly is at the cutting edge of a technology it is trying to control.

Nothing in the *Beyond "Fortress America"* report, however, changes my recommendation on managing decisions on the export of satellites. These items should remain on the Munitions List. That said, I think that there is some room for a liberalization of decisions to permit the launch of U.S. communications satellites, or allied communications satellites on Chinese rockets. I recognize that two U.S. companies, Hughes and Loral, had problems in the past with employees who allegedly exceeded the license restrictions and provided controlled data to Chinese authorities. It was those actions, among other issues, that led to House Report 105-851 by the Select Committee on U.S. National Security and Military/Commercial Concerns with the

People's Republic of China.[14] To be candid, I see this as a United States problem. No Chinese company or government official cracked open a satellite to steal secrets or technology. There might have been aggressive information collection on the Chinese side, but it was a security failure on the American side that led to the alleged unauthorized disclosures. If in the future communications satellites are licensed for launch in China, better security education for the technicians involved and more pervasive oversight should be a condition of the license. Also, Congress should consider stiffening the penalties for unauthorized disclosures of controlled information or data, including heavier fines and jail sentences.

In the Strom Thurmond National Defense Authorization Act of 1999, the sense of the Congress was that "United States business interests must not be placed ahead of national security interests," and among other matters, "due to the military sensitivity of the technologies involved, it is in the national interests of the United States that United States satellites and related items be subject to the same export controls that apply under United States law and practices to munitions." I have tried in my testimony to demonstrate that those considerations have not changed in the intervening decade. If anything, the contributions of satellites to military strength and capacity have increased in the years since the Act was passed.

The National Defense Authorization Act for Fiscal Year 2000 expressed the sense of the Congress that cooperation on space and satellite launches with Russia improve. The Congress did this without seeing a need to move satellite export controls back to the Department of Commerce.[15]

Also, the National Defense Authorization Act for Fiscal Year 2000 required the Department of Defense to submit an "Annual Report on Military Power of the People's Republic of China."[16] The recently released Office of the Secretary of Defense *Military Power of the People's Republic of China 2009*[17] report noted that the PLA is pursuing comprehensive transformation to a military "capable of fighting and winning short-duration, high conflicts along its periphery against high-tech adversaries." The DoD report also noted that China's armed forces "continue to develop and field disruptive military technologies, including those for anti-access/area-denial, as well as for nuclear, space, and cyber warfare, that are changing military balances and that have implication beyond the Asia-Pacific region." The report quotes a PLA analysis of U.S. military operations as reinforcing the notion that "space is the commanding point for the information battlefield. Battlefield monitor and control, information communications, navigation and position, and precision guidance all rely on satellites and other sensors."[18] All of this validates the earlier sense of Congress that satellite export controls should stay with the Munitions Control list and the Department of State.

Mr. Chairman, members of the Subcommittee, thank you for the invitation to testify today. I have tried to carefully parse my personal views from the conclusions or recommendations of the U.S.-China Economic and Security Commission, where I serve. The agreed judgments of the appointed commissioners are contained in our annual reports. If there are questions, I am happy to respond.

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[1] 22 U.S.C. 2778.
[2] Wortzel, "China's C4ISR and Targeting Architectures," pp. 209-211, 212-216.

[3] An excellent chart on China's current satellite inventory is available in Richard D. Fisher, Jr., *China's Military Modernization: Building for Regional and Global Reach,* Westport, CN: Praeger Security International, 2008, Table 5.6, "PLA Emerging Space Satellite Information Architecture," pp. 113-114.
[4] This and other U.S. China Economic and Security Review Commission Reports to Congress are archived on the Commission website, <www.uscc.gov>. This conclusion is paraphrased here for brevity.
[5] *The Chinese People's Liberation Army and Space Warfare.* Washington, DC: American Enterprise Institute, 2007. (Reprinted in *Astropolitics,* Vol. 6, Number 2 (May-August 2008), pp. 112-137). "China's C4ISR and Targeting Architectures," in *The Right Size of the People's Liberation Army.* Eds. Roy Kamphausen and Andrew Scobell. Carlisle, PA: National Bureau of Asian Research and Strategic Studies Institute, 2007.
[6] Wortzel, *The Chinese People's Liberation Army and Space Warfare,* Pp. 7-8.
[7] House Report 105-851.
[8] Wang Xiaotong, "Military Survey and Mapping: The Three-Dimensional Expansion of Combat Operations Support," *Guangming Ribao,* January 4, 2006, in Open Source Center, www.opensource.gov.
[9] Tan Yanqi, Yan Jianbo, and Ding Jianmin, "Operating on [a] Network that Measures the Sky and Maps the Ground—On Site Report about a Certain Jinan Military Region mapping Information Center Enhancing Informationization Building," *Jiefangjun Bao,* October 31, 2005, at www.chinamil.com.cn.
[10] U.S.-China Economic and Security Review Commission, *2008 Report to Congress,* 110th Congress, Second Session, Washington, DC: U.S. Government Printing Office, November 2008, p. 125. Archived at www.uscc.gov.
[11] http://harbin.china.com.cn/e-white/8/20-5.htm
[12] http://www.fas.org/nuke/guide/iran/missile/iris.htm
[13] National Research Council of the National Academies, *Beyond "Fortress America": National Security Controls on Science and Technology in a Globalized World,* Washington, DC: National Academies Press, 2009, available at www.nap.edu
[14] See Volume II of the Cox Commission Report, at http://www.gpo.gov/congress/house/hr105851-html
[15] http://thomas.loc.gov/cgi-bin/bdquery/z?d106:SN01059:@@@D&summ2=m&
[16] P.L. 106-65, Section 1202.
[17] http://www.defenselink.mil/pubs/pdfs/China_Military_Power_Report_2009.pdf
[18] Ibid. p. 13.

Larry M. Wortzel is vice chairman of the US-China Economic and Security Review Commission. He was first appointed to the Commission in November 2001. Dr. Wortzel is a retired U.S. Army colonel. A career Army intelligence officer, he served two tours of duty as a military attaché at the American Embassy in China. As a counterintelligence officer, he managed programs to protect emerging military technologies from foreign espionage in the Office of the Secretary of Defense from 1984-1988. After retirement from the Army, Wortzel was Asian Studies Director and Vice President for foreign policy and defense studies at The Heritage Foundation. He is a graduate of the Armed Forces Staff College, the U.S. Army War College, as well as both Airborne and Ranger schools. He earned his B.A. from Columbus College, Georgia, and his M.A. and Ph.D. from the University of Hawaii

Mr. SHERMAN. Our third witness is Ms. Patricia Cooper, the President of the Satellite Industry Association, a Washington, DC-based trade association, representing global satellite operators, service providers, manufacturers and launch service providers. Ms. Cooper has spent more than 17 years working in the satellite industry and in government.

Please proceed.

STATEMENT OF MS. PATRICIA COOPER, PRESIDENT, SATELLITE INDUSTRY ASSOCIATION

Ms. COOPER. Thank you, Mr. Chairman, Mr. Royce, members of the subcommittee, Mr. Rohrabacher. Thank you for inviting me to testify today on the critical issue of U.S. satellite export controls.

As president of the Satellite Industry Association, I speak here as the unified voice of leading satellite manufacturers, launch providers, satellite operators and service providers. While the satellite industry is by no means monolithic, SIA speaks when the industry has a common view on policy, regulatory and legislative issues that affect its business. We hold such a common view on U.S. export policies for satellites and space-related products.

The commercial satellite industry endorses strong, sensible and effective export controls which prevent the most advanced technologies from falling into the hands of our adversaries. But we believe the time is right for Congress to review its decision of more than 10 years ago to mandate by legislation that exports of all satellites and related technologies be controlled by the State Department and licensed pursuant to ITAR.

Notwithstanding their original intent, SIA believes that the current rules governing satellite exports have resulted in overly broad regulation that disadvantages U.S. spacecraft and component manufacturers in the global marketplace without necessarily having accomplished their desired intent. The broader U.S. space industry has also been impacted, raising concerns about the health of the underlying space industrial base that supports the defense, intelligence and civil space communities.

Satellites are the only commodities included on the U.S. munitions list by congressional mandate versus regulation. As a result, the executive branch wields limited discretion authority over satellite exports. SIA questions fundamentally whether commercial satellite technology merits this extraordinary and unique position of legislative oversight compared with all other sensitive technologies in the USML.

SIA is also concerned about the U.S. satellite manufacturing sector's ongoing competitiveness. Until recently, most satellites manufactured anywhere in the world required the inclusion of U.S. componentry or subsystems regulated under the ITAR. In other words, virtually all satellites had some measure of U.S. export control, no matter where they were made, so the added time, cost and uncertainity stemming from ITAR compliance fell in some measure on every manufacturer.

This is no longer the case. In the past few years, European manufacturers have developed the capability to produce the requisite parts and components for a spacecraft without any U.S. content. One European manufacturer, as mentioned by the chairman,

Thales Alenia Space, has actually begun to market an ITAR-free satellite.

Because European countries do not regulate satellites as munitions as does the United States, these ITAR-free satellites are traded as commercial dual-use products under far less stringent export controls. We know of at least six such ITAR-free satellites sold by Thales to date, initially to Chinese and Hong Kong customers, and more recently to Indonesian, Egyptian and European satellite operators.

U.S. export policy now has joined price, quality and technical capabilities as a factor when customers consider buying U.S.-made satellites. Whether for real or perceived reasons, many prospective international satellite customers maintain the belief that U.S. export controls are unpredictable, excessively stringent and time-consuming.

As a result, U.S. companies face an added constraint in winning international business. Our efficiency and competitiveness directly affects our ability to retain and grow the quarter of a million high-quality, high-paying satellite jobs now within the United States.

Addressing this challenge requires action on two fronts. First, redouble the State Department's ongoing efforts to make the ITAR licensing process more efficient, timely and predictable.

Second, SIA encourages Congress to adopt legislation that would return the authority to set export licensing policy for satellites to the executive branch where it resides for all critical technologies on the USML. Restoring executive authority for satellite export policy will allow for expert review of individual satellite technologies, ensuring that the USML focuses exclusively on items that merit control, those products that are critical to our Nation's security or competitiveness.

The current satellite chapter remains largely untouched from 10 years ago, including items that may have been cutting edge in the late 1990s but today have limited military or technological sensitivity. Many are now widely available from non-U.S. sources. Careful review and update of all satellite-related USML chapters should be an immediate priority.

Finally, SIA believes that the imperative to review and revise overall United States policy on satellite exports is distinct from concerns regarding the launch of such technology on Chinese launch vehicles. Rigorous safeguards govern the export of any United States spacecraft or related technology for launch from China.

Since 1999, no communications satellite or related technologies have been launched on Chinese vehicles, nor have there been reports of such permissions being sought. We urge that any consideration of this complex and country-specific issue not impede Congress from timely action and assessment of the appropriateness and effectiveness of its blanket mandate to regulate virtually all satellite technology under the ITAR.

The satellite industry remains committed to U.S. export policies that safeguard sensitive technology, but we urge Congress and the administration to consider legislation that supports U.S. satellite exports and the jobs dependent on them by enabling the executive

branch to determine the appropriate licensing treatment for exports of U.S. commercial satellites.

It is our belief that the reform of these policies will result in a healthier satellite sector, reinforcing the American industrial position in the global marketplace and at home, and safeguarding both jobs and critical space technology for the Nation.

On behalf of the members of the Satellite Industry Association, I again wish to thank you for the opportunity to testify and look forward to your questions.

[The prepared statement of Ms. Cooper follows:]

Written Testimony for Patricia Cooper,
President, Satellite Industry Association (SIA)
Before the House Foreign Affairs Committee (HFAC) –
Subcommittee on Terrorism, Non-Proliferation and Trade
Hearing on Export Controls on Satellite Technology
April 2, 2009

Mr. Chairman, Mr. Royce, distinguished members of the Subcommittee; thank you for inviting me to testify today on the critical issue of export controls in the United States. As President of the Satellite Industry Association ("SIA"), I speak here as the unified voice for the leading satellite manufacturers, launch services providers, satellite operators, service providers, and ground equipment suppliers.[1] While the satellite industry is certainly not monolithic, SIA speaks when the industry has a common view on policy, regulatory, and legislative issues that affect its business. We hold such a common view on export controls for satellites and space-related products.

SIA believes that U.S. technological leadership in space and the competitiveness of America's space sector is a key component to our nation's security. As key segment of the space industry, the commercial satellite industry endorses strong, sensible and effective export controls which ensure that the most advanced technologies do not fall into the hands of our adversaries.

SIA also believes the time is ripe for Congress to review its decision of more than ten years ago to mandate by legislation that exports of all satellites and related components and technology be controlled by the State Department and licensed pursuant to the

[1] SIA Executive Members include: Arrowhead Global Solutions Inc.; Artel Inc.; The Boeing Company; DataPath, Inc.; The DIRECTV Group; Hughes Network Systems, LLC; ICO Global Communications; Integral Systems, Inc.; Intelsat, Ltd.; Iridium Satellite, LLC; Lockheed Martin Corp.; Loral Space & Communications Inc.; Northrop Grumman Corporation; SES Americom, Inc.; SkyTerra LLC; and TerreStar Networks, Inc. Associate Members include: ATK Inc.; Comtech EF Data Corp.; DRS Technologies; EchoStar Satellite, LLC; EMC, Inc.; Eutelsat Inc.; iDirect Government Technologies; Inmarsat Inc.; Marshall Communications Corp.; Panasonic Avionics Corporation; Spacecom Ltd.; Stratos Global Corp; SWE-DISH Space Corp; Telesat; ViaSat, Inc., and WildBlue Communications, Inc. More information on SIA can be found at www.sia.org

International Traffic in Arms Regulations (ITAR). Notwithstanding their original intent, SIA believes that the current rules governing exports of satellites sold commercially have resulted in overly broad regulation that disadvantages U.S. spacecraft and component manufacturers in the global marketplace, without necessarily having accomplished the desired intent. This has created an impact on the broader U.S. space industry and raised concerns about the health of the underlying space industrial base supporting the defense, intelligence and civil space communities.

As this Sub-committee well knows, the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 transferred export licensing authority for communications satellites and related components to the U.S. State Department. Section 1513 of that Act specified that "*Notwithstanding any other provision of law, all satellites and related items that are on the Commerce Control List of dual-use items in the Export Administration Regulations (15 CFR part 730 et seq.) on the date of the enactment of this Act shall be transferred to the United States Munitions List and controlled under section 38 of the Arms Export Control Act (22 U.S.C. 2778).*"

Following this Congressional action, "satellites and related items" were added to the U.S. Munitions List ("USML"), including the export of completed commercial satellites for launch, and trade in most U.S. satellite components, as well as certain ground equipment and software to control spacecraft, and technical data related to these products.

Satellites are the only commodities on the USML for which export licensing jurisdiction is mandated by law, rather than regulation. This Congressional mandate has left the Executive Branch with limited discretionary authority over export controls for commercial satellites and all related technologies, including parts and components, technical data, and defense services. SIA questions fundamentally whether commercial satellite technology merits this extraordinary and unique position of legislative oversight in comparison to all other sensitive technologies included in USML.

Moreover, the USML Chapter containing satellites and associated components (Category XV on "Spacecraft Systems and Associated Equipment") remains largely untouched from ten years ago. In a one-size fits all manner, it captures all satellite products and components, even those that may have been the cutting edge of space technology in the late 1990s, but which are no longer deemed militarily sensitive today – and which in many instances are widely available from non-U.S. sources. Careful review and update of the satellite-related technologies included USML should be a first priority, in order to ensure that licensing and oversight resources are not being expended on products of limited military or competitive value in today's context.

The commercial satellite industry is an important element in the U.S. economy, contributing year-on-year growth, innovation and revenues. U.S. satellite companies generated an estimated 40 percent of the $123 billion global satellite industry in 2007, according to SIA's own studies. Satellite companies are also part of the larger aerospace industry, which the Aerospace Industries Association calculates as totaling $204 billion in sales in 2007, of which $33 billion was for the U.S. sales of space systems.

Overall, the world satellite industry has grown steadily since 2002, posting an average annual growth rate of 11.5 percent. The satellite services sector is the largest revenue source for the global industry overall, stemming from communications services that rely on satellites for their connectivity -- distribution of television content, telecommunications and Internet backbone services, corporate communications networks, public safety communications, and defense communications applications. The strongest driver has been consumer satellite services, such as satellite television, which expanded from about half of the 2002 market to nearly two-thirds of 2007 revenues. In contrast, the global satellite manufacturing sector overall has remained relatively steady, at or around $3 billion annually, with some fluctuations following the dot-com years. The world market for satellites and satellite-related components is a tight and highly-contested marketplace. In each of the past two years, just 21 satellites were ordered, with prices ranging from between $200-500 million, depending on their technical complexity.

The four major U.S. prime manufacturers – Boeing, Lockheed Martin, Orbital and Space Systems/Loral – are used to competition from their traditional European rivals in the world marketplace, EADS Astrium and Thales Alenia Space. U.S. manufacturers have aggressively competed for and won bids at home and abroad, both for smaller spacecraft, as well as for more complex satellites. At the prime manufacturing level, relative market shares for the U.S. satellite manufacturing sector have remained steady at around 40 percent for the past two to three years. This is a notable drop from the 65 percent market share that U.S. manufacturers held ten years ago, when the decision to capture satellites under the ITAR was made.

SIA is concerned about the U.S. satellite manufacturing sector's ongoing ability to compete for the relatively limited number of commercially-competed communications satellites. Until recently, most satellites manufactured anywhere in the world required the inclusion of U.S. componentry or subsystems that are regulated under the ITAR. In other words, virtually all satellites had some measure of ITAR regulation, no matter where they were made, so that any added time, cost or uncertainty stemming from ITAR-compliance was shared by all manufacturers.

This is no longer the case. In the past few years, European manufacturers have developed the capability to produce the requisite parts and components for a spacecraft without U.S. content. One European manufacturer, Thales Alenia space, has begun to market an "ITAR-Free" satellite. Because European countries do not export control satellites as munitions, as does the U.S., these "ITAR-Free" satellites are traded as commercial/dual-use products under far less stringent controls. We know of at least six such "ITAR-Free" satellites sold to date, the first to Chinese and Hong Kong satellite operators, and more recently to Indonesian, Egyptian and European satellite operators. We also anticipate that German and Israeli manufacturers will soon join Thales in beginning to market "ITAR-Free" satellites. Additionally, manufacturers from India, Russia, and China are now marketing complete satellites to customers beyond their own domestic satellite operators, offering increasing technical sophistication.

While price, quality and technical capabilities previously defined the competitive landscape, it is increasingly clear that U.S. export controls have affected American firms' ability to compete globally. Whether for real or perceived reasons, many international satellite customers maintain a strongly-held perception that U.S. export controls are unpredictable, excessively stringent and time-consuming. In addition to European firms marketing spacecraft as "ITAR-Free," we are anecdotally observing increasing numbers of satellite operators from around the world preferring to purchase satellites that exclude U.S. technology and avoid the concomitant ITAR requirements. In some cases, proposals require delivery of technical data in timetables that are simply not feasible, given the needed time to secure the requisite ITAR approvals, licenses and Congressional notification. Some European Space Agency programs now have explicitly required "ITAR-Free" bids.

These developments represent an added constraint on U.S. companies' ability to win business from traditional international satellite customers, posing a longer-term competitiveness concern. Addressing this challenge requires action on two fronts: first, redouble the ongoing efforts to make ITAR licensing process more efficient, timely, and predictable. We applaud the significant progress made by the State Department toward this end and support further streamlining. Second, and more critically, the USML must be closely evaluated to focus exclusively on those products that merit control – those products that are technologically critical to our nation's security or competitiveness. As it now stands, the satellite category simply includes everything, with no differentiation or mechanism to reflect changes in technological sensitivity, military requirements or availability from non-U.S. sources.

In the ten years since satellites were added to the U.S. Munitions List, U.S. industry has dedicated significant resources to secure the requisite approvals to export commercial satellites. U.S. satellite manufacturers may need as many as six separate licenses required for a single commercial communications spacecraft, from marketing to design to manufacture to launch. The administrative costs of ITAR compliance were documented in a 2008 study from the Center for Strategic and International Studies (CSIS) entitled

"Health of the U.S. Space Industrial Base and the Impact of Export Controls." The report cited an average cost of $50 million per year for the industry's ITAR compliance, with licensing issues costing as much as $600 million per year of lost revenues.

Much could be gained by further streamlining and rationalizing the licensing process, Different and distinct ITAR licenses are required throughout the marketing, design, construction, launch and operational phases. From the outset, satellite licenses are required to exchange the marketing and technical data needed to actually sell a commercial spacecraft to a prospective satellite operator customer, to discuss spacecraft design with non-U.S. component suppliers and to return faulty foreign components that were imported without any licensing requirements. U.S. manufacturers need a license for the technical data required to integrate U.S. spacecraft on non-U.S. launch vehicles, as well as the actual physical shipment of the completed spacecraft to an offshore launch facility. Additional licenses are required for the onboard fuels used in the launch and eventual "stationkeeping" or control of the satellite and the specialized ground equipment used for tracking, telemetry and control of the spacecraft during launch, deployment and then during the lifetime of the satellite.

U.S. export policies have a significant effect throughout the satellite industry, due in part to the Congressional requirement that the ITAR includes virtually all satellite-related products and components, also because the satellite manufacturing, services, launch and ground equipment sectors are highly interdependent. Satellite operators – the eventual customers– often require ITAR licenses to discuss the technical specifics of the spacecraft they operate with their international television, telecom and Internet customers, or their operational control of the satellites they "fly." By some of our operator members' estimates, ITAR adds administrative costs of nearly $1 million annually or owner/operators of commercial satellites. The effective cost of ITAR is even greater for smaller and start-up companies, particularly those not otherwise serving the defense market and fluent in such export control requirements. Our concern is not only that compliance is costly and time-consuming; rather, we question whether the current U.S. export controls are achieving the national security objectives originally envisaged

when the switch to State Department licensing was mandated by Congress a decade ago. As stated in the CSIS study, "…(C)urrent export control policy has not prevented the rise of foreign space capabilities and in some cases has encouraged it."

Our industry's efficiency and competitiveness has a direct bearing on our industry's ability to retain high-quality, high-paying jobs within the U.S. All sectors of the satellite industry – manufacturers of spacecraft and ground equipment, launch services, and satellite services – require highly-skilled, often highly-trained workers throughout the U.S. Direct U.S. employment related to the satellite industry amounted to a quarter of a million in 2007, including 16,000 in the spacecraft manufacturing sector, nearly 80,000 in the launch services sector and another 50,000 in the satellite services sector, according to the U.S. Bureau of Labor Statistics.

While SIA's members tend to be prime satellite manufacturers, launch providers and their operator customers versus the component and subcontractor community, we also share the concerns raised by the CSIS study that the ITAR controls on satellites may have had unintended consequences in their more profound effect on smaller companies that supply the prime manufacturers. The U.S market for satellite components may simply not be big enough to sustain such second- and third-tier providers without access to the larger world market. More critically, it seems that rather than controlling sensitive technology, ITAR may have created incentives for off-shore companies to develop home-grown comparable capabilities that undercut domestic suppliers.

The CSIS report also found that overly broad export regulations for space technology have had unintended consequences for national security. This concern is not just an industry or academic observation – it is being echoed by the defense, intelligence and civil space communities. SIA notes in particular the March 17, 2009 testimony by General Kevin P. Chilton, Commander of U.S. Strategic Command before the Strategic Forces Subcommittee of the House Committee on Armed Services. General Chilton testified that "*...I remain concerned that our own civil and commercial space enterprise, which is essential to the military space industrial base, may be unnecessarily constrained*

by export control legislation and regulation. Clearly, legitimate national security concerns must continue to underlie the need to restrict the export of certain space-related technologies, equipment, and services. However, appropriate flexibility to permit relevant technology transfers to allies, or decontrol of some technologies in a timely fashion when commercial availability renders their control no longer necessary should be considered to help ensure our space industrial base for the future."

The satellite industry remains committed to U.S. export policies that safeguard sensitive technology. There are, however, strong national security and economic reasons for Congress and the Administration to re-evaluate both the appropriateness and effectiveness of mandating that virtually all satellite technology exports be controlled under the ITAR. SIA believes that the current one-size-fits all treatment of communications satellites has resulted in overly broad regulation of space technology and no longer reflects today's economic, competitive and national security contexts. This has created unintended and unnecessary competitive disadvantages for U.S. spacecraft and component manufacturers – at a time when the U.S. can least afford it.

SIA encourages Congress to adopt legislation that would return the authority to set export licensing policy for satellites and related items to the Executive Branch - where it resides for all other technologies on the USML. With such clear authority, the Administration could then develop objective and consistent criteria to determine which specific technologically and/or militarily-sensitive satellite technologies should remain controlled under the ITAR and which no longer need to be so controlled. By returning this authority to the Executive Branch, Congress would enable the Administration to update and regularly review the satellite and satellite-related products listing which has remained virtually untouched for ten years. We would also encourage the Congress to revisit the satellite-specific controls – including the current financial thresholds for additional Congressional notification and the activities that require Department of Defense monitors – instituted in the original 1999 NDAA language to bring satellite export control policies in line with treatment of other comparable product areas and today's commercial and national security contexts.

Finally, SIA believes that the imperative to review – and revise - U.S. policy regarding the export of US commercial technology is distinct from concerns regarding the launch of U.S. satellites on Chinese launch vehicles. Rigorous safeguards and additional regulations govern the licensing of any U.S. spacecraft or related technology for launch from China. Since 1999, no U.S. communications satellite or related technologies have been launched on Chinese launch vehicles – nor has permission to do so been sought, to our knowledge. We urge that consideration of this complex and country-specific issue not impede timely Congressional consideration of legislation that supports US exports, and the US jobs dependent upon them, by enabling the Executive Branch to determine the appropriate licensing treatment to be accorded exports of US commercial satellites.

Restoring Executive authority for export control of satellites will tighten our focus more closely on the most militarily sensitive technologies, and reflect more accurately the state of technology and commerce in the satellite sector. It is our belief that such reform will result in a healthier satellite sector, reinforcing the American industrial position in the global marketplace and at home and safeguarding both jobs and critical space technology for the nation.

On behalf of the members of the Satellite Industry Association, thank you again for the opportunity to testify, and I look forward to your questions.

Mr. SHERMAN. Thank you. And if we are going to go forward, we are probably going to have to have another hearing before we do legislation where we will have a chance to hear from the administration, particularly the incredibly qualified, knowledgeable and gifted Ellen Tauscher, who currently serves with us but will be the relevant Under Secretary should the Senate do the logical thing, which they should do quickly, and that is confirm her.

Ms. Cooper, what if I let Dana write one section of the bill, because I know what he would write—don't let the Chinese do anything—and I let you write the rest of the bill. Your testimony said, well, don't let the "country specific" issues prevent a good general policy. So you get to write the good general policy, and he gets to write the one policy that says the Chinese don't get involved.

Does that bill mean more jobs and a stronger satellite industrial base for the United States, or does letting Dana write that one section eviscerate the good that the bill would do?

Ms. COOPER. Mr. Chairman, we believe it will retain U.S. jobs and potentially add new jobs. The global satellite market is more than——

Mr. SHERMAN. So that is even if we exclude China from everything?

Ms. COOPER. The global satellite market is more than just China.

Mr. SHERMAN. So we could have Dana write the stuff on China and otherwise allow the administration to decide how to treat satellite and satellite technology, and that would go a long way toward achieving the job objectives and the industrial base objectives we are trying to achieve?

Ms. COOPER. I believe that your question about whether that will aid the industry, yes, I believe it will. There are plenty of non-U.S. customers that are concerned about the ITAR system when purchasing components or when considering purchasing an overall——

Mr. SHERMAN. And these are customers that are not going to use China to do the launch?

Ms. COOPER. If it includes United States technology, it won't be launched on a Chinese vehicle under current law. I will note that U.S. satellite operators and manufacturers are disadvantaged when they are constrained from access to the same launch vehicles their competitors are.

Mr. SHERMAN. I didn't say you could write the whole law. He gets one section.

Ms. COOPER. I do think that is an important point. But at this point, the Satellite Industry Association is not asking for changes in the Chinese policy.

Mr. SHERMAN. Okay.

Dr. Wortzel, you spoke about how important it was that China, and perhaps others, not get an advancement in their satellite technology. To what extent would we achieve your purposes if we allowed the launch vehicle, the Chinese launch vehicles, to be used, but we had, say, a colonel accompany the satellite, you know, with 10 American armed guards and whatever, to make sure that nobody looked inside it, and assume we were effective in telling American companies not to give launch technology or propulsion technology to the Chinese?

Would that achieve our purposes?

Mr. WORTZEL. Thanks for that question, Mr. Chairman. I think it would achieve part of the purpose. A very good Air Force colonel who is a friend of mine was actually out there on both of those launches trying to do that.

I think it is important to realize the Chinese satellite launchers and Great Wall Industries didn't crack that satellite open to try to get a look at technology. Now, there are other concerns about what they might develop in terms of fairings and warheads. The failure in those two cases, the allegations against Hughes and Loral, were the failures of two American engineers. So I think if you strengthen oversight——

Mr. SHERMAN. So any American engineer going with the satellite would have to be mute?

Mr. WORTZEL. Certainly they would have to be extremely careful.

Mr. SHERMAN. Or just don't talk.

Mr. WORTZEL. But if you increased the penalties for unauthorized disclosures of controlled information and really put a couple of people in jail and fined them, that helps.

Mr. SHERMAN. It is not so much to increase the penalties. To say, "What happened in that case was inadvertence," was a defense. Now, it would be hard just in light of history to use that defense again. We could go further and say for this industry, inadvertence is not a defense, at least in dealing with China.

Mr. WORTZEL. Not with the history of what has gone on. But I think Mr. Chao made one point with four parts in his testimony, when he talked about looking at satellites in terms of their defense purposes, their intelligence purposes, their civil application or their commercial application.

When you begin to look at this, and I really like this Beyond Fortress America approach to updating and changing how we handle a broken export control system, but if you look at those things, you could perhaps begin to parse out technology in satellites or the uses of satellites that really are inherently military or intelligence related, and others that are truly commercial.

Mr. SHERMAN. Is there any evidence that China or anyone else has gotten any information about satellite technology, as opposed to propulsion and launch technology, through any inadvertence of a United States company?

Mr. WORTZEL. The Chinese have stolen such information in cyber attacks that I frankly don't know what is gone.

Mr. SHERMAN. Let me refine the question. As a result of their capacity to launch satellites, have they gotten any information about what is inside either a European or American satellite that they weren't supposed to get, and speak only of what is in the public domain. Don't tell me anything classified.

Mr. WORTZEL. Sir, I know of no instance where they violated the integrity of a satellite.

Mr. SHERMAN. I am sure they have plenty of intelligence operatives trying to hack their way into Ms. Cooper's clients, scurry around the outside perimeter or sneak inside, but nothing we do here is going to affect that.

Now, Ms. Cooper, I am told that the economics are usually that the satellite is very valuable compared to the launch costs, and yet Newsweek reports that people are willing to pay a 5 or 10 percent

premium for an ITAR-free satellite so they can use the Long March rocket, which is a 20 percent discount compared to an American rocket.

I am not a rocket scientist. I am an accountant. You do the math, and it looks like these companies not only are undercutting what should be joint Western foreign policy, but they are costing themselves money; because paying even 5 percent more for the satellite to get a 20 percent discount on the rocket—in most cases that means you are paying more.

Is the launch vehicle usually only 10 or 20 percent of the cost of the satellite?

Ms. COOPER. It depends on the kind of satellite. Satellites are somewhere between $200 million and $500 million, and the launch in most Western or non-Chinese launch vehicles, as a ballpark, is around $80 million. The Chinese launch vehicles, from our understanding, are around $40 million.

Mr. SHERMAN. So Newsweek may have it wrong, in that the discount by using the Chinese launch vehicle may be as much as 50 percent as compared to using a Western vehicle.

Mr. Chao or Dr. Wortzel, do you agree generally with those numbers, that a Western launch vehicle is going to be $80 million, the Chinese about $40 million?

Ms. COOPER. In general, that is what we understand. I will say——

Mr. SHERMAN. I am asking the other two witnesses whether they have an understanding that clashes with that.

Mr. WORTZEL. Well, I will tell you, based on what we have learned at the U.S.-China Economic and Security Review Commission, I have looked at the subsidized launch services——

Mr. SHERMAN. I am only looking at this from the standpoint of the owner of the satellite. They don't really care whether the Chinese are efficient or subsidized.

Mr. WORTZEL. They just want to save money. It makes a lot of sense.

Mr. SHERMAN. Right. And I am saying you save about $40 million on the launch when you go from the European or United States launch vehicle to the Chinese?

Mr. WORTZEL. That seems to be true.

Mr. SHERMAN. And to get it ITAR-free, you are going to be paying another $20 million for the satellite, at least. So the savings are slight, but the fear is there that—well, Ms. Cooper, is an ITAR-free satellite selling at a 5- or 10-percent premium, or is the ITAR-free satellite the same cost as one that is not ITAR-free?

Ms. COOPER. We understand the ITAR-free satellites are more expensive. I think that range is about right.

I would note that cost isn't the only consideration when choosing a launch vehicle generally. It is also availability of timing. The schedule to try to get to orbit is pretty important, and that may be a consideration.

Mr. SHERMAN. So subsidizing our program might be helpful, both in terms of providing more launch vehicles and providing a price that reflects what the Chinese are providing.

At this point, the gentleman from Virginia will chair these hearings as I go vote in Financial Services, and he will be recognizing

the most senior Republican member in the room. You can chair it from your own desk. This one has nifty things.

Mr. CONNOLLY. It is too soon, Mr. Chairman.

Mr. CONNOLLY [presiding]. Mr. Rohrabacher.

Mr. ROHRABACHER. Thank you very much. I am wondering if back during the late 1930s we would have decided that it was really cost effective to contract with the Germans to launch things into space. After all, Hitler had a V–2 rocket, which was much more cost effective than what the Allies had or anybody that was friendly to the United States.

Perhaps we should think of that as a comparison here because perhaps launching something in and of itself doesn't mean that Hitler would have received the benefit of what was in the satellite, and, Colonel, we are not talking about what is in the satellite. We are talking about the relationship that is established, will it further the ability of an adversary or potential enemy of the United States if we enter into that relationship?

And I don't think anyone here would be advocating that we start use utilizing the V–2 rocket back in 1939 or 1940. That would have furthered Hitler's efforts because it would have enabled Hitler to develop that rocket a lot sooner than he did.

What we do know is that the last time we dealt with the Chinese, and it was almost déjà vu all over again when I heard the chairman talking about we are going to have armed guards down there and would this make a difference, and the fact is that I signed on to permitting American satellites to be launched on Chinese rockets with that very same guarantee.

And the minute the relationship was established, it was—all the safeguards disappeared and the relationship that was established, let us remember this, resulted in what?

The Chinese now, the Long March Rocket Company, by the way, which is a People's Liberation Army-owned company. So we are talking about the Army of Communist China, of the regime of Communist China went from a situation where the Long March rocket was a relatively ineffective and inefficient because it would blow up all the time. Nine out of ten flights were—they couldn't have afford to have satellites being launched on it—went from being the most undependable to the most dependable rocket launched, right, under that time we were having our relationship with them.

It went to the point where a Long March rocket before could only launch one, in the 1 out of 10 times they were successful, it had the payload of one, and after our relationship the Long March miraculously could launch three different payloads.

So it wouldn't—one would conclude from that that we basically had through our relationship permitted a vicious dictatorship, which still puts religious people in jail, which allows no freedom of speech, no opposition parties, and still considers the United States their most likely enemy, that we actually, in our relationship, permitted them to MIRV their rockets from their military rockets and improve their stage separation, which is what their major problem was, from what I understand, improve their stage separation to the point that now they have rockets that succeed in launching rather than fail.

And I might add, they also have gyroscopes. Just miraculously, gyroscopes used to be huge things like this, and now they are on chips and about that big. And, miraculously, the Chinese rockets have the gyroscopes that were developed by hundreds of millions of dollars of research in the United States.

So we aren't just looking about, talking about whether we have, when we are letting the Chinese enter into this relationship. I am just talking about what they will get by opening up a satellite, because that is not the worry. But the relationship will increase the potential of a country, which is the world's worst human rights abuser, who looks at us as their most likely potential enemy. And until that changes, we should have them regulated on a different level than we are regulating how we deal in the relationships that we establish with Brazil or England or Italy or any of these other countries like that.

Now, Ms. Cooper, I was very happy to hear that the satellite industry has recognized that, yes, it would be a good thing to reform our system even if it did leave out China, because the rest of the reform package would actually be beneficial as well.

So am I correct in assuming that we can all work together now and try to find out what that area of reform is, because I will let everybody on notice, if we are going to loosen the controls on this vicious dictatorship and our relationship there, I will fight that, and I will make sure that people—and there is a lot of people will agree with that.

However, if we can agree on the rest of the world and make things better for it, maybe we should do that.

Mr. CONNOLLY. The gentleman's time has expired. If the panel wants to briefly respond.

Ms. COOPER. Yes, Mr. Rohrabacher, although I have mentioned that satellite manufacturers and operators are disadvantaged when they don't have access to the same resources that their competitors do, we recognize that policy with regards to China includes a different level of complexity, a different set of stakeholders, a different set of allies, a different set of considerations.

As a result, the Satellite Industry Association is not now seeking change to those unique prohibitions and restrictions on United States satellite technology being launch from China.

In fact, I would note again the study that Mr. Chao described that seems to indicate that our export rules are actually encouraging the development of comparable technology from European manufacturers, which can then be launched from Chinese vehicles without the controls comparable to U.S. ITAR controls.

Thank you.

Mr. WORTZEL. Mr. Rohrabacher, I would go a little further than you. I think you have to look at the fact that the chief of China's strategic rocket forces, who also is responsible for some of these satellite launch missiles, has twice visited Brazil and Argentina on space cooperative programs.

So you really have to be careful about what you loosen and who is cooperating with whom in space.

I am going to reinforce one of your points by noting that the House Select Committee on U.S. National Security and Military/Commercial Concerns with the People's Republic of China ex-

pressed concerns a decade ago that China could improve its submarine-launched ballistic missile program.

Mr. ROHRABACHER. Correct.

Mr. WORTZEL. They just put a new submarine base in Hainan Island, building two new ballistic missile submarines. But they don't yet have a missile they can launch from it, so we really don't want to do anything to help them along with that either.

Mr. CONNOLLY. Mr. Chao, briefly.

Mr. CHAO. Yes, I want to tease out a thing that you mentioned that is very important in what you said to the extent of identifying who, because in many ways I think that is at the basis of what real export control reform can be about today. We obsess and focus on the what, when in the reality, the decision in the end is about the who. And because we focus on the what versus the who, we are treating good allies and friends like the U.K. And Australia exactly the same way we are treating the Chinese, and that is where all the friction is showing up in the system. If you sort of reverse the lens and focused more on who, I would suspect you would get—you would find a lot more flexibility and movement and loosening of the friction in the system, because it is meaningless to obsess about whether the Brits are getting bolts for an airplane.

On the other hand, I want to pay close attention to certain satellite technology or semiconductor technologies or biotech technologies in terms of who they are flowing to.

Mr. CONNOLLY. Thank you. Let me ask the panel, in 1997, U.S. companies controlled 65.1 percent of the world satellite manufacturing market. By 2007 that was down to 41.4 percent. To what do you attribute the decline?

Ms. COOPER. Some of the decline was for Chinese customers that United States companies could no longer seek, and I think some of the additional changes in the demographics, the market share for U.S. manufacturers, do have to do with the additional restraints placed on ITAR. I would note, however, that the market share for U.S. companies, U.S. satellite manufacturers, has remained very stable at about 40 percent now.

We will be very interested to see statistics in the next year or so when the contrast is between U.S. ITAR-regulated satellites and European non-ITAR-regulated satellites. That contrast hasn't been as clear or apparent in years previous to the development of an ITAR-free satellite.

Mr. CHAO. In our study we tried to unpack that data and get behind it. There is a clear drop that you can see when you draw the line. There are lots of factors in it and so people will just push back and just say you can't blame export controls, and that is a true statement. The European industry has been rising at the same time.

But if we didn't find the smoking gun, we at least got a whiff of gunpowder, is the way I put it, to the extent that in specific cases you saw customers saying that I will not buy from America now because of the ITAR. And it is not really the issue of getting to the technology—in some ways, one of the answers to Chairman Sherman's question about why would you take—pay 5 percent more, a lot of it has to do with the timing and the uncertainty related to the launch.

There is all the lost revenues that if you are late by 60, 90, 180 days that they just cannot stand. And there is that economic component that is fed into it that I think has contributed to that market share loss, much to the frustration of the American industry that provides a fine product. They are just looking for that predictability and visibility that is lacking.

Mr. WORTZEL. Mr. Chairman, my understanding is that there has been, not related to China or these export control restrictions, such a decline in the American space launch industry that today we don't make our own rocket motors. I mean, we are using Russian rocket motors.

So I think the source of those differences and the data may have a lot more to do with the way the technology and the industry globalized than on export controls.

If you can't make a rocket motor, you are not going to have much of an independent industry.

Mr. CONNOLLY. One of the things that you both were talking about was maybe you could, you know, return to some more sensible kind of export control that would strip out the ITAR-related things or the things that we now do not consider sensitive that maybe were considered sensitive, as you mentioned, Ms. Cooper, in 1999 but no longer are, and commercialize that and sell it.

The question, I guess, for you is twofold, one is there really such a bright line that we can recognize strictly commercial uses versus something else; and what about the whole issue of dual technology, dual-use technology? Because I would assume with sophisticated technology, that line gets blurred more often than not.

Mr. CHAO. I think you have hit on the key point, from—and, again, same thing with Mr. Rohrabacher. If you are watching everything, you are watching nothing, right, and so the issue becomes prioritization of resources, technology, et cetera, et cetera.

We believe there are clear bright lines, and in some of the initial work that we did you can find them, the bolts, the commonly available, you know, solar panels, the tubing, the coolant systems that are commonly available. There is a clear line.

There is a very clear line on the other side of some very sensitive things you absolutely do not want anybody to get, even our closest friends, that you would not.

But by doing that, what it would leave is the resources of the export control system to then focus on the difficult questions, and that is where you want to be putting your brain power and all the intellectual capital rather than trying to track everything.

So we think you can—what you want to do is get the common stuff off, the bright line, never ship it away, and then let's spend our time figuring out the really hard parts.

Ms. COOPER. I would concur with that. I believe that the current legislative mandate doesn't give the executive branch the permission or the sense of permission to do that evaluation. And I expect that the experts in the Department of Defense, the Intelligence Community, civil space and the State Department and Commerce Department can come up with a very clear list of those that should be in and those that ought not to be in, and there may be a gray area in between that would merit discussion.

But the current legislative mandate of one-size-fits-all simply doesn't permit that differentiation.

I would just note that I, too, like the conclusions within the Fortress America report, and would echo the phrase brought out by my colleague, Dr. Wortzel, saying distinguish among technologies. As Mr. Chao said, what?

Mr. CONNOLLY. Dr. Wortzel, and then my time has expired, Mr. Chairman.

Mr. WORTZEL. Sir, I think you can distinguish among some of the technologies, but I just can't overemphasize the fact that whether you control it on a munitions list or on a commodities control list, the export control system is bureaucratic, and they really make that case very well in this report, that it is broken.

You have engineers that have never seen a production line trying to make decisions off a list about what the state of global production on a technology is. You have government bureaucrats who mean very well, good counterintelligence guys, that say we are just not going to do this, that don't know what's available. So that you really have to look at improving—government, industry panels that can develop an appellate process, that can do it rapidly, and that can really review what is cutting edge technology that matters and what you can buy at Ace Hardware.

Mr. SHERMAN [presiding]. The time of the gentleman has expired.

We will now recognize the gentleman from California.

Mr. ROYCE. Thank you, Mr. Chairman.

I was going to ask does the State Department regulate and monitor the use or follow the content of ITAR-licensed satellites. Do they monitor that? Do you think it is monitored?

Mr. WORTZEL. Yes, I believe that they do look at the content of the satellites, and I think that they do that in coordination with the Department of Defense and the intelligence communities, sir.

Mr. ROYCE. And that is regulated by them.

Mr. WORTZEL. They must do that because the satellites are on the munitions list. They are ITAR controlled.

Mr. ROYCE. Okay. Because one of the questions that one of my staff members had was, was it possible to prevent the military, the Chinese military, from utilizing the services of ITAR-licensed satellites operated by foreign companies?

Mr. CHAO. If it has a U.S. component—one of the other things that the legislation did and that the regulation has done, you are—if you are going to go oversees you are required to actually pay to have somebody follow that satellite along with it.

Mr. ROYCE. Pardon?

Mr. CHAO. You are actually required to pay somebody to kind of monitor and follow along that satellite as a satellite as a service provider in order to safeguard it.

Mr. ROYCE. I see. Well, let me ask Ms. Cooper a question.

You advocate that we redouble our ongoing efforts to make the licensing program, the ITAR licensing program, more efficient and predictable and timely. And I was wondering what grades you would give the reform efforts made by the late Bush administration in this.

Ms. COOPER. My members tell me that the licensing time has improved and that their efforts more recently to improve the process have borne fruit. I would note that the kinds of licenses that satellite manufacturers require for trade are more complex. So they take a little bit longer than some of the other kinds of export licenses that may not be program licenses but specific product exchanges.

I think there is probably more streamlining that can be done for those many licenses that an individual satellite program requires, as many as six licenses for the transfer of one spacecraft.

Mr. ROYCE. Are you suggesting in your testimony here that the commercial availability of satellite components from non-U.S. sources is not considered in current reviews of the munitions list? Give me your view of what is going wrong there and pull microphone closer to you, if you will.

Ms. COOPER. I don't believe foreign availability is a consideration at all.

Mr. ROYCE. Pardon.

Ms. COOPER. I don't believe foreign availability is a consideration in the current U.S. munitions list.

Mr. SHERMAN. Excuse me, let me interrupt for a second. I am going to leave because we have one vote, I will be back.

Diane Watson will chair the hearing as long as she is in the room. When she is out of the room, the hearing is adjourned until such time I am back.

Mr. ROYCE. Let me ask you then, what is your position on doing business with China? In other words, what does the industry desire, really, is the question here, and how do you view China's strategic objectives as they pertain to satellite technology?

Ms. COOPER. The satellite manufacturers, operators, and launch providers, haven't done business with China since 1998. So I don't know what their intentions are to resume that activity. What we have had is internal discussions of great vibrancy with respect to our current request, and our current request is that no change be instituted for the current prohibitions.

I do think that the competitiveness of satellite manufacturers and operators is affected when there is a considerable difference in their availability of resources like launch vehicles, but we are not asking for changes now.

Mr. ROYCE. What is the relevance, in your view, if any, to China's anti-satellite efforts to your policy recommendations? Is that why the recommendation is no change, or give me your view. Please pull that microphone closer. The acoustics in here for me are not very good and I can't hear you.

Ms. COOPER. Okay. The ASAT test has not been a consideration in that factor, except to add to the conclusion that any attempt to create a coalition of interests to change Chinese launch policy would be a different track of policy and requests, completely different ball of wax.

And so the ASAT test certainly changes the environmental level of concern, but we feel that the changes that we are asking for here have an immediacy to them. And we don't see any change in China policy, anything near and immediate timeframe.

Mr. ROYCE. Thank you, Ms. Cooper.

My time has expired, Chairwoman.

Ms. WATSON [presiding]. Yes. I am going to ask one question, and then we are going to recess for the chair to come back, so that we can all go and vote.

I will address this to Ms. Cooper. What measures has the Defense Department taken to effectively monitor and prevent unlicensed technology from occurring in the investigation of satellite launch failures?

Ms. COOPER. For every U.S. satellite that is launched on a non-U.S. launch, non-NATO vehicle, DoD monitors are required. And as Mr. Chao mentioned, they are paid for by the satellite operator. So that is a part of the activity understood in every non-U.S. launch.

Ms. WATSON. Great. I will have other questions, but we will wait until after the recess. And I would suggest that we will probably be back around 3 o'clock if the audience and if the witnesses can wait. Yes, maybe quicker than that. We just have one vote on the floor.

Thank you very much. We will go into recess now.

[Recess.]

Mr. SHERMAN [presiding]. We will reconvene the hearing. I will try to drag out my questioning for this second round long enough for my colleagues to return. If they don't return, then we will gavel the hearing down.

Ms. Cooper, these ITAR-free satellites, are they exclusively using the Long March rocket or are there people bothering to buy ITAR free and then launching them on American or French or Russian rockets?

Ms. COOPER. To date, all but one of the ITAR-free satellites that we are aware of have all been either launched on the Chinese Long March vehicle or are slated to be launched on that vehicle, yes.

Mr. SHERMAN. Do the current rules imposing ITAR prevent somebody from buying a satellite made in the United States and launching on a Russian vehicle? If it is classified as a munition, does that mean it can't go to Moscow?

Ms. COOPER. It is not prohibited from being launched on a Russian vehicle, no.

Mr. SHERMAN. Dr. Wortzel, I see you are—how do our laws with regard to satellites today, listing them as munitions, what is the practical effect with regard to launching in Russia?

Mr. WORTZEL. That is really part of the regulation and not the legislation, as I understand it, and it is the way the regulation is administered by the Department of State and the Department of Defense and, in fact, as I mentioned earlier, sir, it was the Fiscal Year 2000 Defense Authorization Act that specifically encouraged work with Russia on satellites and the space program. So that was one of the points I tried to make.

Mr. SHERMAN. And so we don't have a blanket prohibition on selling munitions to Russia; we do have such a blanket prohibition on the transfer of munitions in general?

Mr. WORTZEL. That is correct. That is because of the Tiananmen sanctions, post-1989 Tiananmen sanctions.

But the President has waived those in a couple of cases, and we sold munitions list items to China prior to the Olympics and during the Olympics.

Mr. SHERMAN. Let me take a moment to announce that we will leave the record open for 10 days to accommodate all members who wish to make submissions and, likewise, those of our witnesses that wish to make submissions.

Now, this is really a debate over which of two agencies is going to be handling things. As Dr. Wortzel points out, you can go to State and get a license to export a munition to China, and that could very well be a satellite.

The average, and perhaps to some degree as a result of the hearings in this subcommittee, the average processing time for a license of a Category 15 item, which includes satellites, has gone down from 76 days to 23 days.

Ms. Cooper, what is 23 days among friends? Why not just keep the law the way it is and, if somebody wants an ITAR-laden satellite to go up on a Chinese rocket, apply for a license?

Ms. COOPER. Well, let me make——

Mr. SHERMAN. Which I assume would be conditioned on that mythical colonel that I talked to Dr. Wortzel about accompanying the satellite. But I am sure you are willing to do that.

Ms. COOPER. First is perhaps a nuanced clarification, which is that a launch of United States technology from China is not actually prohibited.

Mr. SHERMAN. Yes.

Ms. COOPER. There are requirements that are effectively prohibitive, a process that is complicated and a high enough level of complexity that no one has sought it since they have been imposed. There is not actually a prohibition, to be clear.

And the difference is, perhaps, not 23 days, the difference is, for technical assistance agreements and the kinds of authorizations that typically are required for satellite programs, they do take quite a lot longer.

Mr. SHERMAN. Why would there need to be technical assistance to the Chinese just if they are launching the rocket?

Ms. COOPER. This has nothing to do with China. This is just the routine authorizations that are required to export satellite information, marketing data, eventually the design and materials, to describe it to a customer, the actual export of a satellite upon launch, if it is being launched from a non-U.S. location.

Mr. SHERMAN. So one alternative here is not changing the law but asking the new under secretary to come in here and expressing our view that she ought to take what is it, a 17-step program, and turn it into a 7-step program.

I will ask, first, Mr. Chao, then Dr. Wortzel. If we left the law the same and redid that 17-step program to something more practical, could we do something that was both feasible for the industry and would protect international security? Mr. Chao.

Mr. CHAO. There is yet another subtlety, which is more than just, you know, the differences between two organizations. It is two entirely different regimes.

The mere fact that under the ITAR, the instant you declare something a munition, anything that touches it or is a component of it also is a munition while on the commerce sort of dual-use side; you have the ability to designate different gradations.

Therefore, a chip of certain technology, of teraFLOPs or a solar panel of certain power can be restricted, while others are deemed to be commercial.

You have none of that flexibility on the munitions side. So once designated a munition, it is a munition.

Mr. SHERMAN. But if we have got this 17-step process which is burdensome, if we left the law the same and had you and Ms. Cooper change the 17 steps down to 7 steps, could we achieve both our national security objectives and our commercial objectives?

Mr. CHAO. If somebody believed you could do that and get it down to—and the key thing is not the day; 23 days versus 90 or whatever, is not the real trigger. The trigger is, how does that compare to a business cycle? So if a request for proposal has to be answered in 15 days, it doesn't matter if I have got 23 days. I now, under that level, in terms of how rapidly the export control system responds—if you can get it down to a reasonable date and with certainty and visibility, the three things that the industry asks for, people wouldn't be complaining.

Mr. SHERMAN. Dr. Wortzel, what if I let you withdraw the 17 steps, would we achieve our objective?

Mr. WORTZEL. You must address the complexity of the approval process for licensing. But to be completely candid, I am not certain that if you went in for a commodity control list, dual-use license, and you move satellites there, it would go that much faster.

I mean, because of the embedded technologies and the use of the satellite. That is why these distinctions between defense and technology——

Mr. SHERMAN. Well, I mean there are two aspects as to whether it is State or Commerce that is going to control. One is, and I wouldn't have even thought of this until it happened, the U.S. company has an incentive to get the rocket off the pad and that might cause them to slip and provide information.

What most of your testimony is focused on is the technology inside the satellite. And we have had our mythical colonel. Why wouldn't Commerce just look at it and say we don't care what is inside the satellite, because the Chinese are never going to see what's inside the satellite?

Does that—and then you tell me why we can't let China know what is inside the satellite. If we have got a colonel with the satellite, then why doesn't that make State or Commerce or Congress feel secure?

Mr. WORTZEL. Well, I think Mr. Rohrabacher effectively made that case when he went through the fact that the variability and the technical assistance provided to China so it could release two or three satellites in space, move them forward on multiple independent re-entry vehicles, they don't use farings, and this comes from a Cox Commission report on their Long March launch vehicles, but Cox Commission was concerned that they would learn how to use farings more are effectively.

Mr. SHERMAN. Farings?

Mr. WORTZEL. Farings are things you put over the nose of a missile, and that is why they can't master a submarine launched ballistic missile, because they still haven't mastered the farings that go over it. Mr. Rohrabacher expressed those concerns properly.

Mr. SHERMAN. Your answer is noted. Let's say, Ms. Cooper, your industry was told if you are going to launch on a Chinese rocket, you can tell the Chinese how much it weighs, you can send them a clay mockup if they care to know what shape it is, and aside from that you cannot talk to them, except about price, date of launch. But you can't tell them that more of the weight is in the left part of the satellite or the right part of the satellite, looked at a particular view. And, more importantly, you can't talk to them about what kind of faring you are going to have, anything else.

In effect, you just don't let American engineers talk to the Chinese. You just let accountants talk to the Chinese. Trust me, they could torture me. They wouldn't learn anything about their rocket program.

So what if we had a rule that only accountants could talk to the Chinese? Would that impair the ability of this tenuous partnership between the United States satellite maker and a Chinese launch to be effective, or do you have to have the engineers talk to each other for this to work?

Ms. COOPER. I don't know.

Mr. SHERMAN. That is a good answer.

Ms. COOPER. The hypothetical sounds good.

Mr. SHERMAN. Dr. Wortzel, we are asking if you might know. If we just had a rule that only accountants who know nothing about rocketry are allowed to talk to the Chinese and, you know, accountants can talk about, well, when are you going to put it up.

Mr. WORTZEL. You can never find an insurer to underwrite that satellite launch if you didn't allow some kind of technical data exchange.

Mr. SHERMAN. So there has to be technical data exchange for it to work?

Mr. WORTZEL. I believe so. I am not a rocket scientist, didn't sleep in a Holiday Inn Express, but I am pretty sure, I am pretty sure there has got to be technical data exchanged.

Mr. CHAO. Can I deconstruct the question?

Mr. SHERMAN. Yes, Mr. Chao, I don't know if you are a rocket scientist either.

Mr. CHAO. I went to MIT, but I wasn't a rocket scientist.

There are two sets of the industry, I think, that we care about, the satellite manufacturers and most of the questions you have been asking about relate to the sale of satellites. But there is an entire other constituency, which is the manufacturer of the parts, that all of the work around and the things we are talking about in relation to China and how to accommodate those concerns is, once again, as long as we are using the blunt instrument of the ITAR controlling act, does nothing for those—the parts components guys who are just as interested in selling their parts into an American satellite as they are into a European satellite being sold back to an American, which today they cannot do. Or, they can, but they find it——

Mr. SHERMAN. I think you are a little off my question. The question is, it doesn't matter whether the whole satellite is made in the United States or whether a component is made in the United States. Under the regime I was putting forward, nobody on the

Western side of the transaction could talk in "engineering talk" to anybody on the Chinese side of the transaction.

The purpose, from a national security perspective, is to prevent the Chinese from learning anything about rocketry. The impediment is that, therefore, those engineers involved with the satellite on the Western side couldn't share the useful information.

If that happened, do you have any insight as to whether that would be practical?

Mr. CHAO. I think Dr. Wortzel is right. No insurance company would insure that satellite launch.

Mr. SHERMAN. Okay. So as a practical matter.

Mr. CHAO. Practical matter.

Mr. SHERMAN. We want to prevent anybody who knows more about rocket science than the Chinese do from talking to the Chinese, and this system is designed to prevent not only American companies but any European company that is dependent upon American parts from talking rocket science to the Chinese.

What is interesting is that we have this giant hole, and that is we are doing nothing to discourage insurance companies from talking to the Chinese, and the insurance company—I mean, I could think that sometimes, just maybe, somebody who owns the satellite is hoping it blows up on the pad, providing the insurance company is not AIG.

But the insurance company is always rooting for the satellite to make it into space. And do the insurance companies know enough about rocketry to be dangerous to our national security?

Mr. Chao.

Mr. CHAO. They—so, again, this is where your point about the financial interests comes into play. And part of the issue back in 1999, my understanding, was partly driven by the insurance company saying you better have those guys figure out what's going on, because I don't want to blow up—I don't want to pay——

Mr. SHERMAN. So the insurance companies may not understand engineering, and they may not know anything about rocketry, but they do know what I have just learned here, and that is the engineers at the satellite company need to talk to the engineers at the launch company for the launch to be successful. And once you have engineers talking to each other, somebody may slip and reveal some engineering information we don't want revealed.

Dr. Wortzel, I don't know if you had a—you look like you have an additional comment. I don't know if you do.

Mr. WORTZEL. Well, in the Hughes and Loral cases, apparently the Chinese technicians just weren't getting it. You know, these were not Americans that were out to do harm to the United States.

Mr. SHERMAN. Yes.

Mr. WORTZEL. They just realized that this wasn't going to work unless they told them how to solve a couple of problems.

And that is, again, where Mr. Rohrabacher's problems come.

Mr. SHERMAN. The natural tendency is for people to root for their partners and try to be helpful to their partners.

And if you are in—if American companies are in partnership with China to launch vehicles, it is against human nature—it is usually successful; 99 times out of 100 the Loral engineer doesn't

reveal any information, but it is against human nature to say don't help your partner.

Mr. CHAO. Your point about barn doors being closed, that issue was very specifically addressed in the legislation in terms of—it is called anomaly resolution, right, where it requires all kinds of additional licensing in order to do that.

The unintended consequence of the licensing related to anomaly resolution, and the NASA Administrator testified to this, is on normal, cooperative, Western cooperative civilian satellites, it becomes so hard to do an anomaly resolution amongst friends that, again, they are afraid of putting our components on board scientific missions for a risk that I can't get a license fast enough if the satellite is about to tumble out of the sky, where I need an answer in 3 hours, I actually have to go through a licensing process to be able to talk to somebody about that.

So it is another case where, once again, we are trying to stop something, we have caused some unintended consequences in other places.

Ms. COOPER. If I could.

Mr. SHERMAN. Yes.

Ms. COOPER. I think Mr. Chao's comment is well founded. If you look at the percentage of Chinese launches compared to the overall number of orbital launches from last year, the Chinese launched 11 and there were 69 orbital missions last year.

There are a number of other commercial transactions and launch considerations that we are not focusing on here because we are spending our time talking about China. Not to say we shouldn't be evaluating that, but I think there is a larger impact.

Mr. SHERMAN. Okay, we talked about a bill that you and Dana would write. I know what is going to be in his part. Dealing with the non-China universe, what should be the description and then how do you make sure that any knowledge that we impart to the French doesn't then go to China?

Ms. COOPER. First, we would return export licensing authority to the executive branch. We would encourage——

Mr. SHERMAN. You mean to Commerce. It is in the executive branch.

Ms. COOPER. The State Department and Defense Department do not believe that they have got the authority to evaluate the U.S. munitions list.

Mr. SHERMAN. Well, yes. In other words, return the authority to determine which satellites and satellite components are munitions and which are not.

Ms. COOPER. Correct.

Mr. SHERMAN. To the executive branch.

Mr. SHERMAN. Go ahead.

Ms. COOPER. Remove the block.

Mr. SHERMAN. Right.

Ms. COOPER. Request an immediate and thorough technical view of the products that are in the U.S. munitions list that you can focus the controls on those products that are actually technologically sensitive.

It is not clear at this point. We haven't done that review. Whether there are technologies that would allow us to have a non-ITAR satellite, I don't know because we haven't done that review.

But the products that have no military or technological sensitivity should be export licensed by Commerce.

Mr. SHERMAN. If the satellites launched in the 1990s by the Chinese actually were just pure junk, it wouldn't have mattered. It is not what was inside the box.

So to say that a widget that is used on a satellite should be in one list, but a super widget should be on another list, makes sense if you think the Chinese are going to look in the box and see how the super widget was made.

Ms. COOPER. But it has an economic impact on the overall trade, the component manufacturers, subsystems manufacturers and the practical licensing requirements for prime manufacturers and launch providers, operators are all subject to. It narrows the focus to those products that we care about.

Mr. SHERMAN. Now, let's say you are a U.S. satellite manufacturer. Does this ITAR rule prevent you from offshoring the creation of one of the components? Let's say you are a U.S. satellite manufacturer, you already booked space on a U.S. rocket. In the past you have done everything in the United States and so you are not importing or exporting anything.

And now, all of a sudden, somebody comes to you and says, you know, there is a European company that can make the widget for it. Does our law have the unintended benefit of making it—or detriment, depending upon your point of view, from being able to import this—this United States satellite maker to import the widget from France or Britain or China or whatever?

Ms. COOPER. I think United States manufacturers do import certain components from European suppliers.

Mr. SHERMAN. And the fact that we call it a munition, does that mean that we in any way restrict imports in a way that we couldn't if it was a dual-use item.

Mr. CHAO. It does. There are a couple of anecdotal evidences where there was a particular technology developed by Europeans, who would not give it to us for fear that once they gave it to us it would then become ITAR controlled and they couldn't get it back out again.

Mr. SHERMAN. So this was a case where they had an item for a satellite, they wanted to send it to the United States for integration or processing, and then send it back to Europe?

Mr. CHAO. Right. And the instant that it touched our shores on our satellite, and so they said, whoops, no, we would rather not sell it to you.

Mr. SHERMAN. I mean, the point of my question is, to what extent does our current morass of regulations actually protect U.S. jobs from outsourcing?

Dr. Wortzel, can you, do you see a circumstance in which this U.S. satellite manufacturer would just as soon not import one of the components?

Mr. WORTZEL. Well, in my view, what has happened to American manufacturing and industry in general makes your case, that if you can get it cheaper by offshoring it, and there is no policy sup-

port for maintaining an industrial base of that type in the United States, they are going to buy it cheaper.

Mr. SHERMAN. Yes. But what I am asking is, do our regulations add a lot of red tape to the effort to import a satellite component from abroad?

Mr. WORTZEL. I do not know the answer to that, sir.

Mr. CHAO. It does. And in our study, we are also able to get and quantify the burden on the second and third tier in order to work your way through the system, costs them about $60 million as a whole. It costs them 2 or 3 percentage points of profit, which they could have used to hire other people.

Mr. SHERMAN. Yes. I mean, my question is, are we protecting American jobs with these regulations by discouraging American companies from importing components?

Mr. CHAO. Not as much as we are damaging them in terms of exporting, so it is a net loss.

Ms. COOPER. I would agree.

Mr. SHERMAN. But it is a netting. We lose these exports, but we prevent certain imports?

Ms. COOPER. I would just like to address the outsourcing issue. I agree with my colleagues that the ITAR regulatory regime has actually encouraged manufacturing capability to be developed offshore.

So, in your terms——

Mr. SHERMAN. I am aware that these regulations cause a commercial problem. I am trying to see whether there is a——

Ms. COOPER. But I think those jobs have moved, some jobs have moved offshore, not because they are cheaper but because they evade regulation.

And I think we need to be realistic that not all jobs make sense to be outsourced. In this world, where the technology is highly complex, and can't be retrieved or repaired once it is launched 22,000 miles off of the Earth's surface, there is a great deal of caution and conservatism about the sourcing of your componentry. This is not a technology where people take a lot of risks on suppliers.

So the flexibility to move jobs over—up to unknown supplier sources with limited initial experience is a high barrier, in my estimation.

Mr. SHERMAN. Okay. Drawing to a close here, Dr. Wortzel, let's say we go with this bill, Ms. Cooper writes all the provisions, Rohrabacher writes the anti-China provision.

Do you see a threat to national security to letting some imports and exports and launches from Russia, France, et cetera?

Mr. WORTZEL. I think you have to be very careful, as you draw up such a bill, to look at the multilateral and bilateral space and satellite cooperation programs that China has, in some cases, with our allies.

So if your goal is to sort of cordon off China, then you have to ask, well, what are they doing with Brazil, Argentina, France, and how does that affect the way you have written the legislation?

Mr. SHERMAN. Would you be focused on rocket technology or satellite component technology?

Mr. WORTZEL. I would focus on rocket technology and the launch aspects of it because, again, they haven't cracked satellites.

Mr. Rohrabacher took me to task for that statement.

Mr. SHERMAN. They haven't what?

Mr. WORTZEL. They haven't cracked open a satellite to steal the technology in it.

Mr. SHERMAN. Okay. But if we are cooperating with Brazil or France in manufacturing satellites, then the Brazilians and the French are going to learn something, and you don't have to crack open a satellite, you just crack open a Frenchman or a Brazilian.

Mr. WORTZEL. That is right. And I think there is always the danger that some of that information, if they are in a separate bilateral program with China, is going to get there.

The question is, what is the risk to the national security if that happens?

Mr. SHERMAN. So, certainly, any legislation, if it grants to the executive branch this kind of authority, has got to require a review of what technology is going to go to our ally and what controls that ally has to make sure the technology doesn't go anywhere else.

Mr. WORTZEL. Yes, sir, and we regularly license technologies to allies and place restrictions on the reexports of data and information.

So, usually, they are pretty good about it.

Mr. SHERMAN. What about Russia? Does Russia already know as much about rocketry as they are likely to discover by launching American satellites?

Mr. WORTZEL. My sense from the Fiscal Year 2000 Defense Authorization Act, where we encouraged all the space cooperation with Russia, is it is not just that—they are pretty well advanced, so there is not much to worry about.

But both of us have enough nuclear warheads aimed at each other that it doesn't make a material difference in the national security——

Mr. SHERMAN. So Russia might learn something, but it doesn't make them materially any more of a menace?

Mr. WORTZEL. You are going to get 2,000 warheads one way or the other.

Mr. SHERMAN. Mr. Chao. Any comment on that?

Mr. CHAO. No. In all the industries, you know, the space industry has been one of the few that they have been investing in. And in some cases, because they invested in it, it actually turns out they have the world-class technology, you know, much to our chagrin, frankly. Motors, for example, is a good example.

Mr. SHERMAN. Ms. Cooper, is there any way to provide tax incentives or subsidies to the launch industry, which is a segment of your organization, to get all the—you know, the jobs and all the national security advantages of beating the Long March?

Ms. COOPER. I think we would be interested in working with you on ways to courage U.S. launch capabilities. There are new entrants to the U.S. launch industry, and I think there is a great deal of work we can do to try to encourage domestic launch capabilities and capacity.

Mr. SHERMAN. Well, one approach is tax credits for those who use it. Another approach is to say that those in that particular industry don't have to pay payroll taxes, if the U.S. taxpayer would do that for them.

One approach is just direct subsidy, and a final approach that I can think of is that the U.S. Government act as the launcher, albeit contracting with U.S. companies to make the rocket.

I hope you pursue those, but I would hope you would also come up with some other ideas.

It is nice to hear that, yes, there are things that we could do. So, you are brilliant, figure them out, bring them back.

Mr. CHAO. Subsidized or paid for insurance, too, would——

Mr. SHERMAN. Yes. Another way to do that is either to pay for insurance or act as the guarantor, free insurance.

So, I mean obviously, if we get—if the best way to put something in space is to have the Americans put it in space for you, we have solved most of these problems.

I think at this point we stand adjourned.

[Whereupon, at 3:05 p.m., the subcommittee was adjourned.]

APPENDIX

Material Submitted for the Hearing Record

SUBCOMMITTEE HEARING NOTICE
Committee on Foreign Affairs
Subcommittee on Terrorism, Nonproliferation and Trade
U.S. House of Representatives
Washington, D.C. 20515-0128

Brad J. Sherman (D-CA), Chairman

March 26, 2009

TO: MEMBERS OF THE COMMITTEE ON FOREIGN AFFAIRS

You are respectfully requested to attend an OPEN hearing of the Subcommittee on Terrorism, Nonproliferation and Trade, to be held in **Room 2175 of the Rayburn House Office Building:**

DATE: Thursday, April 2, 2009

TIME: 1:00 p.m.

SUBJECT: Export Controls on Satellite Technology

WITNESSES: Larry M. Wortzel, Ph.D.
Vice Chairman
U.S. – China Economic and Security Review Commission

Mr. Pierre Chao
Senior Associate
Center for Strategic and International Studies

Ms. Patricia Cooper
President
Satellite Industry Association

By Direction of the Chairman

The Committee on Foreign Affairs seeks to make its facilities accessible to persons with disabilities. If you are in need of special accommodations, please call 202/225-5021 at least four business days in advance of the event, whenever practicable. Questions with regard to special accommodations in general (including availability of Committee materials in alternative formats and assistive listening devices) may be directed to the Committee.

COMMITTEE ON FOREIGN AFFAIRS

MINUTES OF SUBCOMMITTEE ON *Terrorism, Nonproliferation and Trade* MEETING

Day *Thursday* Date *4-02-09* Room *2172 RHOB*

Starting Time *1:05PM* Ending Time *3:05PM*

Recesses *1* (*2:15P* to *2:45P*)

Presiding Member(s) *Mr. Sherman, Mr. Connolly, Ms. Watson*

CHECK ALL OF THE FOLLOWING THAT APPLY:

Open Session ☑
Executive (closed) Session ☐
Televised ☐

Electronically Recorded (taped) ☐
Stenographic Record ☑

TITLE OF HEARING or BILLS FOR MARKUP: *(Include bill number(s) and title(s) of legislation.)*

Export Controls on Satellite Technology

SUBCOMMITTEE MEMBERS PRESENT:

Ms. Watson, Mr. Royce, Mr. Connolly

NON-SUBCOMMITTEE MEMBERS PRESENT: *(Mark with an * if they are not Members of HIRC.)*

Mr. Rohrabacher

HEARING WITNESSES: Same as meeting notice attached? Yes ☑ No ☐
(If "no", please list below and include title, agency, department, or organization.)

STATEMENTS FOR THE RECORD: *(List any statements submitted for the record.)*

Statements of the witnesses, Statement from the National Association of Manufacturers and the Aerospace Industries Association, Larry M. Wortzel's published research, 4/2/09 NY Times Article regarding the hearing

ACTIONS TAKEN DURING THE MARKUP: *(Attach copies of legislation and amendments.)*

RECORDED VOTES TAKEN (FOR MARKUP): *(Attach final vote tally sheet listing each member.)*

Subject	Yeas	Nays	Present	Not Voting

TIME SCHEDULED TO RECONVENE _____
or
TIME ADJOURNED *3:05PM*

Subcommittee Staff Director

Statement

of Frank Vargo
Vice President, International Economic Affairs

on behalf of the National Association of Manufacturers

before the House Foreign Affairs' Subcommittee on Terrorism, Non-Proliferation and Trade

Chairman Brad Sherman

Hearing on Export Controls on Satellite Technology

April 2, 2009

Statement of
Frank Vargo
Vice President, International Economic Affairs
National Association of Manufacturers
Washington, DC

Before the
House Foreign Affairs' Subcommittee on Terrorism, Non-Proliferation and Trade

Hearing on
Export Controls on Satellite Technology

April 2, 2009

The National Association of Manufacturers (NAM) is providing the following written statement for the record of the House Foreign Affairs' Subcommittee on Terrorism, Non-proliferation and Trade (TNT) hearing on "Export Controls on Satellite Technology" held on April 2, 2009. The NAM thanks the Subcommittee for the opportunity to submit this statement for the record and looks forward to continuing to work with the Subcommittee on this important issue.

The NAM is the nation's largest industrial trade association, representing small and large manufacturers in every industrial sector and in all 50 states. The NAM is also a founding member of the Coalition for Security and Competitiveness (CSC), created to modernize the export control system to make it more transparent, efficient and predictable.

NAM members play a critical role in protecting the security of the United States. Some are directly engaged in providing the technology and equipment that keep the U.S. military the best in the world. A much larger group plays a key support role developing the advanced industrial technology, machinery, and information systems that ensure our defense industries and the U.S. military have the capabilities they need to keep our defenses strong against all threats.

High-technology industries play not only a vital role in defending our nation but also in promoting a strong and growing economy. Companies in this sector employ over 3.5 million workers, most of whom receive wages much higher than the national average. High-technology industries are also the nation's largest exporter and are a significant contributor to the increase in exports of U.S. manufactured goods. In 2008, high-technology exports represented nearly 30 percent of total U.S. manufactured goods exports or $369 billion. As the U.S. industry continues to evolve, the United States will depend increasingly on these high-technology industries to expand exports, create jobs and keep our economy strong and competitive.

Today's hearing on export controls on satellites could not be more timely. We need an export control system that can keep sensitive technologies out of the hands of those who seek to harm the United States. This is critical for our national security and U.S. industry supports that effort. Yet the export control system will not serve the country's security needs unless it also helps to sustain a dynamic, innovative and globally competitive manufacturing sector that can actively engage in international trade and leverage the talent and technical resources of foreign partners. Over time, we fear that the burdens of the export licensing process will erode America's global technology leadership and overall industrial competitiveness, hurting both long-term U.S. security and economic interests.

A provision in the Fiscal Year 1999 defense authorization bill shifted control over commercial satellite exports from the Commerce Department to the State Department. Since that change, U.S. satellite manufacturers have been hampered in their ability to compete globally--much of the satellite technology transferred to the State Department's jurisdiction is available from other countries. As a result of the decision to treat satellites as arms instead of commercial products U.S. advanced technology manufacturers have been shut out of important global markets. This has harmed the companies upon which our national security increasingly depends. In effect, the change in jurisdiction has had the reverse impact of what was intended by harming the United State's defense capability and manufacturers.

Since jurisdiction over commercial satellites was transferred, the U.S. share of the global market has decreased. Specifically, U.S. manufacturers of commercial communication satellites have lost 20% of the global market since 1999. NAM members cite the U.S. export control policy as a significant contributing factor to the loss of global market share and as a barrier to entry in many foreign markets.

There are three primary reasons why the U.S. export control policy on satellites has contributed to the decrease in global market share and negatively affected U.S. manufacturers' competitiveness. First, the licensing process hinders the ability of U.S. manufacturers to compete and enter into contracts. The lengthy processing times negatively impact the reliability of U.S. manufacturers and often result in lost sales. A report commissioned by the U.S. Air Force and Space Industrial Base Council estimates that from 2003-2006 U.S. manufacturers lost $2.35 billion in sales. U.S. manufacturers report that customers favor non-U.S. manufacturers in the contracting process by setting deadlines and goals that cannot be met if International Traffic in Arms Regulations (ITAR) approval is required, effectively creating a non-tariff barrier and shutting the door on U.S. manufacturers.

Second, the cost of complying with U.S. export controls increases the cost of doing business for U.S. manufacturers and deters foreign companies from importing U.S. manufactured goods and components. For example, both U.S. and foreign companies have to hire outside counsel, additional staff and engage in continuous training. Foreign companies can avoid many of these costs by designing out American goods and parts and components. The commercial satellite industry is a prime example of this trend.

Third, foreign competitors, particularly European companies, have seized the opportunity to advertise their products as "ITAR-free." This has greatly increased the attractiveness of non-U.S. manufactured satellites and component parts and resulted in the "design out" of U.S. manufactured goods. The NAM has received copies of many contracts our members have received from potential customers that specifically prohibit the use of U.S. manufactured parts and components. Customers look to European or Japanese manufacturers to provide the equipment more rapidly because their governments do not regulate satellite exports as munitions.

The NAM encourages the Subcommittee to evaluate the impact of the current controls on satellites, to work with the Administration, and to modernize the export control system. The NAM believes that modernization of the export control system will not only increase the competitiveness of U.S. satellite manufacturers but also will benefit the defense industrial base, high technology manufacturers and our national and economic security.

The NAM offers the following suggestions for modernizing exports controls on satellites:

- Congress and the Administration should systematically review export controls on satellites to determine which technologies are truly sensitive and warrant continued control;
- Congress and the Administration should consider foreign availability of the same or similar products on the global market. Where foreign availability is found, the controls should be modified unless a countervailing strategic or foreign policy rationale exists;
- A wholesale review of satellite export control policy should be initiated to reconsider Commerce Department oversight instead of the State Department; and
- New licensing mechanisms should be utilized to reduce licensing times and administrative burdens.

Now is the time to re-evaluate a decade-old policy that has not achieved its intended purpose but rather served to weaken U.S. technological leadership and competiveness. The NAM stands ready to work with Congress and the Administration to craft a new policy that serves both our national and economic security needs.

June 05, 2009

The Honorable Howard Berman
House Foreign Relations Committee
2170 Rayburn House Office Building
United States Congress
Washington, DC 20515

Dear Chairman Berman:

On behalf of the 275 member companies we represent across the United States, the Aerospace Industries Association (AIA) would like to express our support for your Committee's bill, H.R. 2410 (Foreign Relations Authorization Act, Fiscal Years 2010 and 2011). This bipartisan bill attempts to address America's declining competitiveness in the global commercial satellite market, protect high-paying and high-skilled U.S. jobs, and provide for a more predictable, efficient, and transparent export control system.

Section 826 of H.R. 2410 will remove commercial satellites and their related components from the U.S. Munitions List. This is a long-sought remedy to reverse a law passed in 1998 that contributed to the dramatic decline of U.S. share in the global commercial satellite market. In 1998, U.S. firms accounted for 73% of the world's commercial satellite market. By 2000, U.S. market share had dwindled to an astonishing 27%. By creating a more efficient export control system for commercial satellites, your bill will help strengthen the U.S. industrial base and will ensure the U.S. Government has the tools necessary to protect our national security interests.

H.R. 2410 also includes language that will increase State Department staff to process export licenses and provide flexibility in using funds to support licensing operations, important steps in reducing the processing time for export licenses. AIA has long advocated for a more predictable, efficient and transparent export control system and this bill is a positive step forward.

Moving forward, AIA looks forward to working with both the House and Senate on this and other legislation.

Best regards,

Marion C. Blakey

Modernize Space System Trade Policies to Enhance U.S. National Security

AIA RECOMMENDATIONS

- **Outdated restrictions on space technologies in the International Traffic in Arms Regulations (ITAR) have resulted in a weakened U.S. space industrial base and must be updated.**
- **AIA recommends that the U.S. government undergo a careful review of space technologies – including commercial satellite technology – to re-evaluate which technologies should be controlled and to determine which jurisdiction control is most appropriate, while keeping our primary focus on national security concerns.**
- **The review should examine how current export control policies on space technologies impact the U.S. space industrial base and industry competitiveness – from 1st tier companies to the supplier level.**
- **The review should determine what actions, including legislation, are needed to modernize ITAR, to ensure the right technologies are controlled the right way.**
- **The U.S. should also strengthen international partnerships and diplomacy with Europe, India, and other key allies to grow space trade opportunities for U.S. businesses.**

BACKGROUND

The U.S. relies on a healthy space industrial base for the development and deployment of critical national security assets. Unfortunately, many U.S. export control policies are ineffective, or worse counterproductive, to U.S. industry and ultimately negatively impact our security interests. In order to protect our capability to lead in space systems the U.S. needs a modern export control system. A modernized system should continue to keep sensitive technologies out of the wrong hands yet facilitate, in a timely manner, technology trade and cooperation with our friends and allies that supports U.S. interests.

Instead of preventing foreign space capabilities, barriers to U.S. products have prompted numerous countries to develop their own indigenous aerospace capabilities and leverage their growing market share to support their own R&D and innovation. Today, components such as radiation hardened bolts, connectors, power cables, and others remain restricted, but have become widely available through global competitors leveraging their own "ITAR-free" products. As U.S. market share declines, many U.S. companies, particularly second and third-tier suppliers, are increasingly reliant on sales to the U.S. government exclusively or are considering exiting the space business altogether. In the absence of a healthy, cutting-edge, space industrial base in the U.S., our government may be forced into relying on foreign suppliers for key components.

Without meaningful steps to modernize the U.S. export control system and enhance space trade among our allies, the U.S. faces a real and daunting possibility of losing our preeminence in space and our ability to compete in the global space industry.

KEY POINTS

- **Current U.S. Export Control Policies Threaten U.S. Space Industry.** U.S. firms accounted for 73% of the world market for commercial satellites in 1998, the year before current ITAR space restrictions were implemented. By 2000, the U.S. market share dropped to 27%. In the launch industry, U.S. firms earned over $300 million in revenues from launch services in 2003, but by 2007 this was down to $150 million. In the same period revenues from European launches increased from $178 million to $840 million. There is every reason to expect this trend to continue as India seeks to extend its commercial space capabilities and market presence.

- **Barrier to Entry for Non-Traditional and Small Space Companies.** Due to the high costs imposed on space companies by current export control policies, a variety of U.S. firms are finding these controls pose a barrier to entry into the space industry. A recent survey by the National Security Space Office of nearly 200 small U.S. space companies found that 70% of those companies surveyed cited ITAR restrictions as inhibiting their ability to compete for foreign business. At a time when the U.S. government should be encouraging growth across all sectors of the economy, export controls are limiting growth in the space sector, particularly among component suppliers.

- **Erosion of U.S. Space Industrial Base.** Recent studies, including a 2008 report by CSIS, have highlighted the negative impacts of space export control policies on the health of the U.S. space industrial base. According to CSIS, the U.S. is the only country that classifies commercial communications satellites as a "munition" and costs of compliance to 2nd and 3rd tier companies have increased 28% since 2003.

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