

[H.A.S.C. No. 112-22]

HEARING

ON

NATIONAL DEFENSE AUTHORIZATION ACT  
FOR FISCAL YEAR 2012

AND

OVERSIGHT OF PREVIOUSLY AUTHORIZED  
PROGRAMS

BEFORE THE

COMMITTEE ON ARMED SERVICES  
HOUSE OF REPRESENTATIVES  
ONE HUNDRED TWELFTH CONGRESS

FIRST SESSION

---

SUBCOMMITTEE ON STRATEGIC FORCES HEARING

ON

**BUDGET REQUEST FOR NATIONAL  
SECURITY SPACE ACTIVITIES**

---

HEARING HELD  
MARCH 15, 2011



---

U.S. GOVERNMENT PRINTING OFFICE

65-589

WASHINGTON : 2011

SUBCOMMITTEE ON STRATEGIC FORCES

MICHAEL TURNER, Ohio, *Chairman*

TRENT FRANKS, Arizona	LORETTA SANCHEZ, California
DOUG LAMBORN, Colorado	JAMES R. LANGEVIN, Rhode Island
MO BROOKS, Alabama	RICK LARSEN, Washington
MAC THORNBERRY, Texas	MARTIN HEINRICH, New Mexico
MIKE ROGERS, Alabama	JOHN R. GARAMENDI, California
JOHN C. FLEMING, M.D., Louisiana	C.A. DUTCH RUPPERSBERGER, Maryland
SCOTT RIGELL, Virginia	BETTY SUTTON, Ohio
AUSTIN SCOTT, Georgia	

RYAN CRUMPLER, *Professional Staff Member*

KARI BINGEN, *Professional Staff Member*

LEONOR TOMERO, *Professional Staff Member*

ALEJANDRA VILLARREAL, *Staff Assistant*

# CONTENTS

## CHRONOLOGICAL LIST OF HEARINGS

2011

	Page
HEARING:	
Tuesday, March 15, 2011, Fiscal Year 2012 National Defense Authorization Budget Request for National Security Space Activities .....	1
APPENDIX:	
Tuesday, March 15, 2011 .....	23

### TUESDAY, MARCH 15, 2011

#### FISCAL YEAR 2012 NATIONAL DEFENSE AUTHORIZATION BUDGET REQUEST FOR NATIONAL SECURITY SPACE ACTIVITIES

##### STATEMENTS PRESENTED BY MEMBERS OF CONGRESS

Langevin, Hon. James R., a Representative from Rhode Island, Subcommittee on Strategic Forces .....	3
Turner, Hon. Michael, a Representative from Ohio, Chairman, Subcommittee on Strategic Forces .....	1

##### WITNESSES

Conaton, Hon. Erin C., Under Secretary of the Air Force .....	4
Sapp, Betty J., Principal Deputy Director, National Reconnaissance Office .....	8
Schulte, Ambassador Gregory L., Deputy Assistant Secretary of Defense, Space Policy .....	6
Shelton, Gen. William L., USAF, Commander, Air Force Space Command .....	6

##### APPENDIX

###### PREPARED STATEMENTS:

Conaton, Hon. Erin C. ....	29
Sanchez, Hon. Loretta, a Representative from California, Ranking Member, Subcommittee on Strategic Forces .....	27
Sapp, Betty J. ....	87
Schulte, Ambassador Gregory L. ....	75
Shelton, Gen. William L. ....	49

###### DOCUMENTS SUBMITTED FOR THE RECORD:

[There were no Documents submitted.]

###### WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING:

[There were no Questions submitted during the hearing.]

###### QUESTIONS SUBMITTED BY MEMBERS POST HEARING:

Mr. Bartlett .....	111
Mr. Franks .....	104
Mr. Lamborn .....	106
Mr. Rogers .....	107
Mr. Ruppersberger .....	108
Ms. Sanchez .....	101
Mr. Turner .....	101



**FISCAL YEAR 2012 NATIONAL DEFENSE AUTHORIZATION BUDGET REQUEST FOR NATIONAL SECURITY SPACE ACTIVITIES**

---

HOUSE OF REPRESENTATIVES,  
COMMITTEE ON ARMED SERVICES,  
SUBCOMMITTEE ON STRATEGIC FORCES,  
*Washington, DC, Tuesday, March 15, 2011.*

The subcommittee met, pursuant to call, at 3:47 p.m., in room 2118, Rayburn House Office Building, Hon. Michael Turner (chairman of the subcommittee) presiding.

**OPENING STATEMENT OF HON. MICHAEL TURNER, A REPRESENTATIVE FROM OHIO, CHAIRMAN, SUBCOMMITTEE ON STRATEGIC FORCES**

Mr. TURNER. Good afternoon. I would like to welcome everyone to the Strategic Forces Subcommittee's hearing on the fiscal year 2012 budget request for national security space activities. Our witnesses this afternoon are the Honorable Erin Conaton, Under Secretary of the Air Force; General William Shelton, the new Commander of Air Force Space Command; Ambassador Greg Schulte, Deputy Assistant Secretary of Defense for Space Policy; and Ms. Betty Sapp, Principal Deputy Director of the National Reconnaissance Office.

Thank you all for appearing before this committee.

I want to give a special welcome, of course, to Erin Conaton. We greatly appreciate her prior service with this committee. People say with absolute conviction that this is one of the most bipartisan committees that is on Capitol Hill, and it is one of the reasons why I enjoy serving on it. And, Erin, you certainly contributed greatly to that spirit of bipartisanship and, at the same time, contributed to what I think is a highly substantive team here. Thank you for your work as Under Secretary of the Air Force. With the Wright-Patterson Air Force Base, I am particularly pleased, obviously, that the Air Force was able to secure your service; and I get to recognize, I understand, today is your one-year anniversary. Congratulations. We greatly appreciate your work there.

Secretary CONATON. Thank you, sir.

Mr. TURNER. I must express, however, the committee's disappointment that we did not receive General Shelton's testimony until just hours ago. While I understand the General's testimony was completed several days ago, it was not cleared by OMB [Office of Management and Budget], and it was not received by this committee until 11:00 a.m. today.

We take these hearings seriously, and I want to have a substantive discussion on the material presented in testimony. There-

fore, our committee requires witnesses' testimony 48 hours in advance of a hearing so that members may have sufficient time to review it and can use it to inform their oversight questions, and so that the members of our staff can have an ability to digest the context of the testimony that is being provided.

It is the Air Force's responsibility to get this testimony to the committee timely, even though we are aware of the issues in working with OMB. We certainly hope that that occurs in the future.

Let me first start by congratulating the Department on an impressive 38 out of 38 successful EELV [Evolved Expendable Launch Vehicle] launches and commend our dedicated space professionals for placing the first GPS [Global Positioning System] IIF satellite, the first AEHF [Advanced Extremely High Frequency] satellite, and the SBSS [Space Based Space Surveillance] Block 10 spacecraft on orbit this past year.

I am pleased that major space acquisition programs such as AEHF, WGS [Wideband Global SATCOM], MUOS [Mobile User Objective System], GPS, and SBIRS [Space Based Infrared System] appear to be sufficiently funded in the budget request despite a \$178 billion efficiency reduction for the Department over the next 5 years. Finishing these acquisition programs and getting them on orbit is vitally important. Equally important are the investments in next-generation science and technology and innovation and ingenuity that can lead to new, and sometimes revolutionary, capabilities.

There has been significant turbulence in space acquisition over the past decade. This has resulted in significant cost growth and schedule delays, leading to greater fragility in our space architectures and greater instability in the industrial base. Therefore, I was pleased to see that the Air Force proposed its space acquisition efficiency initiative, or EASE [Evolutionary Acquisition for Space Efficiency], in this year's budget request. However, the Department is requesting legislative authority this year to implement EASE that is different than in past years. It is important for our committee to understand why this legislation is needed. We also need to understand the longer-term strategy for EASE, because this is a different approach to space acquisition, and we want to have confidence that this isn't just a one-year activity.

I am concerned about the industrial base for solid- and liquid-fuel rockets. Costs for the Evolved Expendable Launch Vehicle, EELV, have skyrocketed with the termination of NASA's [National Aeronautics and Space Administration] Constellation program, and infrastructure costs currently shared by the Department and NASA are being passed on to DOD [Department of Defense]. I am also concerned that the EELV block buy approach does not fully meet the national security launch needs of the Department, despite cost increases of \$3.5 billion in the outyear budget request.

I would also like to highlight a few other concerns that I hope our witnesses can address today.

First, the National Security Space Strategy recognized that space is becoming increasingly, "congested, contested, and competitive." Orbital debris, such as that created in the 2007 Chinese anti-satellite test and the 2009 Iridium-Russian Cosmos satellite collision, increasingly threaten our space assets. However, our current

Space Situational Awareness, SSA, toolset rests largely on 1980s computer and network technology. The Air Force plans to replace this with the Joint Space Operations Center Mission System, but this information system program has experienced several challenges and setbacks. This is an important capability. I would appreciate our witnesses' thoughts on how we can get this set for success.

Second, I would like to further understand the Department's concerns about a new commercial communications capability that could potentially interfere with the GPS, as highlighted in a recent letter from the Deputy Secretary of Defense to the FCC [Federal Communications Commission]. Such interference could have severe consequences not only for the military but also first responders, the FAA [Federal Aviation Administration], and other civil and commercial users who are highly dependent on GPS.

Third, the Department's \$100 billion efficiencies initiative and \$78 billion deficit reduction initiative appear to take significant tolls on our space workforce. These cuts appear to be in areas that were scheduled for growth to accommodate rapid mission growth. What is the magnitude of this issue and how is the Department approaching it?

Fourth, the discussion in the National Security Space Strategy on "norms" has led to questions about whether the United States intends to sign up to the European Union's Code of Conduct for space. Some believe the Code could be a first step towards space arms control and limit U.S. freedom of action in space. What are the impacts of such an agreement? I would hope that the Department would carefully consult this committee before taking any further steps that could limit our future operations in space.

Lastly, a year ago, I expressed my concern that the National Air and Space Intelligence Center, NASIC, was being restricted from doing original analysis in certain counterspace areas despite their long history of technical expertise. Some of this has been resolved, but I am still uneasy with the current allocation of space intelligence analytical responsibilities. Like our committee, I understand that many of your organizations are routinely briefed by NASIC. Limiting their ability to continue to provide such important support cannot be in our best interest, especially with the Department's increased emphasis on space situational awareness and space protection.

I want to thank you all for being with us today. You each possess a tremendous amount of expertise and insight on our Nation's space policy and capabilities, and our Nation is better off as a result of your service. I look forward to your testimony.

With that, I would like to turn to Mr. Langevin, who will be our ranking member, for an opening statement.

**STATEMENT OF HON. JAMES R. LANGEVIN, A REPRESENTATIVE FROM RHODE ISLAND, SUBCOMMITTEE ON STRATEGIC FORCES**

Mr. LANGEVIN. Thank you, Mr. Chairman. Welcome to our witnesses.

Before I begin, I just wanted to welcome Secretary Conaton back to the committee. It is wonderful to have you back here once again;

and, like the chairman, I would like to congratulate you on your one-year anniversary of being sworn in as Under Secretary to the Air Force.

With that, Ranking Member Sanchez, who is out sick today, has a statement that I would like to submit on her behalf for the record.

[The prepared statement of Ms. Sanchez can be found in the Appendix on page 27.]

Mr. LANGEVIN. With that, I look forward to the witnesses' testimony.

I would just say I would like to associate myself with many of the comments and statements that the chairman made, and I will get into some of those questions during my time for questioning.

With that, Mr. Chairman, I yield back and look forward to our witnesses' testimony.

Mr. TURNER. Thank you, Mr. Langevin.  
Under Secretary Conaton.

**STATEMENT OF HON. ERIN C. CONATON, UNDER SECRETARY  
OF THE AIR FORCE**

Secretary CONATON. Thank you, Mr. Chairman, Mr. Langevin, Mr. Lamborn, Mr. Thornberry. It's wonderful to be back and wonderful to be part of this subcommittee and this committee again.

I want to thank you for everything that you do for our 690,000 active Guard, Reserve, and civilian airmen. This committee in particular does so much in overseeing some of our most critical national security programs, whether it be nuclear weapons, missile defense, or the subject of today's hearing, space programs.

Being back in this room brings back many memories and all of them good. So I am thrilled to be back and, particularly, to be here with my great colleagues in national security space. If you don't know already, you will find out in the course of the hearing just how much tremendous expertise is up here, and I am thrilled you will have the opportunity to engage in a dialogue with these wonderful colleagues.

I want to just very briefly highlight some of the changes we have seen over the past year when it comes to Air Force space programs, particularly in the areas of governance, acquisition reform, and investment. The changes we have made in those areas are consistent with and designed to support the tenets of the National Space Policy and the National Security Space Strategy.

As Ambassador Schulte will discuss at more length, these two documents emphasize the need for us to strengthen our capabilities, as the chairman said, in an increasingly congested, contested, and competitive space environment. Both call for increased information sharing and cooperation through interagency collaboration and international partnerships, and both emphasize energizing our space industrial base. They recognize space as a vital national interest that must be defended, and stress that our space assets and infrastructure must be resilient.

In support of the policy guidance in the fiscal year 2012 budget request, we are focusing on international partnerships and our Wideband Global Satellite Communications and Space Fence programs, working with other agencies and our industry partners to

stabilize the market for space launch and investing in critical upgrades to our secure communications capability and our GPS constellation, to name just a few examples.

To ensure we can effectively execute these strategies, we know we must have a sound management structure. To that end, we have made a number of changes in space governance over the past year, both within the Air Force and throughout the broader Department of Defense.

Within the Air Force, I was designated as the focal point for space. We created a Space Board to do management of Air Force space activities; and our space acquisition efforts were consolidated under our Service Acquisition Executive, Mr. Dave Van Buren.

At the DOD level, Secretary Mike Donley was revalidated as the Department of Defense's Executive Agent for Space. The Department created the Defense Space Council to do collaborative work across the Department, and our National Security Space Office was dissolved in favor of a new joint Executive Agent support office, which will be stood up in the coming months.

These are significant developments that will help us reshape how we acquire and manage space capabilities.

In this budget, the Air Force is dedicating \$8.8 billion, fully 21 percent of the Air Force's total investment accounts, to national security space programs. We take our space responsibilities very seriously, but to be good stewards of the space mission in the increasingly constrained fiscal environment, we have to make our programs more cost-effective.

As part of Secretary Gates' efficiencies initiative, we found savings throughout the Air Force and plan to reinvest these funds into readiness and warfighter programs, including our space programs such as the Evolved Expendable Launch Vehicle program, or EELV.

As another part of our push for more cost-effective programs, the Air Force is developing a new acquisition strategy for this EELV program, and doing so in great partnership with the National Reconnaissance Office and with NASA. It is based on a strong commitment to sustaining our decade-long perfect record of launches. And thank you, Mr. Chairman, for highlighting that. The folks who work for General Shelton and for Ms. Sapp do tremendous work to ensure that we keep that record perfect, stabilizing a fragile industrial base and lowering the increasing costs of space launch.

In addition, as the chairman noted in his opening statement, we have also proposed a new approach to buying satellites called Evolutionary Acquisition for Space Efficiency, or EASE. EASE is based on four key tenets: block buys, fixed-price contracts, stable research and development investments, and full funding over multiple years through advance appropriations. We are confident this approach will result in a better price to the taxpayer and provide greater stability and predictability for our country's space industrial base. We appreciate the dialogue we have already had with your staffs on this issue and look forward to working with you further as you get closer to your markup.

In conclusion, the Air Force remains committed to excellence in the space enterprise, both as a core function of our service and on behalf of the broader national security community. Our fiscal year

2012 budget reflects this commitment and maintains critical space capabilities for our Nation and our warfighters.

Thank you, as always, for your constant support for the Department of Defense and the Department of the Air Force. I look forward to engaging in your questions.

[The prepared statement of Secretary Conaton can be found in the Appendix on page 29.]

Mr. TURNER. Thank you.  
General Shelton.

**STATEMENT OF GEN. WILLIAM L. SHELTON, USAF,  
COMMANDER, AIR FORCE SPACE COMMAND**

General SHELTON. Thank you, Mr. Chairman, Representative Langevin, and distinguished members of the subcommittee. It is an honor to appear before you today as the Commander of Air Force Space Command. I am also honored to be with these leaders of the national security space enterprise, Under Secretary Conaton, Ambassador Schulte, and Principal Deputy Director Sapp.

In Air Force Space Command, I am privileged to lead over 46,000 Active Duty, Guard, and Reserve airmen, government civilians, and contractors who deliver space and cyberspace capabilities around the world for our Nation. Air Force Space Command space and cyberspace capabilities are integral to the joint fight, and our professionals work extremely hard to continually ensure excellence and mission success.

Based on the unique responsibilities of the Command, I have established three priorities: First, Air Force Space Command must continue to support the joint fight; second, we must get control of the costs of space systems; and, finally, we must operationalize and normalize cyberspace for 21st century military operations.

The fiscal year 2012 budget advances the Command's progress toward these priorities. It modernizes GPS, the world's gold standard for positioning, navigation, and timing information. It advances satellite communications to meet ever-increasing demand. It enhances Overhead Persistent Infrared capability, essential for missile warning and missile defense. It improves our Space Situational Awareness, which is foundational to our ability to monitor both our spacecraft and the congested and contested space environment in which they operate. It addresses acquisition improvements in procuring satellites and launch vehicles. And, finally, it builds upon our cyberspace foundation for improved capability.

I thank the committee for your continued and steadfast support of Air Force Space Command and the capabilities we provide for this Nation. I look forward to your questions. Thank you.

[The prepared statement of General Shelton can be found in the Appendix on page 49.]

Mr. TURNER. Ambassador Schulte.

**STATEMENT OF AMBASSADOR GREGORY L. SCHULTE, DEPUTY  
ASSISTANT SECRETARY OF DEFENSE, SPACE POLICY**

Ambassador SCHULTE. Chairman Turner, Representative Langevin, subcommittee members, thank you for the opportunity to testify this afternoon.

Last year at this hearing, Chairman Turner urged the administration to provide, “a forward-looking posture that will guide near-term and future investments in space.” Last month, Secretary Gates and DNI [Director of National Intelligence] Clapper submitted to Congress the first ever National Security Space Strategy with exactly that intent.

This new strategy starts with the dramatic changes in the space domain, a domain that remains vital to our national security, but as you, Mr. Chairman, noted, is increasingly congested, contested, and competitive. In face of these challenges, the strategy seeks to protect the strategic advantages we derive from space, while also protecting the domain itself and the industrial base that is so important to our capabilities there.

My prepared statement summarizes the strategy in detail, and Secretary Conaton and General Shelton described in their prepared statements how the strategy is already being reflected in DOD programs.

I would like to briefly touch on three important aspects of the new strategy: first, promoting the responsible use of space; second, partnering with other countries; and, third, deterring attack on our space systems.

Promoting the responsible, peaceful, and safe use of space is one of the strategy’s key approaches. A more cooperative, predictable environment enhances our national security and discourages destabilizing behavior. The United States is leading by example. We have recently begun to provide pre-launch notification of our space launches, just as we have notified ballistic missile launches in the past. STRATCOM [United States Strategic Command], once a command designed solely to deliver nuclear weapons, is now delivering warnings of potential collisions in space.

The United States is also looking to promote international transparency and confidence-building measures for space. With that in mind, we are currently evaluating the European Union’s proposed international Code of Conduct for Outer Space Activities. While the administration has not made a final determination on the Code, our preliminary assessment finds it a positive approach to promoting responsible behavior in the domain, enhancing our national security in the process.

At your request, Mr. Chairman, we remain ready to stay in close touch with your committee as work on the Code progresses; and let me assure you the Department of Defense, together with the Intelligence Community, will ensure that our national security equities are well protected.

Partnering with other countries is another key approach of the new strategy. Partnerships allow us to benefit from growing space capabilities of allies in other countries, to make our space capabilities more diverse and resilient, and to improve our ability to operate in coalition. Improved space situational awareness, a foundational element of the new strategy, is one of several mission areas that can benefit from international cooperation. Secretary Gates recently signed statements of principles on SSA sharing with his counterparts from Australia, Canada, and France, countries whose capabilities and geography can contribute importantly to tracking and characterizing the many objects in space.

Another good example of partnership is the Wideband Global SATCOM, WGS, system. Australia has bought into the constellation, and the Air Force is negotiating with other allies to buy in as well. This expands the number of satellites, adds coverage and resiliency, and shares the cost—a welcome benefit at a time of budget constraints.

The new strategy also reflects a new multi-layered approach to deterring attacks on our space systems, an approach that builds on aspects of the strategy that I have already described.

In brief, the first layer of deterrence is the establishment of norms of responsible behavior, separating responsible space-faring countries from those who choose to act otherwise.

The second layer of deterrence is the establishment of international coalitions, forcing a potential adversary to contemplate attacking the capabilities of a coalition of countries, not just one.

The third layer of deterrence is mission assurance, ensuring that we can conduct key missions in a degraded environment, thus reducing the incentive to attack our space capabilities.

The fourth layer of deterrence is a readiness and capability to respond in self defense, and not necessarily in space.

The goal is simple: to complicate the decisionmaking of a potential adversary in peacetime, crisis, and conflict in order to encourage restraint while protecting key missions should deterrence fail us.

In conclusion, the Department has adopted a new space strategy to protect the national security advantages that we derive from a domain that is increasingly congested, contested, and competitive. We look forward to working with Congress in implementing this strategy. Thank you.

[The prepared statement of Ambassador Schulte can be found in the Appendix on page 75.]

Mr. TURNER. Ms. Sapp.

**STATEMENT OF BETTY J. SAPP, PRINCIPAL DEPUTY  
DIRECTOR, NATIONAL RECONNAISSANCE OFFICE**

Ms. SAPP. Chairman Turner, Ranking Member Langevin, thank you for letting me be here today. It is a pleasure to appear before you with my colleagues and partners from the DOD.

I want to make a very brief summary of my statement that we turned in for the record and just start with the state of the NRO [National Reconnaissance Office].

From building and launching the most technically capable overhead systems to our successful financial management practices, the NRO remains the premiere overhead reconnaissance organization in the world. We are nearly through the most aggressive launch campaign that we have had in over 25 years, successfully launching five satellites into orbit in the last 7 months. We have one more to go next month.

Our ability to sustain this tempo is due to the diligent efforts of our program teams, who successfully acquire and deliver these complex systems, and to our NRO launch team, who, with our partners in General Shelton's organization, have gotten them successfully into space. We are especially proud of this accomplishment because it demonstrates our ability to deliver against our commit-

ments and because of the new overhead reconnaissance system capabilities we are able to provide to the President, senior policy-makers, and to our Nation's warfighters.

We are also very proud of our data fusion and ground processing systems. They are also making a difference to the warfighter. For example, several months ago, in the U.S. Central Command area of operations, analysts were made aware of an impending ambush on coalition troops, but they were unable to pinpoint the location of the attack. A newly developed system by the NRO provided the analysts precise geolocation of where the attack would come from. It was actionable intelligence for our troops. They got—in time—both close air support and reinforcements. The net result was that they killed 20 insurgents and with no casualties on the coalition side. So this is the kind of support and dedication the men and women of the NRO strive to provide to our warfighters, and it is very important to us.

Mr. Chairman, members of the committee, thank you for the opportunity to appear before you today. On behalf of General Carlson, I thank you for your continued support of the NRO, and I stand ready to answer your questions.

[The prepared statement of Ms. Sapp can be found in the Appendix on page 87.]

Mr. TURNER. Great. Thank you.

I know that members have a number of questions. So what I am going to suggest we do two rounds of 5 minutes each, and maybe we will have some overlap of items that members are interested in.

My first question to the panel goes to the request of EASE, the Evolutionary Acquisition for Space Efficiency. If you could please give us an idea as to what the expected project cost savings of the AEHF block buy that is proposed in the new EASE acquisition strategy, what that might be ultimately. If the Air Force had not proposed this block buy approach, what would have been the estimated cost for the AEHF procurement, and how would that have affected the overall space procurement budget?

And then, on the legislative side, what is the legislative authority that the Air Force is requesting to implement EASE? Why, specifically, is it necessary? And if the Congress were to provide such authority for advance spending, what measures will the Air Force take to ensure accountability for and transparency into these funds?

Under Secretary Conaton, if you want to go first.

Secretary CONATON. Sure. I will take a crack at it.

So, as I understand, you are looking for the benefits, what the downsides would be if we can't accomplish this goal, and then to talk a little bit about the legislative provision.

So starting with what we think the benefits are, it is twofold: benefit to the taxpayer in the form of lower costs, and benefit to the industrial base in the form of greater stability. We believe that by undertaking a block buy approach—buying two satellites at once—that there is an economic benefit to that, not only to the contractor but in the price they are able to offer to the Federal Government and the American taxpayer.

Now, the work that we have done here started, honestly, with direction that came from this committee and others over the years,

that you were not happy with the way that we were procuring satellites and that you wanted us to look at a different way of doing it. Obviously, we have put together an approach here, and we are looking forward to a dialogue with you all about whether this meets your intent and where we can go from here. But we have gotten direction from the Congress.

Our CAPE office, Cost Analysis and Program Evaluation, I think that is right—Cost Assessment, excuse me—they have been doing work for a number of years that shows that when we buy satellites one at a time that we are not as effective as if we are buying in blocks and reinvesting continuously into research and development. So I want to highlight that this concept comes with analysis behind it.

But the real work really happens from here, which is to say that it now falls into the acquisition chain to actually turn that analysis into real savings for the taxpayer. We are confident that we will be able to achieve real savings. But that work, that analytical work by the acquisition community, needs to be done on the “should-cost” for this system; and that is under way under the leadership of Dave Van Buren and then, ultimately, in detailed negotiations with Lockheed Martin.

And, Mr. Chairman, I beg a little bit of indulgence. I think you can appreciate that we don’t necessarily want to lay out the details of our negotiation strategy in a forum like this, but I would like to commit to you to keep working with the committee so that you have understanding of where we are headed with this.

In terms of what happens to us if we can’t achieve this approach, the challenge that we have had in the past is that—because of the significant cost of space systems, where satellites can cost upwards of \$1 billion, \$1.5 billion, when we have to fully fund in a single year—what happens is you create a spike in a particular program. So in fiscal year 2012 that spike, if we fully fund it, would be in AEHF. And the effect of that, particularly in the budget environment that you all know about better than I, is that it forces us to push other space and other programs further to the right because we can’t afford to do everything the same year, and it forces us then to buy other programs less efficiently.

And what we have found over time is that, for the industrial base, when they get breaks in production lines, it drives their costs up, it wreaks havoc on their workforce, and it ultimately drives a higher price to the taxpayer when we have to buy that next satellite. So, for those reasons, we think that we need to undertake a new approach that allows us to avoid those funding spikes and that provides greater stability to the industrial base.

In terms of the legislative proposal we intend to send over, it is sitting with OMB right now. But the Air Force’s intent is to put forward a request for full funding through advanced appropriations, and we will certainly work with you on the details of that proposal. But the idea is to give you greater confidence on what it will cost over time by locking in funding over the course of the Future Years Defense Program at the outset. And the benefit for us is that it allows us to avoid those spikes and put the funding over multiple years. But, again, we would be very happy to work with you on that.

And, General Shelton, I don't know if there is anything you want to add.

General SHELTON. Just one thing. As the guy that has got to program for this, if you can have stable funding across several years, that allows you, in a time where we are basically recapitalizing every constellation we have got, it allows you to get the most bang for the buck across the board, as opposed to managing these big spikes and having to manage where those spikes occur across the years. So, exactly as Secretary Conaton said, we are just trying to get to a stable funding environment, much more predictable for our suppliers as well.

Mr. TURNER. Thank you.

Does anyone else wish to comment on the issue?

General Shelton and Ms. Sapp, part of the EELV block buy approach calls for a shift in cost sharing for launch services, with the Air Force then picking up a greater share of the cost. How does the 75-25 split between Air Force and NRO impact your budgets and programs? It is our understanding that it is being reallocated.

General SHELTON. We have already adjusted to that. It was directed by OMB. There was a direction as well for us to get together and, between Air Force and the NRO, come up with a memorandum of agreement of exactly how this is going to occur. Those negotiations are in progress right now. I think we will be done with this by May.

Mr. TURNER. Anything you would like to add, Ms. Sapp?

Ms. SAPP. No, that is exactly right. We are going to put down the exact scope we are each covering and just write it down, and we will get there next month.

Secretary CONATON. Mr. Chairman, can I just add one thing on that? Which is to put into context the work that the two organizations are doing. And it goes back to where you started, which is that record of launch success. I think we are really mindful of ensuring that any adjustments we make in our partnership on EELV put that mission assurance as job one, and both these organizations are absolutely committed to that. So we can work through the details when we start from a common goal.

Mr. TURNER. Excellent.

Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman.

Again, welcome to our witnesses. I would like to try and, if I could, just go back to parts of the testimony you just touched on in terms of access to space.

Last year, as chairman of the Strategic Forces Subcommittee, I was concerned about the increasing challenges of U.S. access to space, particularly given our drawdown of our civilian space exploration program and the problems of the solid rocket motor industrial base. As you know, both the Minuteman-III ICBM [intercontinental ballistic missile] and the Trident II D-5 missile carried by our *Ohio*-class submarines are critically reliant on this industrial base. This year, the Obama administration has increased its request for space launch by 50 percent, from \$1.2 to \$1.8 billion.

My questions are: What is driving these budget increases and what options should we be considering to lower costs of access to space? What is the Department doing to ensure that our access to

space and our missile force are not threatened by these rising costs? And then, finally, what can be done to stabilize the industrial base?

Secretary CONATON. I guess I will take a first crack at it and then ask General Shelton and Ms. Sapp to jump in.

These two have a lot more of the historical context than I do. But let me give you my understanding, Mr. Langevin, of why we are facing increased costs. Some of it goes back to the beginning of the EELV program and the market that we assumed that was out there for commercial launch. So there were lot buys, there were large purchases of items that were made all at once at preferential costing. And, over time, we have been drawing those down. That has been happening in the procurement of the actual boosters and the items that go into that.

And also, on the Service side, we had basically gained an advantage from previous block buys. And as time has gone on, we have burned that down, and we are now seeing the true current cost of launch.

The second piece there is that you have got, as you noted, industrial base issues—second- and third-tier suppliers that have had a break in production or have gone out of business—and we are seeing increased costs in that area. Just in the propulsion area alone, we are facing costs two to four times what it had been previously. So in terms of what we are doing about this, part of it is the block buy that General Shelton and Ms. Sapp discussed, where the NRO and the Air Force together are committing to eight cores a year to provide stability to the industrial base. But it comes back again to doing a rigorous “should-cost” review to really look at the drivers of costs and to negotiate them down with our industry partner.

General SHELTON. Mr. Langevin, we just completed a “should-cost” review. It resulted in over 80 recommendations of things to look at to help lower costs, and we are pursuing each one of those over 80 items.

In terms of the solid rocket motor industrial base, in the space arena, we have not been a big player in that. And I should clarify that for national security space. Most of our rockets are liquids and then small strap-on solids, but not the large solids that you talk about for Minuteman and Trident class. The Constellation program that NASA was running, which has now been canceled, was going to be a big user of solid rocket boosters. The shuttle program is certainly a big user of solid rocket boosters. So there is valid concern about the industrial base and the industrial capacity to produce those boosters for the future, particularly in our strategic platforms. But in the space arena, we are just not a big player in that.

Mr. LANGEVIN. Ms. Sapp, did you have anything to offer?

Ms. SAPP. No, I would just say we are working hard to partner with the Air Force on both the infrastructure costs and on stabilizing the industrial base on the booster side as well with the minimum eight cores per year that we have committed to buy between the two of us. That gives the provider what they need to stabilize.

Mr. LANGEVIN. Thank you.

Let me talk about other entrants to the space area, particularly in commercial. We have seen remarkable progress of new entrants into the space launch business, such as SpaceX. What is the Air

Force doing to allow these new entrants the opportunity to compete for DOD space launch contracts?

Secretary CONATON. I guess I will start.

Mr. Langevin, there is actually a memorandum of understanding between the NRO, the Air Force, and NASA that was signed just in the last week that, among other things, speaks to launch and this commitment to eight cores per year. But part of it talks about the need to get a certification process in place for new entrants, wherever they may come from. So that work will be completed, we hope, by late July.

I guess what I would say at a macro level is we would very much like to see some competition. We think that there are some innovative things out there. But the main thing that will be playing in our minds is the commitment to mission assurance and being confident that we can retain this positive track record that is out there. But we think that there are some opportunities in the near future for other competitors to demonstrate what they can do in this area.

Mr. LANGEVIN. Do you have anything to add, General?

General SHELTON. I am good.

Mr. LANGEVIN. If I could, just before my time runs out, Operationally Responsive Space [ORS] has been a major priority for the Department. You spoke about it in your opening testimony. This has happened since 2006. The goal of, obviously, rapidly reconstituting space assets to meet urgent needs without the usual long, expensive satellite acquisition process is, I believe, critical to the requirements of today's changing world. So can you elaborate more on how we are focusing on the ORS program? Are we doing it appropriately? If not, what else could or should we do to direct resources to this effort? What are some of the lessons learned from our ORS program which can be applied to more traditional space programs?

General SHELTON. Congressman, this is a journey that we started not that long ago, stood up in about 2007 time frame. We have been at this for just a few years now. We have benefited from the TacSat series of satellites, what we have learned from TacSat-2 and -3. TacSat-4 is going to be ready for launch probably in the May time frame. The ORS-1 satellite will be ready in the May time frame. So we are making, what I would consider, baby steps along the way here in determining what the art of the possible is.

Can we truly build a plug-and-play satellite? Can we truly build a rapidly launchable satellite? Can we have launchers on standby that are ready to go and put up a plug-and-play satellite? All those questions we are trying to methodically work through. So it is going to take some time.

I would say we have learned lessons along the way thus far, but the big lessons will come with, I think, the TacSat-4 and the ORS-1 satellites. So we are probably another year or two out before we really determine a good way ahead for ORS.

Mr. LANGEVIN. Good. Thank you to our witnesses.

I yield back.

Mr. TURNER. Mr. Lamborn.

Mr. LAMBORN. Thank you, Mr. Chairman. Thank you all for being here.

And another homecoming of sorts is Major Eric Lingle, sitting right behind you, who was my Air Force fellow last year and did a wonderful job. So it is good to see him as well.

And, General Shelton, I am going to have two questions for the record—they are too detailed to talk about with everybody here—one having to do with an Air Force Satellite Control Network upgrade, as well as another issue. So if you could be looking for two questions for the record on those things, I would appreciate it.

Now, on insourcing—and we had this same conversation with General Kehler, your predecessor—of your needing—to the degree that insourcing is still either official policy or playing out as previous official policy—and I haven't even figured out which it is yet—you have reductions in your both—well, in civilian personnel and contractors to support mission growth. How are you doing in terms of meeting your needs with fewer people helping you from the outside?

General SHELTON. Congressman, as we talked in my office, we had a target for insourcing in terms of not only a dollar target, but in terms of numbers of civilians that we were planning to hire. We have, in the fiscal year 2012 budget, reduced that by quite a bit because of targets given to us by DOD.

I should make it clear that we are not letting any civilians go, but it is clear that we will not be able to hire as many civilians as we had planned to do.

So, we are going through the analysis right now Air Force-wide—not just in Air Force Space Command but Air Force-wide—where we are going to put those precious civilians that we are able to hire, put them against the appropriate mission areas, probably look at some management realignment within the Air Force to accommodate the reductions in the numbers we had thought we were going to get. So it is clear that there is a lot of management shuffle that we are going to have to do here to accommodate the reduction in the growth that we thought we were going to have.

Mr. LAMBORN. Okay. Now, shifting gears, for any one of you, there was a little mention earlier of the proposed space—European Union's Code of Conduct for Space. What are advantages or disadvantages that any of you see with that?

Ambassador SCHULTE. Well, if I could, Mr. Congressman, we are carefully evaluating the EU [European Union] Code of Conduct—and when I say “we,” it is the Department of Defense together with the State Department—as a possible means to develop transparency and confidence-building measures for space. The President's space policy says we will consider arms control that meet certain criteria, but we will focus on transparency and confidence-building measures. And the EU Code is one measure that we are looking at very carefully.

What the EU Code does, in very basic terms, is it requires countries who subscribe to it—it doesn't even require. It calls upon them to refrain from actions that would create debris. And it also calls upon them to notify various activities, including ones that might create debris.

Its provisions are all consistent with existing practices of the Department. We consider ourselves to be a responsible space-faring

country, and we think it is very reflective of the type of practices that we take.

It doesn't put limits on capabilities. So it doesn't limit things like space-based missile defenses. It is full of references to the inherent right of self defense which, for the Department of Defense, is important. And it is a voluntary Code. It is not legally binding. So, if necessary, in crisis or worse, it is something that could be put to one side.

What the Code does for you is it starts creating some rules of the road for the international community for the increasing number of space-faring countries so we can encourage other countries to behave responsibly the way we consider it. So we haven't made a final decision on it yet, Mr. Congressman. We are carefully assessing the operational impact, together with the Intelligence Community.

I promise you we will make sure our national security equities are well protected. But, as Secretary Lynn has said publicly recently, we see it as potentially being a positive step towards promoting the responsible use of space.

Mr. LAMBORN. Okay, thank you.

I am going to defer my other questions for the second round, but on that I am just concerned—and I think everyone here is, as well as everyone sitting on your side of the table—that, as the world leader in space, we don't want to give up more than we gain. Please keep us very engaged and please don't make unilateral decisions that are going to be controversial—or at least questionable—without keeping us fully apprised. We would appreciate that.

Thank you.

Mr. TURNER. Mr. Thornberry.

Mr. THORNBERRY. Thank you, Mr. Chairman.

Madam Secretary, you got into this with your answer to the chairman's first question. I think there has been a perception for some time that the U.S. could not do anything in space that wasn't over budget, behind schedule, et cetera, et cetera. And we have heard lots of excuses over the years, everything from "the requirements process and the Pentagon leads to cost overruns," to "the acquisition process is all messed up," to "space is just hard."

You described a different approach on this one program, but, kind of from a broader level, I would appreciate your view as to our ability to implement what we decide to do on-cost, on schedule. Can we really do it now? Have we kind of broken the back of this trend that everything we tried is late and too expensive?

Secretary CONATON. Well, Mr. Thornberry, I would certainly not tell you that we have cracked the code and that every space program is going to be perfectly on schedule and on-cost going forward, because that wouldn't be a credible answer. I think, for all the reasons you articulated, there are systemic things that make this challenging, across the acquisition portfolio for the Department of Defense, but sometimes, particularly for space.

I think the reason that we are trying this with one system this time is to put our effort behind this and see if we can achieve this and make it work. We have been clear that our intent would be to try this approach again next year for the Space Based Infrared System, for SBIRS, for the same reasons. But I think we owe you

a demonstration that we can start moving down this road and show better results. I think, for the reasons that we talked about, our feeling is that we have a better chance of success with this type of approach, but I think we need to demonstrate that to you over time.

General Shelton, I don't know if—or, Betty, if there is anything you want to add.

General SHELTON. The other thing I would add, sir, is we are focusing on mature technologies. We are not trying to drive the art of the possible with our technologies in the future going forward. And I would submit that GPS III is the model program. It has met every milestone thus far. It has been exactly on schedule, on-cost, and we aim to keep it that way.

Ms. SAPP. If I may, the NRO has used an evolutionary acquisition approach for decades; and when we have gone away from that approach, like with FIA [Future Imagery Architecture], we have had notable misses. When we have stayed with that approach, like we have with our SIGINT [signals intelligence] and our COMM [communications] programs and our program in IMINT [imagery intelligence] after FIA, we have delivered very well. So we think that is a good model for space acquisition programs. It is one that we plan to stick with, and certainly we understand why the Air Force is moving in that direction.

Mr. THORNBERRY. Well, particularly in your area, we have little margin for error. We have got to perform as planned. And I worry in the broader space context about becoming self-deterred because of cost and delay overruns that will inhibit us.

Ambassador Schulte, let me ask you just briefly. I glanced through the space study. I heard what you said in your testimony. To me, there were hints of what I would maybe describe as “space control.” The fact is that any domain value has not only been contested, but has to be defended. And yet, I am still not sure I really get the sense from the strategy that our policy is to do whatever it takes to defend—I think you said maybe not only the space domain, but the advantages we gain from the space domain.

Do you feel confident not only that the strategy is there, but then the plans and programs to implement that defensive space against aggressors that are spending a tremendous amount of effort to deny us those advantages, are on track to do that?

Ambassador SCHULTE. Mr. Congressman, first off, we share your concern about countries that are developing a broad range of counterspace capabilities. China is foremost amongst those, but there are other countries, too. And even as we speak today, or at least recently, countries like Iran and Libya were jamming commercial satellites. So there is a broad range of countries developing counterspace capabilities, and many of them look at our advantages in space as vulnerabilities.

Part of our strategy is to reduce those vulnerabilities and protect our systems, protect our capabilities, and try to dissuade and deter countries from thinking they would benefit from attacking them.

The strategy, I think, also recommends that space is no longer the private reserve of the U.S. and the former Soviet Union. We are not up there alone anymore. It is an environment that is very challenging. It has changed. There are countries with counterspace

capabilities. There are a lot more countries in space. There are some 60 nations in consortia operating spacecraft. And we need to think increasingly about, how do we protect the shared domain? And that is part of the reason why, in addition to making sure that we protect our systems, we also want to create some norms, some rules of the road for space. And, in doing that, we want to be a leader.

I mean, I think increasingly in space—there was a time in space where we could kind of lead on our own and, increasingly, I think we have to exert that leadership in partnership with others, both with our close allies and encouraging other space-faring countries to act responsibly. But, in the end, we do have to protect those critical national security functions that we perform through space.

And the hard part of any strategy isn't writing it. I have the easy part. My colleagues here have the hard part, which is to execute that strategy, particularly in a budget-constrained environment, and figure out, how do we make our constellations more resilient against attack? How do we have, perhaps, cross-domain solutions so that if some of our capabilities in space are degraded there are other ways to carry out those mission-essential functions and to make sure that we sustain those advantages?

So we share your concern about the changing nature of space, and we are going to have to work really hard to implement the strategy to protect those advantages, and we will need your support.

Thank you.

Mr. TURNER. Going to our second round, the fiscal year 2012 budget request includes \$438 million for space situational awareness systems, a decrease of \$165 million from last year. SSA activities include the Joint Space Operation Center, the JSpOC Mission System, JMS, which would enable the Air Force to process over 1.5 million space collisions and plan space operations.

General Shelton, can you please describe the challenges associated with the JMS acquisition, and how important is this improved capability, and what can this subcommittee do to help you? And anyone else who would like to comment after you finish would be fine.

General SHELTON. Mr. Chairman, the JMS program is very important as we establish an ability to take data from disparate sources, fuse it together, and present what we would call a user-defined operational picture; in other words, what is going on in space? Having a good idea of not only what is up there, but what the threats are, and be able to understand activity—not just keeping track of what is up there, but activity real-time. So we have embarked on a journey to equip the JSpOC with the right equipment, with the right software, with the right processes.

As we were coming up on Milestone B for JMS, the program underwent what is called an independent program assessment. That program assessment found some difficulties in the program which resulted in pulling back some Requests for Proposals that were out on the street to form kind of the early basis of JMS, and the Department is in the midst of reviewing that independent program assessment and determining the way forward for JMS.

So, at this point in time, I couldn't tell you what we need for the future in JMS. I think the Department is going to take some time to study this.

But I can tell you, on the Space Situational Awareness part of this, the reason for the decrease this year was we have deferred the Space Based space Surveillance system out probably a year or two just to make sure we understood the first satellite's data usefulness—and it is returning wonderful data—and also to push out the second site of the space fence, the unwarned, uncued sensor that will tell us what is going on and be able to pick up breakups and maneuvers in Low Earth Orbit.

So the situation in SSA is not maybe as the budget would show because we still have a very solid plan on the way forward.

Secretary CONATON. Mr. Chairman, can I just add one thing to agree with everything that General Shelton has said?

I want to emphasize, you have a budget request in front of you which obviously has funds in it for JMS. We are absolutely committed to that capability. The independent assessment that General Shelton mentioned will help us refine the "how" we get to that. So I think we owe you more of a conversation before you move to markup, but want to reiterate that we support what is in the President's budget request in terms of resources that should be laid against this really critical activity for General Shelton's command.

Thank you.

Mr. TURNER. As my last question, I would like to ask your assessment of intelligence information and original analysis that originates from NASIC. Last year, there was a bump in the road as NASIC was restricted for a period from doing some original analysis in certain counterspace areas. That issue was resolved in favor of competitive analysis, with NASIC participating. I wanted to ask if anyone on the panel would want to comment with respect to the information available from NASIC and its integration, obviously, in overall space intelligence systems.

Secretary CONATON. I will make just a general statement and then maybe ask General Shelton from an operational perspective how they use that.

The effort you described by General Burgess to look at multiple capabilities and come down on the side of competitive analysis, we have tracked that very closely. The Air Force is enormously proud of the work that NASIC does. It supports a number of communities, not only in the Air Force but throughout the Joint Force. So I just wanted to start with a general statement of the great work that comes out of that organization and turn to General Shelton.

General SHELTON. This is really easy, Mr. Congressman. They are our lifeblood. As a former Commander of 14th Air Force and the Joint Functional Component Command for Space, we counted on NASIC's analysis every day, every day.

Ambassador SCHULTE. Mr. Chairman, I would just say in my previous job I worked very closely with the Intelligence Community on Iran, as you might imagine, and I moved over to do space. And I thought, who is going to provide me my intelligence and assessment on space? And I learned about NASIC, and I have to say I have been impressed at the level of intelligence and the level of

analysis. And in terms of supporting policy and strategy, it has been superb.

Ms. SAPP. I would just add on that we use NASIC extensively and wouldn't know what to do without them. They provide invaluable analysis for us.

Mr. TURNER. Thank you all for that.

Mr. Langevin.

Mr. LANGEVIN. Thank you, Mr. Chairman.

If I could, turning back to space acquisition, could you give us more detail on the expected savings from the new approach to space acquisition, including increasing block buys and fixed-price contracting? How do these changes affect our out-year funding, and what new authority will the Air Force need to implement this approach?

Secretary Conaton.

Secretary CONATON. Sure.

Mr. Langevin, I will try to recap a little bit. For the reasons we talked about, the block buy approach, we think, is in a position to gain the taxpayer a significant amount of savings. What is laid into the budget request right now is the analysis done by the CAPE organization inside the Department of Defense that is charged with doing independent cost assessments.

Where we go from here is with our acquisition community doing a very detailed "should-cost" review, which is already under way, and then negotiating the best possible contract we can with the prime contractors.

And so, as I mentioned to the chairman, we would like to keep you informed of our negotiation strategy as we get ready to undertake that work, and then we will continue to update the savings that are laid into the budget request as we get greater fidelity as we move through that acquisition process. And the legislative authority, again, is the advance appropriations which allows us to, if you all agree to it, to lay in that non-spiky profile a more level set of investments year-on-year for the AEHF program.

Mr. LANGEVIN. Thank you.

To all of our witnesses, the National Security Space Strategy calls for exploring private partnerships and hosting government capability on commercial aircraft. Could you detail for us what further—I know you touched on this a bit, but could you further detail for us what we are doing to better take advantage of hosted payloads to cut costs while preserving mission assurance?

General SHELTON. There is a very good example, Congressman, of an infrared payload that is set to launch, probably this summer, on a commercial communications satellite. That infrared payload will help us with the next generation of our missile warning satellites in determining whether or not that is the right technology we want to use. So that is a baby step along the way.

We have got lots of history with hosted payloads. They have just been hosted inside the government—hosted payloads with the NRO, hosted payloads with NASA, them hosting payloads on our platforms. So we know how to do this. It is just whether or not this will make it on a commercial model, because the placement of the satellite is driven by the commercial business, as opposed to where we might need it for national security needs. So it is a thing that

we are exploring. We will see how this works out with this first one, and we will continue to explore opportunities. We think there is great potential here.

Mr. LANGEVIN. Very good. Anyone else care to—

Ms. SAPP. It is difficult in this environment, but we do use lots of partnerships everywhere, so we will continue to explore those opportunities as well.

Mr. LANGEVIN. Thank you. That is it for my questions.

Before I turn back, though, Mr. Chairman, I would just like to recognize Rudy Barnes, who was the staff director for the Subcommittee on Strategic Forces. I just saw him in the audience after we had started the hearing and wanted to welcome Rudy back to the committee as well.

Secretary CONATON. I stole him, Mr. Langevin. Sorry about that.

Mr. TURNER. I, too, want to recognize you. Thank you for your work. And you shouldn't sit so much in the back. It did take us a little while to figure out that you were sitting back there.

Mr. Lamborn.

Mr. LAMBORN. Thank you.

For any one of you, recent reports indicate that a commercial telecommunications company called LightSquared is developing terrestrial broadband communications technology that has the potential to interfere with terrestrial reception of GPS signals. Please discuss the magnitude of the impact that this might have on the Department of Defense. What is being done to mitigate this potential conflict, and how can we avoid conflicts such as this in the future? And is someone having interaction with the FCC?

General SHELTON. Let me go back, Congressman, in history a little bit. This was originally designed as largely a space-based effort with terrestrial augmentation. It has now shifted in the business model to be a terrestrial-based network with space augmentation. Probably 40,000—their business plan calls for 40,000 towers around the country, many of them concentrated in urban areas.

Our analysis to date—I shouldn't say "our" analysis. A large commercial manufacturer of GPS receivers' analysis has said that signal from GPS will be effectively jammed by these towers, both in airborne and terrestrial applications, so much so that there has been an industry association that has come up on the net to express concern. The Deputy Assistant Secretary of Defense and the DOT [Department of Transportation] Secretary have also signed a letter back to the FCC expressing concern.

There is technical analysis under way. I think that analysis is due to be completed to the FCC by the June time frame.

So all the right work is going on. What we are looking for now from the company is actual hardware that they plan to use so that we can collect empirical data, as opposed to analytical data, and determine, kind of once and for all, whether or not this is going to jam the signal. We believe from what we have seen thus far that virtually every GPS receiver out there would be affected.

Mr. LAMBORN. And if it does bear out that there is a problem, what happens next?

General SHELTON. That is up to the FCC to determine whether or not to grant them a license to operate in that particular spectrum. So, more to come.

Mr. LAMBORN. Okay. Thank you.

It was unfortunate, but NASA recently had a satellite that failed to reach orbit, and that is going to obviously hurt science and research. Does that affect any of your missions?

General SHELTON. Congressman, we have three upcoming Minotaur launches that we believe have common hardware—may have common hardware to what we believe was the failure mode. The payload fairing, which is the very tip of the rocket that covers the payload, once you get up out of the sensible atmosphere, that separates and then exposes the satellite, and then the satellite eventually gets deployed. But that is just extra weight carrying uphill, so you want to get rid of that as quickly as you can.

What happened on the NASA Glory launch is that payload fairing did not separate. The separation system was redesigned 2 years ago. We believe the parts that did not function—although the investigation is just starting—but we believe the parts that did not function properly from first indications are common to the boosters that we have coming up, two in May and one in August. So, more work to be done.

Mr. LAMBORN. Thank you.

And, finally, Ms. Sapp, NRO does some great work for our national defense. To what extent can you tell us, in an unclassified setting, how NRO is working to better integrate intelligence to support the warfighter? Just a general question.

Ms. SAPP. We take a great deal of pride in that. We are known for our space systems, but we do a lot in terms of integrating space with other domains and in integrating multiple sources of intelligence on the ground. And in the opening statement I used an example where we did that to support a very detailed geolocation to provide actionable intelligence to troops. And that is something we take great pride in.

Mr. LAMBORN. Okay. Thank you all for being here.

Mr. TURNER. Thank you so much. I appreciate both your leadership in this area and the information you are providing for the committee.

And understanding, of course, that this is an ongoing dialogue as we prepare to review the budget and look toward preparing our portion of the National Defense Authorization Act, Ambassador Schulte, I want to thank you for having participated in what is this subcommittee's "101" sessions. We have begun briefings where we have asked agencies that interface with this committee to come forward and give members, prior to the budgetary committees and substantive hearings, base-level information. We appreciate you participating in those. We think they are very helpful for the subcommittee and the members.

With that, thank you all, and we will be adjourned.

[Whereupon, at 4:55 p.m., the subcommittee was adjourned.]



---

---

**A P P E N D I X**

MARCH 15, 2011

---

---



---

---

**PREPARED STATEMENTS SUBMITTED FOR THE RECORD**

MARCH 15, 2011

---

---



**House Armed Services Committee Subcommittee on Strategic Forces**  
*Hearing on the FY12 National Defense Authorization Budget Request  
for National Security Space Activities*  
March 15, 2011

**Ranking Member Loretta Sanchez**  
**Opening Statement**

Thank you Chairman Turner.

I would like to join Chairman Turner in welcoming Under Secretary Conaton, General Shelton, Ambassador Schulte and Principal Deputy Director Sapp to this hearing on the FY12 budget request for National Security Space Activities.

Thank you for appearing before our Subcommittee today; and Ms. Conaton, you know it is always a pleasure for us to welcome you back.

Our military superiority and way of life depend on our space assets for secure communications, navigation, missile warning, weather prediction, and intelligence, surveillance and reconnaissance capabilities.

And as we well know, space is becoming increasingly “congested, contested and competitive.”

Our focus remains on ensuring that we are able to preserve our space superiority and protect these vital assets in this increasingly fragile environment.

How do we preserve stability? And how do we best deter, and if needed respond to, attacks on our space assets while ensuring continuity of operations?

How can we achieve these goals while avoiding schedule and cost overruns that have plagued so many space acquisition programs?

I look forward to hearing about improvements made since last year in important areas.

The Administration issued its Interim Space Posture Review and more recently its National Security Space Strategy.

It reorganized space governance and as part of the efficiencies initiative, the Air Force outlined a new approach to improve the acquisitions process through block-buys, fixed-priced contracting and providing stable investments in space R&D.

The Administration is also considering how best to reform export controls.

And I am pleased there has been renewed focus on cooperating with our partners internationally to promote and protect the peaceful use of space.

I am particularly interested in hearing your thoughts about preserving the space industrial base to produce needed satellites, ground capability, software and launch vehicles.

About how to preserve mission assurance without breaking the bank.

About how we can better enable and take advantage of commercial capabilities.

And about how we integrate our capabilities to improve space situational awareness.

Again, welcome. I look forward to the discussion.

DEPARTMENT OF THE AIR FORCE  
PRESENTATION TO THE SUBCOMMITTEE ON STRATEGIC FORCES  
COMMITTEE ON ARMED SERVICES  
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: FISCAL YEAR 2012 AIR FORCE SPACE POSTURE

STATEMENT OF: THE HONORABLE ERIN C. CONATON  
UNDER SECRETARY OF THE AIR FORCE

MARCH 15, 2011

NOT FOR PUBLICATION UNTIL RELEASED  
BY THE SUBCOMMITTEE ON STRATEGIC FORCES  
COMMITTEE ON ARMED SERVICES  
UNITED STATES HOUSE OF REPRESENTATIVES

Mr. Chairman, Ranking Member Sanchez, members of the Subcommittee, good afternoon; it is good to be here today to talk about the Air Force's space programs and budget. Thank you for everything you do for all servicemembers, particularly our Airmen. This Subcommittee oversees some of the most important aspects of our national security – nuclear weapons, ballistic missile defense and, what we are here to talk about today, our military space programs.

The joint warfighting community, a range of other federal government functions, and broader civilian society rely on the Air Force to deliver world-leading space-based capabilities, to include: space launch and range operations; missile warning; satellite communications; space situational awareness; weather; and positioning, navigation, and timing services. Fiscal Year 2012 (FY12) is a significant year for the Air Force and national security space. With the release of major new policy guidance for our space programs, including the National Space Policy (NSP) and the National Security Space Strategy (NSSS), the Air Force is striving to ensure that our budget reflects the policies and strategies embodied in those documents. The NSSS emphasizes the need to strengthen our capabilities in a space environment that is increasingly congested, contested and competitive. It also highlights the need for increased information sharing and cooperation through our international partnerships, asserts a commitment to help energize our space industrial base within the confines of an evolving fiscal reality, and recognizes that our space-based capabilities are vital to our national defense and, therefore, must be robust and resilient. This strategy will guide the way we think about space, operate in space, and acquire capabilities for space.

In our FY 12 budget submission, we are taking important steps consistent with the NSP and NSSS. For example, we are focusing on international partnerships in our Wideband Global SATCOM (WGS) and Space Fence programs, we are working with other agencies and our industry partners to stabilize the market for National Security Space launch, and we are investing in critical upgrades to our secure communications capability and our Global Positioning Satellite (GPS) constellation.

#### **Current Funding Situation**

Before going into detail about the Air Force FY12 budget request for space programs, I want to emphasize to the subcommittee some of the impacts of the funding situation for the current fiscal year (FY11). In short, the operation of the Department of Defense (DoD) under a Continuing Resolution (CR) for FY11 is already causing difficulties in the execution of Air Force space acquisition programs. We have taken actions to mitigate impacts where we can, such as our recent reprogramming of \$80 million in FY10 funds into the GPS IIIA program to avoid costly programmatic delays and contract renegotiation for the first long-lead production option for space vehicles (SV) 3 and 4. However, our success in mitigating CR impacts to GPS IIIA has limited our flexibility to address other detrimental impacts of a prolonged CR.

Additionally, new start limitations prevent the Air Force from carrying out the scheduled award of WGS-7, potentially causing a production break with estimated cost impacts of up to \$50 million if funding is delayed until the start of FY12. The Air Force plan to procure long lead items for Advanced Extremely High Frequency (AEHF)-5 and 6 is also delayed, undermining current efforts to more efficiently acquire this satellite system and protect the space industrial base. The CR limitations also prohibit new start

programs such as Space Surveillance Telescope (SST) and Ballistic Missile Early Warning System (BMEWS), creating delays in critical space capability. At a time when the Air Force is striving for greater efficiency in our space programs, operating under a CR for nearly half the fiscal year undermines those efficiency efforts.

#### **Space Governance and Management Reform**

Over the past year, following a thorough review, the Air Force has reorganized our Headquarters Air Force (HAF) space management. Secretary Donley directed the review in December 2009 because so many of the factors on which the Air Force based its 2003 reorganization had changed. The dual-hatting of the Under Secretary as Director of the National Reconnaissance Organization (NRO), for example, ended in 2005 after passage of legislation that reorganized the Intelligence Community. Also in 2005, Milestone Decision Authority for all Acquisition Category (ACAT) 1 programs was transferred to the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (OSD (AT&L)), and has remained there for space programs.

The governance study concluded last summer. Following the review, the Secretary reaffirmed that the Under Secretary of the Air Force serves as the focal point for space within the Air Force. As such, I act as the senior Air Force official for space matters to include planning, policy, strategy, and international relations; and I coordinate space acquisition work with these other functions.

The Secretary also assigned the Space Service Acquisition Executive (SAE) function to the Assistant Secretary of the Air Force for Acquisition (SAF/AQ). These steps consolidated all Air Force acquisition functions in one office, streamlining the

structure to support Air Force users and providing a single Air Force interface to OSD (AT&L).

In addition, the Secretary directed creation of an Air Force Space Board to coordinate Air Force positions regarding multi-organization, service, and agency issues. The Space Board is co-chaired by the Vice Chief of Staff and me, and includes senior Air Force space leaders. We meet monthly and have already looked at such important topics as the Evolutionary Acquisition for Space Efficiency (EASE) proposal and the developing acquisition strategy for the Evolved Expendable Launch Vehicle (EELV) program.

Through this study and in light of the 2009 DoD Space Posture Review and the 2009 Quadrennial Defense Review, the Department of Defense also made changes to its space governance structure. First, Deputy Secretary of Defense Lynn revalidated the Secretary of the Air Force as the DoD EA for Space, and charged him with: integrating the DoD overall space program; conducting and overseeing long-term space planning and architecture development; and facilitating increased cooperation with the intelligence community on space issues. Second, the EA now chairs the newly established Defense Space Council (DSC), with representatives from across the DoD and the Intelligence Community. Third, the EA, working through the DSC, was also directed to establish a joint space office to restructure and replace the National Security Space Office (NSSO). The first two of these changes have been implemented; the establishment of a successor to the NSSO is in progress, and is expected to be complete by this summer.

A significant outcome of these governance reviews is that both the Secretary of the Air Force and the Under Secretary carry formal responsibilities for space management: the Secretary as the re-designated DoD EA for Space, and the Under Secretary as the focal point for space at Headquarters Air Force. These updates reflect how seriously the Air Force takes our national security space responsibilities. I am confident that our new headquarters organization will better position DoD and the Air Force to effectively coordinate implementation of space policy and strategy, and it will provide a better framework for development of new national security space capabilities.

#### **Space Acquisition Reform**

In tandem with our work to make these organizational changes, the Air Force has also been an active participant in Secretary Gates' efficiencies initiative. The Air Force, DoD, and indeed the Nation, are moving into an era of constrained budgets. Secretary Gates' initiative is born of the recognition that available resources are constrained, even as requirements increase, and therefore, we must find ways to "do more without more." We found efficiencies within Air Force space programs and we also reinvested some of our \$33.4 billion in total Air Force efficiencies into space – notably our launch capabilities.

As the new National Space Policy makes clear, Department of Defense contributions to national security via our space programs are enormous. But the Air Force understands that to be good stewards of the space mission in the emerging budget environment, we have to make our programs more cost-effective. The Air Force is committed to developing a more effective and efficient acquisition approach, which is

why we have already taken steps to improve space acquisition through our EASE strategy and the EELV program.

#### **EASE**

The current practice of procuring satellites one-at-a-time and/or on a just-in-time basis has led to increased costs due to production line breaks, parts obsolescence and inefficient use of labor. In order to combat the inefficiency and disruption caused by the status quo approach to procuring satellites, we are seeking congressional support to implement an approach we call Evolutionary Acquisition for Space Efficiency (EASE). EASE is the product of years of study and years of interaction with Congress working to find ways to more effectively and affordably acquire space systems. It is an acquisition strategy designed to drive down costs, improve space industrial base stability, and allow for investments in technology that will lower risk for future programs. EASE is comprised of four basic tenets: block buys of satellites; stable research and development investment; fixed price contracting; and full funding through advance appropriations.

Block buys of satellites will allow us to purchase economic order quantities of critical parts, run production lines more efficiently and reduce non-recurring engineering costs. This approach will result in savings that can be reinvested in research and development that will further improve the performance and lower the cost of follow-on systems. This reinvestment – what we call the “Capability and Affordability Insertion Program,” or CAIP – is an essential component of EASE. A strong commitment to ongoing reinvestment in technology development in concert with steady satellite

production will provide much-needed stability and predictability for a fragile space industrial base.

Fixed price contracts are appropriate for satellite programs that have moved beyond the development phase – where most of the cost and schedule risk resides. At the same time, the costs of buying a two-satellite block of either AEHF or SBIRS are such that the Air Force, the DoD and OMB have concluded that an additional fundamental element of EASE must be full funding through advance appropriations. This spreads acquisition costs across multiple years, while still applying the principles of full funding.

Consequently, the President's FY12 budget request includes a request for Advance Appropriations for AEHF, and we contemplate a similar approach for SBIRS beginning in FY13. The Administration will work with the Congress to ensure the Department has the statutory authorities needed to implement Advance Appropriations for AEHF and SBIRS. We recognize such a change from traditional full funding rules is significant, but so are the implications of continuing with the status quo. Current full-funding budget requirements, coupled with the high costs for individual satellites, make it extraordinarily difficult for the Department to fund many satellite programs in the most efficient and stable way without negatively impacting other mission-critical programs.

Critically, these basic tenets of EASE must be pursued in tandem with a robust examination of contractor costs and aggressive efforts to achieve cost reductions. As part of the Secretary Gates' efficiencies initiative, the Air Force has undertaken a rigorous "Should Cost Review" (SCR) of the AEHF program, led by Mr. David Van Buren, the Air Force Service Acquisition Executive. This review into what the capability

provided through the AEHF program should cost will put the Air Force in a much stronger position to negotiate the costs of AEHF-5 and 6. But the impact of the SCR for AEHF will be much diminished without implementation of EASE, because our industrial partners' incentive to explore such cost reductions is inextricably tied to the stability and commitment afforded to the industrial base by the EASE approach.

With Congress' support, we are confident that the combination of the major elements of EASE – block buys; stable research and development investment; fixed price contracting; and full funding through advance appropriations– in tandem with the rigorous Should Cost Review already underway, will help the Air Force achieve considerable savings in the acquisition of some of our most critical space assets. We look forward to continuing to work with Congress on achieving our shared goals in this area.

#### **EELV**

Another area where the Air Force has devoted significant effort to develop a more efficient, cost-effective acquisition strategy is space launch. Given the importance to national security of our space assets, and with the increasingly competitive space environment, it is absolutely crucial that our space launch program be successful. The Evolved Expendable Launch Vehicle (EELV) program, which provides the nation's medium and heavy launch capability with two families of launch vehicles (Atlas V and Delta IV), has delivered mission success, putting our satellites in orbit every single time we launch. The 100 percent launch rate success of EELV demonstrates our determination to deliver assured access to space.

At the same time, the operational success of EELV has in recent years been accompanied by rapidly and substantially increasing costs. We have therefore moved aggressively to scrutinize EELV acquisition, via a blue ribbon external review and an Air Force Should Cost Review (SCR). Both yielded important insights into how we can achieve savings against launch costs, with the SCR producing 84 cost-saving recommendations for the near and mid-term. Air Force Space and Missile Systems Center (SMC) is already working to implement these recommendations, while Air Force acquisition leaders continue to dig deeper into the current cost structure.

In addition, as part of our developing EELV acquisition strategy, the Secretary of the Air Force, the NRO Director, and the National Aeronautics and Space Administration (NASA) Administrator signed a joint Letter of Intent in October 2010 to demonstrate our commitment to launch cooperation and the space industrial base. The Air Force has committed to buy four of the five EELVs that DoD will purchase in FY12 and FY13, and five EELVs per year for the remainder of the Future Years Defense Program. This will have the effect of lowering the cost per booster and contributing to a more stable market for our industrial base. The Air Force FY12 budget request includes \$1.7 billion to fund the EELV program, reflecting an increase of \$400 million over the FY11 request and an important part of where we invested savings realized through the efficiencies initiative.

The Air Force is committed to mission assurance and to competition from vendors with proven capabilities. Our developing EELV acquisition strategy will include clear criteria for new entrants, and will allow for future competition to gain cost benefits, support a broader industrial base, and maintain manifest flexibility.

**Overview of Air Force Space Investments**

National Security Space programs comprise 10% of the annual Air Force budget and 21% of Air Force investment accounts. The Air Force's space contributions represent just over 80% of overall Department of Defense space funding and more than 90% of the space positions designated under Major Force Program (MFP)-12. The President's Budget Request for FY12 includes a total of \$8.76 billion for RDT&E and procurement of Air Force Space Programs.

**Space Program Updates**

The Air Force is investing in critical military space capabilities which directly support our warfighters and benefit our Nation's economy, national security, international relationships, scientific discovery and our quality of life. Some of the areas for investment include: satellite communications; advanced missile warning systems; global positioning, navigation and timing; accurate, time-sensitive weather data capabilities; and enhanced space situational awareness.

Our Combatant Commanders and warfighters rely on **satellite communications** for continuous communications around the world. Driven by the escalation of Airborne Intelligence Surveillance and Reconnaissance (AISR) users, the need for these capabilities is growing rapidly. WGS delivers worldwide, high-capacity military satellite communication for deployed forces. Each WGS satellite delivers the equivalent capacity of the entire existing Defense Satellite Communications System constellation. Secure, protected communications for national leadership and nuclear command and control, will be provided by the new AEHF satellite system, the first of which was launched last year. Working together, our legacy systems and the new WGS and AEHF

satellites provide our forces the vital communications needed to remain effectively coordinated, synchronized, and responsive in global operations.

In December 2009, we successfully launched WGS-3, and in June 2010 it was successfully turned over to the U.S. Strategic Command. We have three additional satellites (WGS Block II) scheduled for launch between 2011 and 2013. After OSD completed a Nunn-McCurdy review and OSD (AT&L) certified the program to Congress, OSD (AT&L) approved repeat Milestone C/Full Rate Production Decision and authorized procurement of WGS-7 and 8. The President's Budget Request for FY12 includes a total of \$468.7 million in funds for procurement of the WGS system. This request funds WGS-8 full procurement, and the program office and technical support required to build WGS-7 and 8.

In addition to providing critical communications capabilities, WGS has also become a flagship for our international cooperation measures in space, with Australia funding WGS-6 in return for a portion of the overall bandwidth provided by the WGS constellation. In accordance with the NSSS, other international agreements are being pursued to further expand space-based communication capability through the procurement of a ninth WGS satellite.

AEHF provides secure satellite communications for the President, as well as strategic and tactical forces. It provides ten times the throughput and greater than five times the data rate of the current MILSTAR II Satellite Communication System. After its initial launch anomaly, the first AEHF satellite is well on its way to final orbit, and is expected to reach check-out and operational location by summer 2011. AEHF-2 is in storage and is expected to be available for launch in 2012; AEHF-3 started its Final

Integration Testing in February 2011, with launch availability in Fall 2012; and the program office awarded the AEHF-4 contract in December 2010.

Following the cancellation of the Transformational Satellite (TSAT) program in 2009, DoD directed the procurement of two more AEHF satellites. In the FY12 budget request, we are seeking congressional approval for a block-buy of AEHF-5 and 6 under our proposed EASE strategy. Specifically, we are requesting \$974.5 million in FY12, as well as advance appropriations in FY2013 through FY 2017, for the AEHF program to support an FY12 contract award for both AEHF-5 and 6.

We are also investing in the SBIRS to provide world-class **missile warning**, missile defense, technical intelligence and battlespace awareness capabilities. The SBIRS highly elliptical orbit (HEO)-1 and 2 payloads are currently on-orbit and providing operationally certified missile warning data. And after a long and difficult development process, SBIRS geosynchronous (GEO)-1 was recently approved for shipment to the launch site, and is expected to launch from Cape Canaveral Air Station this spring. Launch of GEO-2 is contemplated 12 months after the GEO-1 launch, and the GEO-3 and 4 satellites and HEO-3 and 4 payloads are budgeted to continue fabrication.

Proposed funding for GEO-5 and 6 in FY12 is focused on non-recurring engineering to address parts obsolescence, long lead parts advance procurement and initial production activities. Ground Segment efforts are centered on completing the ground software required for GEO-1 message certification as well as mobile ground system updates. In total, the FY12 budget request seeks \$996.1 million for the SBIRS program, including \$243.5 million in Advance Procurement, which will be acquired under the EASE strategy.

The Global Positioning System (GPS) is the standard for **positioning, navigation and timing (PNT)**, providing highly accurate, real-time, all-weather, passive common-reference grid position and time information to military and civilian users worldwide. The robust GPS constellation includes 31 satellites, seven above the 24 required to maintain the system. The first GPS IIF satellite was launched in May 2010, and the next GPS IIF is scheduled for later this year. The remaining GPS IIF space vehicles are in various stages of production, and we will continue to launch GPS Block IIF satellites to maintain the constellation as a global utility.

The next generation of GPS space vehicles, GPS III, will deliver significant enhancements that include better anti-jam capabilities, a Galileo-compatible L1C civil signal, and improved accuracy, availability and integrity. GPS IIIA received its Milestone C approval on January 31, 2011, following a successful Critical Design Review.

The FY12 budget request includes \$1.6 billion for PNT capability and incorporates continued funding for GPS IIF and GPS III, development of the next-generation operational control segment, and upgraded military user equipment.

**Weather** and forecasting data is crucial to our forces in peacetime and in conflict. Currently, military weather forecasters use data from the six Defense Meteorological Satellite Program (DMSP) satellites as well as data from non-DoD weather satellites including those maintained by the civil weather agency, the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA), to monitor and predict regional and global weather patterns, including the presence of severe thunderstorms, hurricanes and typhoons.

Last year, the Executive Office of the President directed a restructuring of the National Polar-orbiting Operational Environmental Satellite System (NPOESS), a tri-agency environmental satellite program. As a result, DoD approved a plan to modify the existing NPOESS contract to procure two Defense Weather Satellite System (DWSS) spacecraft for the early-morning orbit. This system will replace the DMSP in the early-morning orbit slot, ensuring continuity of detailed overhead weather imagery and sensing information. Two additional DMSP satellites will be put on orbit starting in 2012 to extend the capabilities provided by DMSP until the follow-on DWSS is launched.

For FY12, the budget request includes \$444.9 million to fund a redesign of the NPOESS spacecraft bus to a smaller and lighter version for DWSS, to continue development of DWSS sensors, and to invest in materials, algorithms and DoD-specific elements of the common ground system.

As the NSP and the NSSS both highlight, the increasingly congested space environment creates a pressing need to improve our **Space Situational Awareness** (SSA). Today we track over 20,000 objects in space – orders of magnitude more than just a few years ago. About 1,100 are active satellites and the rest are essentially debris or inactive satellites. Development and implementation of the Joint Space Operation Center (JSpOC) Mission System (JMS) supports Air Force Space Command's top SSA priority: to provide integrated data that gives real-time, actionable SSA allowing informed, rapid decision-making capability. JMS was a new program element in FY10 that consolidated efforts from the Integrated Space Situational Awareness (ISSA), the Rapid Attack Identification Detection and Reporting System

(RAIDRS) Block 20, and Space Command and Control (C2) programs under a single program element. The FY12 budget request includes \$119.9 million to sustain the foundational JMS infrastructure and enable further planning and development.

To replace and improve the SSA capabilities of the Air Force Space Surveillance System (AFSSS), which has a planned end-of-life in 2015, the Air Force is developing the Space Fence program to provide uncued surveillance of small objects in low and medium earth orbit. The ground-based radar sites that will comprise the Space Fence will provide timely information on launch detection, maneuvers and breakups to support protection of space assets. On January 26, 2011, two contracts were awarded to Lockheed Martin and Raytheon for the Preliminary Design Review portion of Phase A development. The Air Force and Phase A contractors will continue to leverage development of the Navy's AMDR S-band program, which may share certain key technologies with the Space Fence.

The FY12 budget request includes \$235.5 million in RDT&E funding for the Space Fence, and we anticipate award of the final contract in the last quarter of the fiscal year. This program is another in which we are seeking international cooperation through establishment of an SSA partnership with Australia by jointly employing and operating a space object detect and track radar in Australia. This system will provide better understanding of the current and future strategic space environment and establish a foundation for continuing nation-to-nation cooperation.

The FY12 budget request does not include funds for the previously-proposed follow-on to the Space-Based Space Surveillance (SBSS) Block 10. SBSS Block 10 was successfully launched on September 25, 2010, and is already delivering timely

detection and tracking of space objects and events in deep space, substantially advancing our SSA capabilities. The timing of the SBSS launch and the magnitude of initial cost estimates for the proposed SBSS follow-on led to the decision not to include funding for this effort. The Air Force and DoD are currently studying alternatives to provide a follow-on capability to SBSS.

Beyond these major programs, the FY12 budget request reflects several other Air Force initiatives consistent with the NSP and NSSS. Such initiatives include the **Operationally Responsive Space** (ORS) program, established to pursue innovative capabilities that can be rapidly developed and fielded in months rather than years to respond to Combatant Commanders' immediate space requirements. The budget request includes \$86.5 million for the ORS program.

The budget also supports the Spacelift Range System (SLRS)/Launch & Test Range System (LTRS), the major modernization, sustainment and transformational initiatives at our ranges to ensure public safety and mission assurance at lower costs. The FY12 budget request for RDT&E and procurement of SLRS/LTRS is \$135.9 million. The budget request includes \$79.7 million to support the Air Force Satellite Control Network (AFSCN) that provides tracking, telemetry, commanding, mission data dissemination, and satellite recovery/anomaly resolution in support of more than 150 DoD, classified, Allied and civil space systems. And finally, the Rocket Systems Launch Program (RSLP) that supports cost-reimbursable launch services for government flight tests using refurbished missile motors is included in the FY12 budget, with a request of \$158.1 million in RDT&E.

Each of the space programs we are developing and sustaining is designed to support the NSSS and NSP by leveraging emerging opportunities to strengthen the United States' national security space posture while maintaining and enhancing the advantages gained from space capabilities.

**Conclusion**

In conclusion, the Air Force has been, and continues to be, committed to excellence in the space enterprise, both as a core function of this Service and on behalf of DoD. Our efforts in refining the space governance structure, our acquisition reform and efficiency initiatives, and our work to modernize and recapitalize the space architecture exemplify our dedication to supporting the Nation's national security space objectives. The FY12 budget request reflects this commitment as we seek to maintain critical space capabilities for our nation and our warfighters. With Congress' help, the Air Force believes that the updates and reforms we are pursuing will strengthen our space capabilities and better enable our warfighters to navigate with accuracy, communicate with certainty, and strike with precision. Thank you for the opportunity to be here, and I look forward to answering your questions.



## BIOGRAPHY

UNITED STATES AIR FORCE

### ERIN C. CONATON

Ms. Erin C. Conaton is the Under Secretary of the Air Force, Washington, D.C. She was confirmed March 4, 2010. Ms. Conaton is responsible for the affairs of the Department of the Air Force on behalf of the Secretary of the Air Force, including the organizing, training, equipping and providing for the welfare of its more than 334,000 men and women on active duty, 176,000 members of the Air National Guard and the Air Force Reserve, 170,000 civilians, and their families. She also oversees the Air Force's annual budget of more than \$110 billion and serves as acting Secretary of the Air Force in the Secretary's absence.

From 2007 until her current appointment, Ms. Conaton served as the Staff Director of the U.S. House of Representatives Committee on Armed Services. As the Staff Director, she served as the primary adviser to the Chairman and 61 other members of the Armed Services Committee. She directed the overall operations, strategic planning and substantive agenda of the committee, to include drafting and overseeing the annual defense authorization bill. Prior to this position, she served as the Minority Staff Director and as a professional staff member on the committee.



Earlier in her career, Ms. Conaton served as the Research Staff Director for the U.S. Commission on National Security/21st Century also known as the Hart-Rudman Commission. The commission was charged by the Secretary of Defense to design a national security strategy for a changing global environment through 2025 and to recommend plans for implementing this strategy. She has held several fellowships to include at the Central Intelligence Agency, where she worked within the Office of Asia-Pacific and Latin American Analysis, and at the National Security Council, where she worked with the office dealing with non-U.S. proliferation and export controls policy. She has also served as a Term Member of the Council on Foreign Relations.

#### EDUCATION

1992 Bachelor of Arts degree in foreign service, Georgetown University, Washington D.C.  
1995 Master of Arts degree in law and diplomacy, The Fletcher School, Tufts University, Medford, Mass.

#### CAREER CHRONOLOGY

1. 1992 - 1993, Financial Analyst, Salomon Brothers, Inc., New York, N.Y.
2. 1993, Director of Client Services, Yield Enhancement Strategists, Inc., New York, N.Y.
3. 1994, Graduate Fellow, National Security Council, Washington, D.C.
4. 1995, Associate, Overseas Private Investment Corporation, Washington, D.C.
5. 1996 - 1997, International Security Studies Fellowship, The Fletcher School, Tufts University, Medford, Mass.
6. 1998, Graduate Fellow, Central Intelligence Agency, Washington, D.C.
7. 1998 - 2001, Research Staff Director and Research Associate, U.S. Commission on National Security/21st Century - Hart-Rudman Commission, Washington, D.C.

8. 2001 - 2005, Professional Staff Member, House Armed Services Committee, U.S. House of Representatives, Washington, D.C.
9. 2005 - 2007, Minority Staff Director, Committee on Armed Services, U.S. House of Representatives, Washington, D.C.
10. 2007 - 2010, Staff Director, Committee on Armed Services, U.S. House of Representatives, Washington, D.C.
11. 2010 - present, Under Secretary of the Air Force, Washington, D.C.

(Current as of April 2010)

DEPARTMENT OF THE AIR FORCE  
PRESENTATION TO THE SUBCOMMITTEE ON STRATEGIC FORCES  
COMMITTEE ON ARMED SERVICES  
UNITED STATES HOUSE OF REPRESENTATIVES

SUBJECT: FISCAL YEAR 2012 NATIONAL DEFENSE AUTHORIZATION BUDGET  
REQUEST FOR NATIONAL SECURITY SPACE ACTIVITIES

STATEMENT OF: GENERAL WILLIAM L. SHELTON  
COMMANDER, AIR FORCE SPACE COMMAND

MARCH 15, 2011

NOT FOR PUBLICATION UNTIL RELEASED  
BY THE SUBCOMMITTEE ON STRATEGIC FORCES  
COMMITTEE ON ARMED SERVICES  
UNITED STATES HOUSE OF REPRESENTATIVES

**Introduction**

Mister Chairman, Representative Sanchez and distinguished members of the Subcommittee, it is my honor to appear before you today as the Commander of Air Force Space Command (AFSPC).

I am privileged to lead over 46,000 Active Duty, Guard and Reserve Airmen; government civilians; and contractors delivering space and cyberspace capabilities around the world for our Nation. The men and women of AFSPC accomplish our mission at 84 worldwide locations, yet we operate in domains where borders are often indiscernible. AFSPC space and cyberspace capabilities are integral to the Joint fight and our professionals continually ensure excellence and mission success.

Based on the unique responsibilities of the Command, I have established three priorities. First, AFSPC must support the Joint fight. We are focused on supporting our deployed compatriots with our best efforts, and we will not fail them. Second, we must address space system costs and deliver capabilities on time and on budget. In a very constrained budget environment, it is essential that we drive down costs to maximize our buying power. Finally, for the purposes of organizing, training and equipping, we must operationalize and normalize cyberspace to conduct Air Force operations. Cyberspace cuts across the spectrum of military operations; therefore, it is imperative that Airmen understand the special requirements and operational considerations of cyberspace. As the lead Air Force Major Command for cyberspace, we will continue to work with other Major Commands to ensure we have the same level of rigor which has served the Air Force well in air and space.

I look forward to a strong and mutually supportive working relationship with the Subcommittee as we seek to deliver critical space and cyberspace capability to our

forces. Likewise, I am committed to working with our space and cyberspace partners, including US Strategic Command (USSTRATCOM), US Cyber Command (USCYBERCOM), the National Reconnaissance Office (NRO) and the National Aeronautics and Space Administration (NASA), to advance our collective interests.

***Moral Obligation to Support the Joint Fight***

I strongly believe we have a moral obligation to do everything in our power to provide outstanding support to our brothers and sisters in arms who are in harm's way. Whatever we can do operationally, whatever we can procure that would make their task easier and bring them home safely, we will pursue. In that vein, AFSPC has many capabilities which are central to today's fight, and we are posturing these systems to be even more capable in the future. The President's Fiscal Year (FY) 2012 budget requests \$12.1 billion for AFSPC to field and operate vital space systems and critical cyberspace capabilities.

**Positioning, Navigation and Timing (PNT)**

As stewards of the world's "gold standard" for PNT information, AFSPC is significantly improving the Global Positioning System (GPS) for military and civilian users alike. This past January, we completed the first of a two-phased operation called "Expandable 24," the largest satellite repositioning effort in GPS program history. This operation was planned and executed under the outstanding leadership of Lieutenant Colonel Mike Manor, Captain Dan Highlander, and Captain Blake Hajovsky of the 2nd Space Operations Squadron (SOPS) at Schriever AFB, CO. Each phase

repositions three satellites to optimize terrestrial coverage of the constellation for terrain-challenged environments, such as cities and the mountains and valleys of Afghanistan. The second and final phase of this operation is already underway and it is scheduled for completion this summer.

The FY12 budget request of \$1.7 billion (Operations and Maintenance [O&M]; Research, Development, Test and Engineering [RDT&E]; Procurement; and Military Personnel [MILPERS]) also will advance PNT capability by procuring and launching upgraded satellites (GPS IIF and GPS III), funding a significant upgrade to the operational control segment (OCX) and building new Military GPS User Equipment (MGUE). GPS III, OCX and MGUE will improve user collaboration, incorporate an effects-based approach to operations and establish a net-centric ground architecture, thereby accelerating the mission application of positioning and timing information.

Last May, AFSPC launched the first of 12 GPS IIF satellites, which provides improved timing technology, a more jam-resistant military signal and a higher-powered civilian signal. Captains Vivian Elmo and Linda Gostomski, both from our GPS Reserve Associate Unit, 19 SOPS, Schriever AFB, CO, led the way as integrators of contractor, booster, satellite vehicle and ground network teams to ensure a successful launch and on-orbit checkout of this new capability.

#### Military Satellite Communications (MILSATCOM)

The demand for satellite communications continues to grow as warfighters increasingly depend on information relayed from space, especially for today's distributed operations in this era of information-enabled warfare. This past June, the

first block of Wideband Global SATCOM (WGS) satellites became fully operational with the acceptance of WGS-3. Launches of the next block of WGS satellites (4-6) are planned for 2011-13, with funding for WGS-6 coming from Australia. This partnership is an example of the international cooperation envisioned in the National Space Policy (NSP) and National Security Space Strategy (NSSS). The FY12 request includes \$481.5 million (RDT&E and Procurement) for WGS to meet combatant commander requirements to deliver voice, data, and imagery, as well as full motion video from Remotely Piloted Aircraft (RPA).

The first satellite in the next generation of protected and survivable MILSATCOM, our Advanced Extremely High Frequency (AEHF) satellite, was launched last August. Compared to its predecessor, Milstar, AEHF will soon provide a 10-fold throughput increase in secure, jam-resistant communications for national leaders and combatant commanders, as well as support for our international partners including Canada, the Netherlands and United Kingdom.

While the launch was perfect, a spacecraft propulsion system anomaly left AEHF-1 well short of its intended geosynchronous (GEO) orbit. A team of experts from the Space and Missile Systems Center (SMC), led by Lieutenant General Tom Sheridan and Mr. Dave Madden, developed a plan to innovatively use the remaining much smaller thrusters to save this vital asset. The team worked around the clock addressing the immediate need to conserve fuel, developing the recovery plan and demonstrating the recovery could be done safely and effectively. Thanks to the outstanding engineering and hard work of these space professionals, the AEHF-1 orbit is progressing toward geosynchronous altitude and we expect to begin initial testing later

this summer. The budget includes \$974.5 million (RDT&E and Procurement) in FY12 and advance appropriations in FY13-17 to fund AEHF.

#### Overhead Persistent Infrared (OPIR)

Data from the legacy Defense Support Program (DSP), as well as the highly elliptical orbit (HEO)-based Space Based Infrared System (SBIRS) sensors, provides real-time missile warning and missile defense information to national decision-makers and commanders. Last year, we provided the US, coalition members and our allies assured warning for over 200 missile launches and 4,500 special infrared (IR) events, a 150% increase over 2009. This is due, in part, to the vastly improved battlespace awareness capability of the latest HEO payloads. To further assist Geographic Combatant Commanders, and in cooperation with USSTRATCOM, we substantially improved our missile warning reporting criteria, thanks to the herculean efforts of Captain Christopher Castle, First Lieutenant Michael Mariner and Technical Sergeant Michael Johns of the 2d Space Warning Squadron, Buckley AFB, CO. This new criteria will provide more timely and accurate warning information to our entire force.

The 40th anniversary of the DSP program was celebrated in 2010. This constellation provides outstanding service to the Nation and Captains Barry Croker and Zach Lehmann are creatively finding ways to extend the lives of these satellites. They led a team of professionals who have developed a series of new system procedures to wring every last drop of capability from these assets. The team's actions already are credited with forestalling disposal of one of these valuable satellites.

While DSP has a long history of proven strategic, operational and tactical value, we are entering the era of SBIRS GEO, the replacement for DSP, with the first launch planned for spring of this year. Each SBIRS GEO has a staring infrared sensor to allow detection of dimmer, faster burning missiles and more accurate missile launch and impact point predictions, as well as a scanning sensor that covers an entire hemisphere in its field of view. The FY12 budget request includes \$1.22 billion (O&M, RDT&E, Procurement and MILPERS) to continue the development of additional OPIR capability.

#### Operationally Responsive Space (ORS)

The ORS philosophy seeks to rapidly deliver warfighter-demanded capability at reduced cost through innovative acquisition approaches with shorter timelines. Last June, TacSat-3, a hyperspectral imaging satellite, transitioned from an Air Force Research Lab experiment to a warfighter-taskable, DoD-operated, system in support of Combatant Commands (COCOMs) worldwide. TacSat-3 support of the Haitian earthquake recovery efforts and the Deepwater Horizon oil spill demonstrated the value of hyperspectral imagery, and it is now being used by COCOMs to support daily operations. Leading these efforts is Lieutenant Colonel Darren Johnson, from the Headquarters AFSPC ORS Division, who is currently deployed to Afghanistan as Chief, International Security Assistance Force (ISAF) Space Operations. His experience with TacSat-3 expedited theater usage of this unique space-based imager for improved location and targeting of threats to coalition forces in harm's way.

The next ORS satellite on the horizon, currently scheduled to launch later this spring, is ORS-1 which will support USCENTCOM's multispectral imagery needs. The FY12 budget request includes \$86.5 million (RDT&E) to develop these ORS systems.

#### Weather

As part of the National Polar-orbiting Operational Environmental Satellite System (NPOESS) restructure, AFSPC will support Joint forces by developing the Defense Weather Satellite System (DWSS), a FY12 request of \$444.9 million (RDT&E). The acquisition of DWSS will maximize NPOESS-developed capabilities to best preserve program schedules and reduce costs. DWSS will replace the military's weather workhorse, the Defense Meteorological Satellite Program (DMSP), now in its sixth decade. We will continue to leverage longstanding partnerships with the Department of Commerce's National Oceanic and Atmospheric Administration (NOAA) and NASA as we develop the morning orbit satellite to accompany their Joint Polar Satellite System's afternoon orbit satellite, on which both defense and civil users rely.

Currently, DMSP is operated at the NOAA Satellite Operations Facility in Maryland with a backup control station operated by 6 SOPS, a Reserve unit at Schriever AFB, CO. This blended partnership works well for all parties. As an example, in January, an emergency situation at NOAA required activation of the backup unit. Within an hour, Major Jeremy Edwards and his crew--on hot standby--mobilized and assumed full command of all DMSP satellites, continuing delivery of critical environmental intelligence information to worldwide forces.

Space – Contested, Congested and Competitive.*Space Situational Awareness (SSA)*

As the National Security Space Strategy states, "space is becoming increasingly contested, congested and competitive." In light of these challenges to the space domain, we must maintain adequate resiliency of space capabilities to ensure space-based information delivery and access for Joint forces and allies. Foundational to our ability to "operate through" the growing threats is SSA, which is enabled by the fusion of Space Surveillance Network (SSN) sensor information at the Joint Space Operations Center (JSpOC). Behind the scenes providing this capability daily are Space Event Duty Technicians, like Staff Sergeant Adrian Cervantes, ensuring the accuracy of the SSA data by working closely with fellow space, cyber and intelligence operators. In 2010, the JSpOC routinely tracked over 22,000 space objects, an approximately 10% increase in objects from the previous year. Each week JSpOC conducts over 7,000 space object conjunction (collision potential) screenings which are critically important to the 19 commercial and agency partners in the SSA Sharing Program. Last year, there were 126 collision avoidance maneuvers, a 180% increase over 2009, the year of the very unfortunate Cosmos and Iridium satellite collision.

Our ability to maintain leadership in SSA depends on SSN modernization and adding increased SSA capability to track smaller objects, increase timeliness of revisit rates and mitigate coverage gaps. Replacing the Air Force Space Surveillance System, which employs a 1960's era Very High Frequency (VHF) radar, is important to this overall objective. The Space Fence and its S-band radar capability will significantly aid the detection of smaller objects and provide uncued tracking of space objects.

Last September, the first operational launch of a Minotaur IV delivered the Space Based Surveillance System (SBSS) to orbit, the first dedicated on-orbit SSA satellite, which provides us the capability to track an object, day or night, without weather interference. The satellite's first image was taken in October by a team of SMC, 1 SOPS and 7 SOPS (Reserve Associate Unit) personnel as part of planned calibration and characterization activities, and the initial data is superb. Another new potential SSN contributor is DARPA's Space Surveillance Telescope (SST), based in New Mexico, which is currently undergoing extensive testing. SST has the potential to provide AFSPC with new capability to detect and track faint space objects at geosynchronous distance.

Foundational to all the space surveillance architecture improvements is ensuring that we have the processing and data fusion capabilities to conduct SSA. The JSpOC Mission System (JMS), with a FY12 budget request of \$122.1 million (O&M, RDT&E and Procurement), is proceeding through the acquisition process and it will replace legacy technology with improved data processing, integration, visualization and exploitation capabilities. Without the capability to receive, process, fuse, and exploit the data we receive from SSA sources, we will not meet the challenges of an increasingly congested and contested space environment.

#### *Space Protection Program (SPP)*

SPP continues to inform the national space community by raising awareness of space threats and system vulnerabilities, as well as identifying material and non-material solutions to mitigate those threats. The Air Force's FY12 budget request is for

\$9.8 million (RDT&E) to continue this work to gain architectural insights for the future. Through several analytical studies, SPP provided AFSPC and NRO leadership significant recommendations and mitigation options to protect space assets. For instance, Lieutenant Colonel Gary Samson led an analysis and software demonstration activity which illustrated how some immediate operational changes could reduce the effects of known threats and regain reconnaissance mission capability. Another study, led by Lieutenant Colonel Dan Bates, provided several recommendations to sustain PNT capabilities in a contested environment. SPP's analytical work also supports real world events, exercises and wargames. Finally, SPP supports national efforts to develop policy, strategy and architecture options across the national security space community.

#### *Schriever Wargame 2010*

The Schriever Wargame series generates leadership insights in contested space and cyberspace environments. The most recent iteration, Schriever Wargame 2010, brought together military and civilian experts from more than 30 government agencies. Under the leadership of Lieutenant Colonel Joe Wurmstein, Headquarters AFSPC wargaming branch chief, and Major Jim Pedersen, the game director, this version focused on space and cyber deterrence, escalation control, response options, policy, planning, and national command relationships and authorities. The wargame featured expanded international and industry participation, including Australia, Canada, Great Britain, a NATO observer cell and cyber industry representation. As AFSPC prepares

for the next iteration in 2012, we will use a comprehensive approach to gain additional insights, integrating instruments of national power to deter, prevent and contain conflict.

#### Space Innovation and Development Center (SIDC)

The SIDC, as the name implies, is our center for space and cyber innovation. Among other responsibilities, it is home to the AF Tactical Exploitation of National Capabilities (TENCAP), which works to deliver game-changing increases in capability for the Joint fight. Other SIDC projects include on-demand commercial Synthetic Aperture Radar distribution to warfighters, distribution of 5th generation aircraft data into legacy fighter aircraft and C2 platforms, and a prototype Data Integration and Fusion Center (DIFC) capable of providing a robust common operating picture to COCOM decision-makers by fusing multiple sources of non-traditional and national level information.

#### X-37B

Several AFSPC organizations supported DoD's first-ever operational space plane mission, the X-37B Orbital Test Vehicle (OTV). Through lessons learned from the first flight, the SIDC's 3rd Space Experimentation Squadron has identified concepts of employment, training, education and technical skill sets required for future X-37B operations. Also crucial to this success was First Lieutenant Gordon Barnhill of the 45th Launch Support Squadron at Patrick AFB, FL, who was the launch site's lead engineer and developer of ground-breaking procedures for the launch and landing of this unique space plane. Additionally, the Western Range Team at Vandenberg AFB,

CA, developed and tested new procedures for X-37B pre-recovery operations. Mr. Dennis Pakulski, the Chief Mission Engineer, applied both ingenuity and experience to replace 658 steel runway plates that posed a danger to the X-37's landing gear. Captain Dariusz Wudarzewski, the Range Operations Commander, led more than 250 landing team members and provided the complex final recommendation for "clear to land" for the safe return of the OTV after nearly 8 months of successful on-orbit operations. The second launch of the X-37B took place March 5th.

Air Force Satellite Control Network (AFSCN)

The AFSCN is our capability to receive mission data and control many of our Nation's satellites. In FY10, the AFSCN conducted over 150,000 satellite contacts, supported 21 launches and 39 vehicle emergencies. The FY12 budget requests \$328 million (O&M, RDT&E and Procurement) for AFSCN. The AFSCN recently underwent a major upgrade, replacing decades-old communication and switching equipment, and upgrading communication circuits to handle Internet Protocol traffic. Considerable downtime over a four-day period was required to make these changes. First Lieutenant David Rothzeit of SMC's Satellite Control and Network Systems Division orchestrated the outages site-by-site, working with multiple organizations and contractors to ensure the network could maintain its average 450 per day satellite contact rate during the transition.

Electromagnetic Spectrum Management

In 2010, the Air Force Frequency Management Agency, Alexandria, VA, was re-designated the Air Force Spectrum Management Office (AFSMO) to better reflect the broader responsibilities of that organization. Colonel Brian Jordan, the AFSMO Commander, is the strategic thinker and visionary dealing with the difficult challenges that accompany preserving access for essential Air Force capabilities. The backbone of information flow is the electromagnetic spectrum which is the common link among networks, sensors, weapon systems, commanders and combat forces. In the Presidential Memorandum, *Unleashing the Wireless Broadband Revolution*, issued on June 28, 2010, Federal agencies were directed to cooperate in the effort to locate 500 megahertz of Federal and non-Federal spectrum suitable for wireless broadband use. As a result of the memorandum and at the direction of the Department of Commerce's National Telecommunications and Information Administration, AFSMO will lead the Air Force's evaluation of the 1755-1850 megahertz spectrum sought by wireless companies to determine if it can be made available without harming critical capabilities.

This spectrum is used by a wide array of critical Air Force systems, including precision guided munitions, airborne telemetry systems, RPAs and the C2 of numerous satellite systems, including GPS. As the Air Force designs, tests and deploys new or modified systems, spectrum management is of paramount importance to supporting the Joint fight.

SILENT SENTRY

Since 2005, Operation SILENT SENTRY, a capability initially designed for a 120-day demonstration, has provided USCENTCOM with spectrum monitoring for electromagnetic interference (EMI) of satellite communications in the AOR. Spearheaded by personnel from the 16th Space Control Squadron (16 SPCS), Peterson AFB, CO, and its collocated Reserve Associate 380 SPCS, this nine-person team is instrumental in detecting and geo-locating sources of EMI events--both intentional and unintentional--including monitoring of RPA satellite links used for C2 and mission data. The current deployment team is led by Lieutenant Colonel Blake Jeffries (16 SPCS) and Master Sergeant Scott Westfall (380 SPCS).

In-Theater Space Professionals

Many of our space professionals have deployed to critical positions in the US Central Command (USCENTCOM) Area of Responsibility (AOR) to ensure timely space support is available to the warfighter. Included in this group is the Director of Space Forces (DIRSPACEFOR). The DIRSPACEFOR, currently Colonel Dave Buck, brings senior-level space perspective and harnesses the expertise of our mid-level space professionals who are integrated in theater units, directly supporting Joint and coalition forces. Additionally, the DIRSPACEFOR reaches back to the Joint Functional Component Command for Space and the Joint Space Operations Center at Vandenberg AFB, CA, for access to all DoD space forces.

Captains Aaron Cochran and Chris Bendig are just two examples of these mid-level theater space professionals, in this case assigned to the 504th Expeditionary Air

Support Operations Group. They provide critical forward-based space expertise enabling integration of space capabilities into air and ground operations in Kandahar and Mazar-e-Sharif, Afghanistan. Their presence allows expert knowledge transfer to tactical users, including Army brigades and battalions, Joint Terminal Attack Controllers and other battlespace owners.

#### Space and Cyberspace Capabilities at Red Flag

Another milestone for AFSPC is tactical level integration of space and cyber capabilities with traditional air capabilities at the Air Force's premier training exercise, Red Flag, held at Nellis AFB, NV. Recently, a space officer was designated the overall mission commander during one of the exercise days--a Red Flag first. Captain Warren Riner, 76th Space Control Squadron, Peterson AFB, CO, led a multi-faceted air, space and cyberspace force, which highlighted the diverse, yet synergistic, mission capabilities of the Air Force. Captain Riner's team was also responsible for all air, space and cyberspace non-kinetic capability integration during all exercise missions. I believe this is the future of our force: seamless integration of multiple capabilities, where the result is greater than the sum of the parts.

#### **Control Space System Costs**

AFSPC is implementing significant changes as part of the Air Force's "Recapture Acquisition Excellence" priority. From requirements definition to contracting to hard-nosed program management, we must work to reduce our space system acquisition costs. In cooperation with the Office of the Secretary of Defense, the Air Force is

redefining acquisition strategies for buying military satellites. Anticipated savings will allow for research and development investment for future performance improvements and to lower cost of follow-on systems. We will closely collaborate with the Headquarters Air Force acquisition staff to implement this new strategy for the next blocks of AEHF and SBIRS satellites. We look forward to working with Congress to obtain the necessary legislative authorities to execute this strategy and achieve our vision.

The record of successful national security launches since 1999 is truly remarkable. Nevertheless, we treat each launch as if it were our first, applying sound mission assurance principles to ensure success. Unfortunately, the space launch industrial base is very fragile, resulting in significantly increased costs of the Evolved Expendable Launch Vehicle (EELV) program. To arrest this cost growth, we are implementing a new launch vehicle purchasing strategy. Our plan is to commit to an annual production rate of launch vehicles, alongside the NRO, with block buy procurement. We believe this will provide predictability, economic order quantity opportunities and a more stable industrial base, thereby lowering overall costs. A team of acquisition and launch experts, including NRO, NASA and industry partners, is developing an improved approach to maintaining EELV's outstanding mission success record while controlling costs and providing more operational flexibility. The Air Force request for EELV is \$1.76 billion (RDT&E and Procurement) in FY12.

A recent Letter of Intent signed by the Air Force, NASA and the NRO commits the organizations to closer coordination in the acquisition of launch vehicles, liquid-fueled engines for boosters and upper stages, and the development of launch bases

and ranges. This is recognition of the continued need for collaboration to help assure the Nation's access to space, especially in a challenging fiscal environment for all the agencies involved.

**Operationalize and Normalize Cyberspace for Air Force Operations**

As the Air Force's lead Major Command for cyberspace, AFSPC is making significant strides in leveraging existing resources, applying appropriate lessons learned and new processes, and working toward increasing our effectiveness within cyberspace for 21st century military operations. Using this approach, we have rapidly developed the organizational structure, C2, career field management, education and training, and technical capabilities in cyberspace. Last October, Twenty-Fourth Air Force (24 AF) achieved Full Operational Capability status and in December was designated Air Forces Cyber (AFCYBER) to signify its role as the Air Force's operational component to USCYBERCOM.

We are applying lessons learned from the Space Professional Development Program to build a counterpart cyberspace program. The focus of the Cyberspace Professional Development Program is to build 21st century cyberspace warriors with a mindset and skill set tailored to operational roles. Last year, we produced our first graduates from Undergraduate Cyberspace Training, Cyber 200 and Cyber 300 classes, forming the beginnings of a highly trained cyber force.

Cyberspace integration into the Joint fight is beginning to take shape. A recent milestone was the integration of RPA mission assurance efforts, also called "cyber escort missions," into the operations section of the USCENTCOM Air Tasking Order.

This signifies the first major, sustained employment of cyber capability into day-to-day air operations. Lieutenant Colonel Gerald Ramsey, who is assigned to the 624th Operations Center, Lackland AFB, TX, currently leads one of the first deployments of the Cyberspace Operations Liaison Element (COLE) to the USCENTCOM AOR. The COLE ensures cyber effects are fully integrated into contingency planning efforts from initial planning through execution. The COLE also provides mission assurance, exercise planning and development, and cyber intelligence support to Joint operations.

Our 689th Combat Communications Wing (689 CCW) already is fully integrated in warfighter support. Last year, the 689 CCW deployed 700 Airmen to 54 locations, highlighted by establishing initial communications capability on four bare bases in hostile areas. Additionally, they provided support to homeland defense and disaster relief efforts, including Secret Service support and crucial involvement in humanitarian and disaster relief operations in Haiti and Chile. Staff Sergeant Alexander Yessayan, a combat communication specialist, received the Air Force Combat Action Medal and Army Combat Action Badge for his heroic actions in defending his Provincial Reconstruction Team against a Taliban ambush while in Afghanistan. Major Noland Greene, Commander of the 34th Combat Communications Squadron, led a 47-member team of cyber warriors to Shindand Air Base, Afghanistan, where they built and operated a network for the Army that provided all required communication services at this forward operating base.

While AFSPC and 24 AF have swiftly reached significant cyberspace milestones, much work remains. And our top priority is to consolidate into a single Air Force network, known as the AFNet. This single network will be a major step toward

achieving real-time situational awareness, allowing better defense of the network, and facilitating efficient enterprise solutions for the Air Force. This will standardize and simplify delivery of services to our force, thereby reducing operations and maintenance costs.

In addition to terrestrial network consolidation, the Air Force Network Integration Center leads the Single Integrated Network Environment (SINE) initiative. Under the leadership of Lieutenant Colonel Patrick Dunnells, SINE is an overarching framework for how the Air Force will provide seamless information flow across terrestrial, air and space domains. Information flow among domains is critical for efficient and effective mission accomplishment and SINE is a path forward to provide resilient, risk-mitigated infrastructure for increased operational reliability, availability, C2 and situational awareness.

AFSPC's cyberspace portfolio request is for \$1.9 billion in FY12. Approximately \$1.2 billion of this request is for operations and maintenance and over \$700 million is allocated for developing additional capability. Operationalizing and normalizing the cyberspace mission for the Air Force is in its nascent stages, but beginning to take root as we build a strong foundation with deliberate speed and thought. These efforts will enhance the asymmetric advantages of our Joint forces and provide the vehicle for synergistic benefits through integration of air, space and cyberspace.

#### **AFSPC Professionals**

The talented men and women of AFSPC and the families who support them are essential to achieving the Command's three priorities. We have trained and ready

Airmen who deliver for the Joint fight every single day in technically demanding domains. I strongly believe the continued development of our space and cyberspace professionals is key to our future. Last year we broke ground on the new \$14.4 million Space Education and Training Center, which will give a permanent, on-base residence for the National Security Space Institute (NSSI) and Advanced Space Operations School (ASOpS). Each year, ASOpS provides advanced training to more than 1,600 DoD space professionals, while NSSI, the Air Force's space professional development school, provides unique education to approximately 800 space professionals from all Services. Again in compliance with the new National Space Policy, this year the NSSI will provide its first course offerings to our Australian, British and Canadian international partners.

In addition to the training we provide for our people, a professional, non-discriminatory environment creates the opportunity for all to achieve their full potential. We steadfastly support the Air Force's Sexual Assault Prevention and Response program and its role in fostering a healthy unit environment. AFSPC is proud of our bystander intervention video, shared AF wide, which captures the experience of Airman First Class Edward Todd of the 21st Dental Squadron, Peterson AFB, CO. The video recreates how he applied his training to assist a young woman in a dangerous situation, averting a potential assault. Further, I believe a focus on the resiliency of our people is foundational to developing a wellness culture that combats not only suicides, but alcohol and substance abuse, and other self-destructive behaviors. We are working hard to provide education and training to raise the resiliency of our entire command, thereby providing better tools to our people as they deal with the stressors of daily life.

Total Force Enterprise

The contributions of our Reserve and Guard forces to the Joint fight simply cannot be overstated. In AFSPC, the Air Reserve Component (ARC) comprises approximately 40% of our Airmen. Space and cyberspace operations require high-caliber individuals with in-depth technical skills. As many AFSPC missions are 24x7 and deployed-in-place, the ARC can augment active duty units as part-time force multipliers providing needed technical expertise, especially in cyber where industry is currently leading innovation. The ARC enables a superb intersection of military and civilian experience which is mutually beneficial to both active duty and ARC Airmen in our Command.

Conclusion

Significant technological advances in space and cyberspace have transformed the way we conduct military operations--and even the way we live our daily lives. Recognizing the mandate to keep pace with this high rate of change, AFSPC will proceed with a sense of urgency as we deliver global capabilities which are so crucial in this age of information-enabled warfare. We will focus on our three priorities: support the Joint fight, get control of the costs of space programs, and operationalize and normalize cyberspace for Air Force operations. And above all, our workforce of highly trained and motivated professionals will continue to produce excellence, global and beyond.

I consider it a deep personal honor to command Air Force Space Command, and again, I appreciate the opportunity to appear before the Subcommittee to represent my Command.



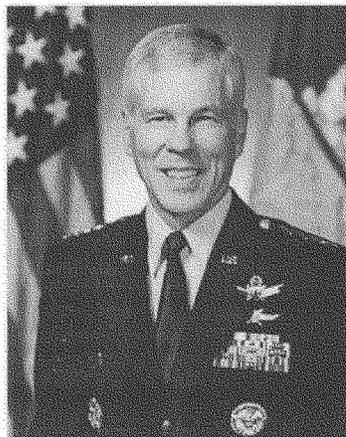
## BIOGRAPHY



### UNITED STATES AIR FORCE

#### GENERAL WILLIAM L. SHELTON

Gen. William L. Shelton is Commander, Air Force Space Command, Peterson Air Force Base, Colo. He is responsible for organizing, equipping, training and maintaining mission-ready space and cyberspace forces and capabilities for North American Aerospace Defense Command, U.S. Strategic Command and other combatant commands around the world. General Shelton oversees Air Force network operations; manages a global network of satellite command and control, communications, missile warning and space launch facilities; and is responsible for space system development and acquisition. He leads more than 46,000 professionals, assigned to 88 locations worldwide and deployed to an additional 35 global locations.



General Shelton entered the Air Force in 1976 as a graduate of the U.S. Air Force Academy. He has served in various assignments, including research and development testing, space operations and staff work. The general has commanded at the squadron, group, wing and numbered air force levels, and served on the staffs at major command headquarters, Air Force headquarters and the Office of the Secretary of Defense. Prior to assuming his current position, General Shelton was the Assistant Vice Chief of Staff and Director, Air Staff, U.S. Air Force, Pentagon, Washington, D.C.

#### EDUCATION

1976 Bachelor of Science degree in astronautical engineering, U.S. Air Force Academy, Colorado Springs, Colo.  
 1980 Master of Science degree in astronautical engineering, U.S. Air Force Institute of Technology, Wright-Patterson AFB, Ohio  
 1986 Armed Forces Staff College, Norfolk, Va.  
 1995 Master of Science degree in national security strategy, National War College, Fort Lesley J. McNair, Washington, D.C.  
 1996 Program for Senior Officials in National Security, Syracuse University and Johns Hopkins University  
 1997 Fellow, Seminar XXI, Massachusetts Institute of Technology, Cambridge

#### ASSIGNMENTS

1. August 1976 - May 1979, launch facilities manager, launch director and technical assistant to the commander, Space and Missile Test Center, Vandenberg AFB, Calif.
2. May 1979 - December 1980, graduate student, U.S. Air Force Institute of Technology, Wright-Patterson AFB, Ohio
3. January 1981 - July 1985, space shuttle flight controller, Johnson Space Center, Houston, Texas
4. July 1985 - January 1986, student, Armed Forces Staff College, Norfolk, Va.
5. January 1986 - July 1988, staff officer, Deputy Chief of Staff for Operations, Air Force Space Command, Peterson AFB, Colo.
6. August 1988 - August 1990, staff officer, Office of Space Plans and Policy, Office of the Secretary of the Air Force, Washington, D.C.

7. August 1990 - June 1992, Commander, 2nd Space Operations Squadron, Falcon AFB, Colo.
8. June 1992 - June 1993, executive officer to the Vice Commander, Air Force Space Command, Peterson AFB, Colo.
9. June 1993 - July 1994, Commander, 50th Operations Group, Falcon AFB, Colo.
10. August 1994 - June 1995, student, National War College, Fort Lesley J. McNair, Washington, D.C.
11. June 1995 - September 1997, Deputy Program Manager and Executive Assistant, Cooperative Threat Reduction Program Office, Office of the Assistant to the Secretary of Defense for Nuclear, Chemical and Biological Defense Programs, Washington, D.C.
12. September 1997 - August 1999, Commander, 90th Space Wing, Francis E. Warren AFB, Wyo.
13. September 1999 - July 2000, Chief, Space Superiority Division, Office of the Deputy Chief of Staff for Plans and Programs, Headquarters U.S. Air Force, Washington, D.C.
14. July 2000 - November 2000, Director of Manpower and Organization, Office of the Deputy Chief of Staff for Plans and Programs, Headquarters U.S. Air Force, Washington, D.C.
15. November 2000 - May 2002, Director of Requirements, Headquarters Air Force Space Command, Peterson AFB, Colo.
16. June 2002 - January 2003, Director of Plans and Programs, Headquarters AFSPC, Peterson AFB, Colo.
17. January 2003 - May 2003, Director, Air and Space Operations, Headquarters AFSPC, Peterson AFB, Colo.
18. June 2003 - January 2005, Director of Capability and Resource Integration (J8), USSTRATCOM, Offutt AFB, Neb.
19. January 2005 - May 2005, Director of Plans and Policy (J5), USSTRATCOM, Offutt AFB, Neb.
20. May 2005 - December 2008, Commander, 14th Air Force (Air Forces Strategic), AFSPC, and Commander, Joint Functional Component Command for Space, USSTRATCOM, Vandenberg AFB, Calif.
21. December 2008 - July 2009, Chief of Warfighting Integration and Chief Information Officer, Office of the Secretary of the Air Force, the Pentagon, Washington, D.C.
22. July 2009 - January 2011, Assistant Vice Chief of Staff and Director, Air Staff, U.S. Air Force, Pentagon, Washington, D.C.
23. January 2011 - present, Commander, Air Force Space Command, Peterson AFB, Colo.

#### **SUMMARY OF JOINT ASSIGNMENTS**

1. June 1995 - September 1997, Deputy Program Manager and Executive Assistant, Cooperative Threat Reduction Program Office, Office of the Assistant to the Secretary of Defense for Nuclear, Chemical and Biological Defense Programs, Washington, D.C., as a colonel
2. June 2003 - January 2005, Director of Capability and Resource Integration (J8), USSTRATCOM, Offutt AFB, Neb., as a brigadier general and major general
3. January 2005 - May 2005, Director of Plans and Policy (J5), USSTRATCOM, Offutt AFB, Neb., as a major general
4. May 2005 - July 2006, Commander, Joint Space Operations, USSTRATCOM, Vandenberg AFB, Calif., as a major general
5. July 2006 - December 2008, Commander, Joint Functional Component Command for Space, USSTRATCOM, Vandenberg AFB, Calif., as a major general and lieutenant general

#### **BADGES**

Master Space Operations Badge  
 Basic Cyberspace Badge  
 Parachutist Badge

#### **MAJOR AWARDS AND DECORATIONS**

Distinguished Service Medal with oak leaf cluster  
 Defense Superior Service Medal with oak leaf cluster  
 Legion of Merit with oak leaf cluster  
 Defense Meritorious Service Medal with oak leaf cluster  
 Meritorious Service Medal with four oak leaf clusters  
 Air Force Commendation Medal  
 Joint Meritorious Unit Award with two oak leaf clusters  
 Air Force Outstanding Unit Award with silver and two bronze oak leaf clusters  
 Air Force Organizational Excellence Award with oak leaf cluster

**EFFECTIVE DATES OF PROMOTION**

Second Lieutenant June 2, 1976

First Lieutenant June 2, 1978

Captain June 2, 1980

Major May 1, 1985

Lieutenant Colonel March 1, 1990

Colonel Feb. 1, 1994

Brigadier General Jan. 1, 2001

Major General July 1, 2004

Lieutenant General Dec. 20, 2007

General Jan. 5, 2011

(Current as of January 2011)

NOT FOR DISTRIBUTION UNTIL RELEASED BY  
THE HOUSE ARMED SERVICES COMMITTEE

STATEMENT OF

AMBASSADOR GREGORY L. SCHULTE  
DEPUTY ASSISTANCE SECRETARY OF DEFENSE  
FOR SPACE POLICY

BEFORE THE HOUSE  
COMMITTEE ON ARMED SERVICES  
SUBCOMMITTEE ON STRATEGIC FORCES

MARCH 15, 2011

NOT FOR DISTRIBUTION UNTIL RELEASED BY  
THE HOUSE ARMED SERVICES COMMITTEE

**Committee on Armed Services**

Chairman Turner, Ranking Member Sanchez, and members of the subcommittee, thank you for the opportunity to testify on Department of Defense space policy. I am honored to join my distinguished colleagues from the Air Force and the National Reconnaissance Office. When my colleague, Mr. Bob Butler, testified a year ago, the Department had just issued an interim Space Posture Review. Today, I am pleased to discuss the recently released National Security Space Strategy.

Maintaining the benefits afforded to the United States by space is central to our national security. Space systems allow our warfighters to see with clarity, communicate with certainty, navigate with accuracy, and operate with assurance. However, an evolving strategic environment increasingly challenges U.S. space advantages. The current and future strategic environment is driven by three trends – space is increasingly congested, contested, and competitive.

Space is increasingly *congested*. Growing global space activity and testing of China's destructive anti-satellite system have increased congestion in important areas in space. The Department of Defense tracks approximately 22,000 man-made objects in orbit, of which 1,100 are active satellites. Another area of increasing congestion is the radiofrequency spectrum. As many as 9,000 satellite communications transponders are expected to be in orbit by 2015. As more transponders are placed in service, the greater the probability of radiofrequency interference. This congestion is complicating space operations for all those that seek to benefit from space.

Space is increasingly *contested* in all orbits. Potential adversaries are seeking to exploit perceived space vulnerabilities through a range of counterspace threats that may deny, degrade, deceive, disrupt, or destroy space assets and supporting infrastructure from widely available

jamming technology to highly-sophisticated, kinetic anti-satellite weapons. As more nations and non-state actors develop counterspace capabilities over the next decade, threats to U.S. space systems and challenges to the stability and security of the space environment will increase. Irresponsible acts against space systems could have implications beyond the space domain, disrupting worldwide services upon which the civil and commercial sectors depend.

Space is increasingly *competitive*. More than 60 nations and government consortia currently operate satellites. Although the United States maintains an overall edge in space capabilities, the U.S. competitive advantage has decreased as market-entry barriers have lowered. Some U.S. suppliers are at risk due to inconsistent acquisition and production rates, long development cycles, and a more competitive foreign market. A decrease in specialized suppliers further challenges U.S. abilities to maintain assured access to critical technologies, avoid critical dependencies, inspire innovation, and maintain leadership advantages. All of these issues are compounded by challenges in recruiting, developing, and retaining a technical workforce.

However, the challenges of a congested, contested, competitive environment also present the United States with opportunities for leadership and partnership. The recently released joint Department of Defense and Intelligence Community National Security Space Strategy charts a path for the next decade to respond to the current and projected space strategic environment.

The National Security Space Strategy seeks to maintain and enhance the national security benefits the United States derives from its activities and capabilities in space while addressing and shaping the strategic environment and strengthening the foundations of our space enterprise. The strategy identifies three U.S. national security space objectives: strengthen safety, stability, and security in space; maintain and enhance the strategic national security advantages afforded to

the United States by space; and energize the space industrial base that supports U.S. national security. Achieving these objectives will ensure our military continued access to space-based assets national security purposes.

The United States will retain leadership in space by strengthening our space capabilities and improving our collaboration with others worldwide. Leadership cannot be predicated on declaratory policy alone. It must build upon a willingness to maintain strategic advantages while working with the international community to develop collective norms, share information, and collaborate on capabilities. Thus the United States will pursue a set of five interrelated strategic approaches to meet our national security space objectives and enhance U.S. leadership in space, as outlined in the National Security Space Strategy.

Promote responsible, peaceful and safe use of space

The United States will promote the responsible, peaceful, and safe use of space as the foundational step to addressing the congested and contested space domain. A more cooperative, predictable environment enhances U.S. national security and discourages destabilizing crisis behavior. The United States will encourage responsible behavior in space and will support development of data standards, best practices, transparency and confidence-building measures, and norms of behavior for responsible space operations. The United States will consider proposals and concepts for arms control measures if they are equitable, effectively verifiable, and enhance the national security of the United States.

With increasing congestion in the space domain, efforts to develop and share situational awareness can help bring order to the congestion and prevent mishaps, misperceptions, and mistrust. The Department of Defense will continue to improve the quantity and quality of the

space situational awareness (SSA) information it obtains and, in coordination with other government agencies, will seek to establish agreements with other nations and commercial firms to enhance spaceflight safety for all parties.

The United States is pursuing a number of initiatives to promote the responsible use of space. We are consulting with the European Union on a proposed international Code of Conduct for Outer Space Activities as a pragmatic first set of guidelines for safe activity in space and are discussing the Code with other space-faring countries, including our key allies, as well as Russia, China, and India. The Department of Defense is also pursuing opportunities to expand sharing of space situational awareness data to increase transparency and cooperation in the domain. U.S. Strategic Command has entered into agreements with 19 companies, including both launch providers and satellite owners and operators, to improve spaceflight safety.

Furthermore, promoting transparency for responsible space operations will enhance the security of the United States by singling out those actors who seek to disrupt peaceful uses of outer space. As a concrete step towards transparency, the Department recently revised its pre-launch notification policy to include space launch vehicles in addition to ballistic missile launches. The Department will continue to work with State and other Departments to promote responsible behavior worldwide that will help ensure the long-term sustainability of the space environment.

#### Provide improved U.S. space capabilities

Ensuring U.S. capabilities are developed and fielded in a timely, reliable, and responsive manner is critical for military forces to plan and execute effective operations. Improving our acquisition processes, energizing the U.S. space industrial base, enhancing technological

innovation, and deliberately developing space professionals are critical enablers to maintaining U.S. space leadership.

The United States seeks to foster a space industrial base that is robust, competitive, flexible, healthy, and delivers reliable space capabilities on time and on budget. International advances in space technology have put increased importance on reforming U.S. export controls to ensure the competitiveness of the U.S. space industrial base while addressing technology security. Secretary Gates has actively called for an overhaul of our export control system. Reforming export controls will facilitate U.S. firms' ability to compete in the international marketplace for capabilities that are, or will soon become, widely available globally, while strengthening our ability to protect the most significant U.S. technology advantages. The National Security Space Strategy reaffirms the necessity of these reforms and echoes the National Space Policy's call for giving favorable consideration for export of those items and technologies that are generally available on the global market, consistent with U.S. national security interests.

We are exploring innovative acquisition strategies for buying spacecraft, with a focus on block buys. As part of the Secretary of Defense's broader efficiency initiatives, our goals are to (1) reduce unit cost for "production ready" satellites; (2) enable the Department to acquire these systems more efficiently and affordably; and (3) stabilize production including the industrial base. Our innovative acquisition strategy will include full-funding of two satellite classes – AEHF (in FY 2012) and SIBRS (in FY 2013) – through the use of advance appropriations. We ask for your support of this approach.

Partner with responsible nations, international organizations, and commercial firms

The United States will pursue additional opportunities to partner with responsible nations, international organizations, and commercial firms to augment the U.S. national security space posture. Decisions on partnering will be consistent with U.S. policy and international commitments and will consider cost, protection of sources and methods, and effects on the U.S. industrial base. U.S. military personnel will ensure the appropriate review and release of classified information to enhance partner access to space information.

With our allies, we will explore the development of combined space doctrine that endorse and enable the collaborative sharing of space capabilities in crisis and conflict. The Department is already exploring operating with partners by transforming the Joint Space Operations Center into a Combined Space Operations Center operated with international partners. A Combined Space Operations Center will allow our closest allies to work side-by-side with U.S. commanders, integrating a multilateral approach to space into our day-to-day operations. The Department of Defense, in conjunction with the State Department and other appropriate U.S. government agencies, will work to expand mutually beneficial agreements with key partners to utilize existing and planned capabilities that can augment U.S. national security space capabilities. Wideband Global SATCOM is a good example – Australia has joined the constellation and other allies are looking at doing the same. A larger, more international constellation adds resilience and augments our space-based capabilities and forces a potential aggressor to contemplate attacking space systems used by a coalition of countries instead of one country.

We will explore sharing space-derived information as “global utilities” with partnered nations. We will continue to share SSA information to promote responsible and safe space

operations and will pursue enhanced sharing of other space services such as missile warning and maritime domain awareness. We will explore the establishment of a collaborative missile warning network to detect attacks against our interests and those of our allies and partners.

Strategic partnerships with commercial firms will be pursued in areas that stabilize costs and improve the resilience of space architectures upon which we rely. Such partnerships enhance national security capabilities by providing opportunities to host national security payloads on commercial spacecraft or by offering innovative opportunities to buy or lease capabilities on-orbit. In an era of limited resources, the DoD will develop space systems only when there is no suitable, cost-effective commercial alternatives or when national security needs dictate. We will also actively promote the sale of capabilities developed by U.S. companies to partner nations. Such capabilities could then be integrated into existing U.S. architectures and networks through arrangements that enhance and diversify U.S. capabilities.

Prevent and deter aggression against space infrastructure that supports U.S. national security

The United States is pursuing a multilayered approach to prevent and deter aggression against U.S. and allied space systems that support our national security. The Department seeks to enhance its capability to dissuade and deter the development, testing, and employment of counterspace systems and prevent and deter aggression against space systems and supporting infrastructure that support U.S. national security.

Many elements of this strategy contribute to this approach. The Department of Defense will: support diplomatic efforts to promote norms of responsible behavior in space which may dissuade and impose international costs on irresponsible behavior; pursue international partnerships that encourage potential adversary restraint; improve our ability to attribute attacks;

strengthen the resilience of our architectures to deny the benefits of an attack; and retain the right to respond, should deterrence fail.

SSA will continue to be a top priority, as it decreases the risk that an adversary's action could occur without warning or attribution. We are working with the Director of National Intelligence to improve our intelligence posture – predictive awareness, characterization, warning, and attribution, to improve our understanding of activities in the space domain. When combined with efforts to promote responsible behavior, such transparency will facilitate the quick identification of actions that threaten U.S. interests.

Furthermore, the United States will deny adversaries meaningful benefits of attack by improving protection and strengthening the resilience of our architectures. Partnerships as well as alternative U.S. Government approaches such as cross-domain solutions, hosted payloads, responsive options, and other innovative solutions, can deliver capability, should our space systems be attacked. This also will enable our ability to operate in a degraded space environment.

Finally, the United States is developing a range of options to deter, and if necessary, defeat efforts to interfere with U.S. or allied space systems consistent with the inherent right of self-defense and other longstanding principles on international law. Such options could include necessary and proportional responses outside of the space domain.

#### Prepare to defeat attacks and to operate in a degraded environment

Notwithstanding our efforts to deter, some actors may still pursue counterspace actions as a means of achieving military or political advantage. Our military capabilities must be prepared to operate through a degraded environment and attacks targeted at our space systems and

supporting infrastructure. We must deny and defeat an adversary's ability to achieve its objectives.

As the Department invests in space capabilities, it will include resilience as a key criterion in evaluating alternative architectures. Resilience can be achieved in a variety of ways, to include cost-effective space system protection, cross-domain solutions, hosting payloads on a mix of platforms in various orbits, drawing on distributed international and commercial partner capabilities, and developing and maturing responsive space capabilities.

To enhance resilience, the Department will continue to develop mission-effective alternatives, including land, sea, air, and space-based alternatives for critical capabilities currently delivered primarily through space-based platforms. In addition, the Department will seek to establish relationships and agreements whereby we can access partner capabilities if U.S. systems are degraded or unavailable. We will be prepared to use these capabilities to ensure the timely continuity of services in a degraded space environment.

Preparing for attacks must extend to the people and processes relying on space information, operating our space systems, and analyzing space-derived information. Ensuring that our servicemen can operate effectively during an attack on our space assets reduces the benefit of attack. The Department of Defense is also developing exercises and training to ensure our ability to access the requisite capabilities and information, from space or through cross-domain solutions, in the event of interference with space capabilities.

#### Conclusion

Our strategy requires active U.S. leadership enabled by an approach that updates, balances, and integrates all of the tools of U.S. power. The Department of Defense, in

coordination with other departments and agencies, will implement this strategy by updating guidance, plans, doctrine, programs, and operations to reflect the new strategic approach.

The Department of Defense included initial steps towards implementing the strategy in its fiscal 2012 budget and will use the coming year to lay the foundation for changes in fiscal 2013 and beyond. The Department looks forward to working closely with Congress, industry, and allies to implement this new strategy for space.



**Gregory L. Schulte**

**Deputy Assistant Secretary of Defense for Space Policy**



Ambassador Gregory L. Schulte has served as Deputy Assistant Secretary of Defense for Space Policy since May 2010.

Ambassador Schulte was U.S. Permanent Representative to the International Atomic Energy Agency and the United Nations in Vienna, where he was dispatched by President Bush in 2005 and extended by President Obama through June 2009. Ambassador Schulte helped report Iran to the UN Security Council, implement the U.S. nuclear cooperation agreement with India, and establish international nuclear fuel banks. After Vienna, Ambassador Schulte spent ten months as a Senior Visiting Fellow at the National Defense University's Center for the Study of Weapons of Mass Destruction.



Mr. Schulte served three tours in the White House under two Presidents. As Executive Secretary of the National Security Council from 2003 to 2005, Mr. Schulte traveled extensively with President Bush, oversaw the White House Situation Room, and was responsible for NSC emergency readiness after 9/11. As Senior NSC Director for Southeast European Affairs from 2000 to 2002, Mr. Schulte advised Presidents Clinton and Bush on U.S. diplomacy and military deployments in Bosnia and Kosovo and oversaw U.S. efforts to bring democracy to Serbia and prevent civil war in Macedonia. As Special Assistant to the President from 1998 to 1999, Mr. Schulte advised President Clinton on the Kosovo crisis and oversaw interagency planning and decision-making for the NATO air campaign and subsequent deployment of KFOR and a UN mission.

From 1992 to 1998, Mr. Schulte was assigned to the NATO Headquarter in Brussels. As Director for Crisis Management and Operations and Director for Nuclear Planning, Mr. Schulte helped NATO adapt its planning and posture after the end of the Cold War. As Director of the Bosnia Task Force, Mr. Schulte helped NATO organize its first out-of-area deployments and its first collaboration with the UN. Mr. Schulte was the first civilian outside the theater of operations to be awarded the NATO Medal.

Mr. Schulte is a member of the Senior Executive Service and has received two Presidential Rank Awards. Mr. Schulte previously served in the Office of the Secretary of Defense as Principal Director for Requirements, Plans and Counterproliferation Policy, Director for Strategic Forces Policy, and Assistant for Theater Nuclear Forces Policy. He began his career in 1983 as a Presidential Management Intern. Mr. Schulte graduated from the University of California at Berkeley in 1980 and earned a Master in Public Administration from Princeton University's Woodrow Wilson School in 1983. He runs marathons, recently completing his sixth, in Paris.

Statement for the Record

Ms. Betty Sapp

Principal Deputy Director, National Reconnaissance Office

Before the House Armed Services Committee

Subcommittee on Strategic Forces

15 March 2011

NOT FOR PUBLICATION UNTIL RELEASED BY THE  
HOUSE ARMED SERVICES COMMITTEE  
STRATEGIC FORCES SUBCOMMITTEE  
UNITED STATES HOUSE OF REPRESENTATIVES

**INTRODUCTION**

Chairman Turner, Ranking Member Sanchez, and distinguished Members of the Committee, I am pleased to appear before you today on behalf of General Bruce Carlson (USAF, Ret.), the Director, National Reconnaissance Office (DNRO), to discuss the NRO fiscal year (FY) 2012 National Defense Authorization Budget Request for National Security Space Activities. It is an honor for me to appear alongside our mission partners from the Department of Defense (DoD), Ambassador Greg Schulte, Deputy Assistant Secretary of Defense for Space Policy; the Honorable Erin Conaton, Under Secretary of the Air Force; and General William Shelton, Commander, Air Force Space Command. The NRO's close relationship and continuing partnership with our mission partners are vital to maintaining our Nation's superiority in space.

The unclassified nature of today's hearing precludes me from discussing many details of NRO programs, as well as sharing some of our greatest successes. However, I welcome the opportunity to meet in another setting to fully discuss with you the breadth and depth of NRO capabilities, partnerships, and value of the NRO contributions to our National Security.

**DNRO Priorities.** Since taking the helm at the NRO two years ago, Director Carlson has communicated his priorities for the NRO in a very straight-forward manner: to execute programs

on time and on budget; to improve our research and technology (R&T) investment; and to continue to invest in the foundation of our organization---to recruit, train, and retain the best people.

**State of the NRO.** I would like to begin with a few words about the state of the NRO today. We are nearly through the most aggressive launch campaign in over 25 years, and we are executing that campaign with a smaller launch support staff and more complex systems. We have successfully launched five satellites into orbit in the last six months, with one more launch planned next month. Our ability to sustain this tempo is due to the diligent efforts of our program teams who have successfully acquired and delivered these complex systems. It required very close coordination with the Air Force to manage the launch manifest priorities and, of course, to conduct launch operations. These successful launches have been a very important and visible reminder of the space reconnaissance mission NRO started 50 years ago, and continues with such great success today. We are committed to smart acquisition investments and practices to ensure the continued coverage and availability of our vital National Security systems and we work tirelessly to deliver these systems on time and within budget.

The NRO remains committed to using the most capable and efficient launch vehicles consistent with a need for strong

mission assurance. The health of the launch industrial base and enhancing assured access to space is essential to the success of our programs and their launch platforms. The NRO is committed to improving the launch industry, as demonstrated by the joint NRO/Air Force development of a new EELV acquisition strategy aimed at sustaining the launch industrial base while stabilizing launch costs. In addition to EELV, the NRO looks at other launch providers, such as Space Exploration Corporation (SpaceX) and Orbital Science, to evaluate their feasibility as launch providers. In fact, on 12 December 2010 and 6 February 2011 we used their Falcon-9 and Minotaur-1 to launch Cubesats and the Rapid Pathfinder vehicle respectively. We are dedicated to working with the Air Force and commercial space providers to ensure our Nation's launch and space industrial infrastructure remains strong enough to meet our mission requirements.

From launching and operating the most technically-capable systems to continued operations of legacy satellites the NRO remains the premier space reconnaissance organization in the world. The unique composition of our workforce is one of our greatest strengths. As you know, we draw our personnel from across the DoD and Intelligence Community (IC), allowing us access to the best and brightest from across the space acquisition community and to many acquisition lessons learned. The talented people of the NRO allow our significant and

continued mission success, and enable our ability to provide the very best information from the warfighter to the policymaker. Because space systems operate in an unforgiving environment where we succeed or fail, with little middle ground, the NRO continuously strives to improve and learn from all our experiences. Director Carlson and I are both confident that by continuing to leverage current successes and community workforce strengths, the NRO will continue to provide the Nation with the space reconnaissance capabilities it requires.

For the 2<sup>nd</sup> year in a row, the NRO received a Sustained Clean Audit on our Financial Statements. This positive outcome was the result of continued hard work across the NRO workforce and the culmination of a diligently planned and executed effort to continue our achievement in effective financial management. NRO's internal processes for proper funds management and accurate financial reports have been validated, and we are successfully positioned to continue to sustain this clean audit into the future.

#### **EVOLUTIONARY ACQUISITION**

Maintaining a healthy space industrial base, coupled with delivering programs on cost and schedule, is a matter of critical importance to our national security. Evolutionary acquisition practices, used successfully for decades by the NRO, can help us sustain our industrial base in the future. We can

also leverage and extend our acquisition success by institutionalizing proven best practices. A careful look at many of our past successful programs reveal common threads such as leveraging proven designs and platforms, and introducing payload enhancements incrementally into the proven platform. In addition, committing to "block buys" or multi-vehicle procurements is much more efficient than single vehicle buys and can result in savings.

We will continue to implement evolutionary acquisition techniques using proven best practices to control costs and achieve reliable and consistent acquisition results. We will use "block buys" or multi-vehicle purchases for production stability, coupled with investments in new capabilities, to sustain factory and satellite constellation health and to improve efficiency. The evolutionary acquisition practices could help stabilize our industrial base and allow us to acquire satellites more efficiently.

#### **NRO SUPPORT TO THE NATIONAL SPACE POLICY**

The NRO continues to support the Intelligence Community and the Department of Defense in the formulation of national level policies and strategies including the 2010 National Space Policy and the 2011 National Security Space Strategy. Our policy and strategy experts were instrumental in developing and negotiating key principles, objectives, and approaches that furthered U.S.

National Security interests and balanced IC and DOD space activities. These cornerstone documents will help posture the Nation for the congested, contested, and competitive space environment while enhancing the strategic National Security advantages space capabilities provide. As we collectively move forward with the implementation of these important policies and strategies, the NRO will continue to work with the Interagency and our IC and DOD partners to develop and apply advanced space capabilities; guide cooperative ventures; assure critical national security space-enabled missions; pursue integrated space and cross-domain solutions; and enhance our space industrial base.

**NRO CONTRIBUTIONS: CRITICAL TO THE FIGHT**

Lastly, I would like to highlight the real bottom line for the NRO---our support to the warfighter. Almost a decade after the attacks of September 11<sup>th</sup>, NRO systems and people continue to make significant contributions each and every day to ongoing operations around the globe. The NRO currently has over 55 personnel deployed around the globe in direct support of the warfighter, and we continue to rapidly adapt to the needs and changing pace of our deployed forces.

For example, several months ago in the U.S. Central Command (CENTCOM) Area of Operations, operators were made aware of an impending ambush on unidentified coalition troops but were not

able to pinpoint the location of the attack. The NRO used a Communications Intelligence (COMINT) system called COMINT External Geo-Fusion System (CEGS) to assist. The NRO's CEGS capability is used to rapidly tip warfighters to threats and enable quick reaction, to provide tailored intelligence collection, and to enhance force protection. On this day CEGS was able to rapidly provide a geo-location which allowed reinforcements to arrive at the scene prior to the ambush and call in Close Air Support, which resulted in neutralizing 20 insurgents. CEGS and its NRO operators were credited with saving coalition lives that day. This is the type of success the NRO strives for each and every day. We are committed to the fight from 22,000 miles above to the men and women we have on the ground supporting our regional commanders.

The NRO also continues to focus on expanding access to NRO products and services, improving the content of NRO informational products, and reducing the amount of time it takes to get relevant data to the warfighter. The NRO is concentrating on developing new capabilities for warfighters, operators, and intelligence analysts. We are focused on support to Counter-Improvised Explosive Device (C-IED) efforts, Counter-Unmanned Aerial System (C-UAS) efforts, and communications infrastructure and technology solutions designed to support "find, fix, and finish" operations. A prime example of this is

the NRO project "RED DOT." This system went operational in Iraq after it was rapidly developed, tested, and fielded in just over a year. Now RED DOT is scheduled for deployment to Afghanistan this summer. RED DOT leverages reduced processing timelines that the NRO has been aggressively pursuing, and more efficiently moves time-sensitive intelligence data to the commanders on the ground, by semi-automatically passing indications and warnings data from national systems down to tactical vehicles at the unclassified level. This results in increased force protection and serves as a pathfinder for delivering other national systems data down to the soldier in harm's way.

In addition to rapidly developing and deploying capabilities in support of the warfighter, the NRO is also proactively involved with pre-deployment training and education initiatives throughout DoD and the IC. NRO personnel describe our system capabilities as part of the core curriculum at the Army's Intelligence Center of Excellence at Fort Huachuca, Arizona; and our Mobile Training Teams have provided both the Army's I Corps and III Corps with relevant training on National Intelligence capabilities available to the unit in theater. We recognize we can't be everywhere, but we can train our soldiers about the unique capabilities they can draw upon in a time of crisis.

**CONCLUSION**

Thank you for your support and I encourage you to take time to come out to the NRO for detailed discussions we could not have today.

The NRO vision is to maintain "Vigilance From Above." We remain focused on our mission to provide "Innovative Overhead Intelligence Systems for National Security," and the people of the NRO embody our core values of Integrity and Accountability, Teamwork Built on Respect and Diversity, and Mission Excellence. Driven by our extraordinary people, the NRO will continue on the path of delivering acquisition and operations excellence, as well as the unparalleled innovation that is the hallmark of our history and the foundation of our future.

Mr. Chairman and members of the Committee, thank you for the opportunity to appear before you today. I thank you for your continued support of the NRO, and I stand ready to answer your questions.



**Betty J. Sapp**  
**PRINCIPAL DEPUTY DIRECTOR OF THE NRO**

Ms. Betty J. Sapp was appointed the Principal Deputy Director, National Reconnaissance Office (PDDNRO) on April 15, 2009. As the PDDNRO she provides overall day-to-day management of the NRO with decision responsibility as delegated by the Director, NRO (DNRO). In the absence of the DNRO, she acts on the Director's behalf on all matters.

Ms. Sapp began her government career as a US Air Force officer in a variety of acquisition and financial management positions, including: business management positions in the NRO; as a Program Element Monitor at the Pentagon for the MILSTAR system; as Program Manager for the FLTSATCOM program at the Space and Missile Systems Center in Los Angeles; and as manager of a joint-service development effort for the A-10 engine at Wright-Patterson Air Force Base in Dayton, Ohio.

In 1997, Ms. Sapp joined the Central Intelligence Agency. She was assigned to the NRO where she served in a variety of senior management positions. In 2005 she was appointed the Deputy Director, Business Plans and Operations, where she was responsible for all NRO business functions, including budget planning, current year financial operations, contracting, financial statements, business systems development, cost estimating, and legislative affairs.

In May 2007, Ms. Sapp was appointed Deputy Under Secretary of Defense (Portfolio, Programs and Resources), Office of the Under Secretary of Defense for Intelligence. In this position, she was responsible for executive oversight of the multi-billion-dollar portfolio of defense intelligence-related acquisition programs, the planning, programming, budgeting and execution of the multi-billion dollar Military Intelligence Program, and for the technology efforts critical to satisfying both current and future war fighter needs.

Ms. Sapp holds a Bachelor of Arts, and an MBA, Management, both from the University of Missouri, Columbia. She is also Level III certified in Government Acquisition and was certified as a Defense Financial Manager.

Ms. Sapp is a native of St. Louis, Missouri, and now resides in Alexandria, Virginia.



---

---

**QUESTIONS SUBMITTED BY MEMBERS POST HEARING**

MARCH 15, 2011

---

---



### QUESTIONS SUBMITTED BY MR. TURNER

Mr. TURNER. Discuss the progress of the Space Protection Program (SPP). What have been its accomplishments since its establishment in 2008 and, what space protection areas continue to need the greatest attention? What is your assessment of how the defense and intelligence community have worked together to support the activities of this office?

Secretary CONATON and General SHELTON. [The information referred to is classified and is retained in the subcommittee files.]

Mr. TURNER. Have you identified any gaps in space intelligence? What are you doing to address those shortfalls?

Secretary CONATON and General SHELTON. An early 2010 USAF Intelligence, Surveillance and Reconnaissance working group review identified several space intelligence gaps. Since then, we have collaborated with Air Force Materiel Command and the primary Air Force intelligence organizations—the National Air and Space Intelligence Agency (NASIC) and the Air Force ISR Agency (AFISRA)—as well as others, to analyze and identify potential materiel and non-materiel solutions. Together, the materiel and non-materiel solutions will represent a corporate Air Force recommendation to integrate AFSPC ISR data into the warfighting Distributed Common Ground Systems Architecture.

Mr. TURNER. Discuss the progress of the Space Protection Program (SPP). What have been its accomplishments since its establishment in 2008 and, what space protection areas continue to need the greatest attention? What is your assessment of how the defense and intelligence community have worked together to support the activities of this office?

Ambassador SCHULTE. The SPP was established in 2008 as an Air Force Space Command (AFSPC) and National Reconnaissance Office (NRO) partnership designed to secure the “depth and breadth” of the nation’s knowledge of how to plan proactively for and respond to threats against U.S. space systems. The SPP advises senior DoD and intelligence community leaders about threat impacts on space systems and provides informed options and recommendations for protecting against those threats.

Both our view of the space protection areas that continue to need attention and our assessment of the cooperation between DoD and the IC are outlined in detail in the 2010 update to the SPS, which will be delivered to Congress shortly.

[A portion of the information referred to is for official use only and is retained in the subcommittee files.]

Mr. TURNER. Have you identified any gaps in space intelligence? What are you doing to address those shortfalls?

Ambassador Schulte. [The information referred to is for official use only and is retained in the subcommittee files.]

Mr. TURNER. Discuss the progress of the Space Protection Program (SPP). What have been its accomplishments since its establishment in 2008 and, what space protection areas continue to need the greatest attention? What is your assessment of how the defense and intelligence community have worked together to support the activities of this office?

Ms. SAPP. [The information referred to is classified and is retained in the subcommittee files.]

Mr. TURNER. Have you identified any gaps in space intelligence? What are you doing to address those shortfalls?

Ms. SAPP. [The information referred to is classified and is retained in the subcommittee files.]

---

### QUESTIONS SUBMITTED BY MS. SANCHEZ

Ms. SANCHEZ. When does the Navy expect to make a decision on MUOS and what are the best options for increasing communications capability in addition or until MUOS is operational? In addition, the Australian Defense Force recently purchased a hosted payload for \$350 million, saving about \$150 million, to augment their UHF

capabilities. Have you considered buying a payload as a way to augment our communications capabilities cost-efficiently?

Secretary CONATON and General SHELTON. The Air Force defers this question because it would be better addressed by the Navy. For more information on the Navy's MUOS program, the Air Force recommends contacting the Deputy CNO for Information Dominance and the SPAWAR Program Exec Officer for Space.

Ms. SANCHEZ. What is your long-term view on transforming and sustaining an affordable launch capability?

Secretary CONATON and General SHELTON. A steady launch vehicle production rate is crucial for a healthy launch industrial base. Air Force, inter-agency and independent reviews have recommended an annual minimum production rate of booster cores plus associated upper stage engines, payload fairings, and solid rockets to sustain our spacelift industrial base. Based on these studies, the Air Force is developing a new EELV acquisition strategy targeted to reduce costs and help sustain the industrial base. The strategy includes near-term block buys of Atlas and Delta vehicles (and more efficient buying practices that will stabilize production rates. A key element of this strategy is an inter-agency commitment to a minimum of eight booster cores per year—five by the Department of Defense and three by the National Reconnaissance Office (NRO).

Additionally, the Air Force recently signed a joint Memorandum of Agreement with NRO and NASA designed to ensure a consistent position on opportunities, certification, and requirements for potential new entrants. We expect to release new entrant criteria by late this summer, and we expect to allow new entrants to compete for near-term launch missions.

In addition, in March of this year, the Air Force office of the Assistant Secretary for Acquisition established the Program Executive Officer for Space Launch (AFPEO/SL). The new AFPEO/SL is charged with executing our new strategy and balancing space-lift needs, budgetary constraints, and our efforts to support a healthy and competitive US launch industrial base.

Ms. SANCHEZ. There has been concern about potential interference with our GPS signal and about what level of study the FCC will require before deciding on issuing a license. Could you give us an update on the next steps to ensure that we avoid any disruption to our GPS capability?

Secretary CONATON and General SHELTON. Per the FCC order of 26 Jan 11, LightSquared has formed a Technical Working Group co-chaired by the GPS Industry Council. This working group has strong participation from civil and military GPS experts and includes government agency representatives and observers. The test results from LightSquared are due back to the FCC by 15 Jun 11. Independent of the LightSquared working group, the U.S. Government has established a test team, which will test military receivers and a representative sample of civil and commercial receivers. The results of the Government tests will be completed prior to 15 Jun 11 to keep pace with the LightSquared commercial tests. The FCC will evaluate the LightSquared test results to determine an appropriate way forward. The Government will submit their independent test results to the FCC for consideration in this determination. The process will be complete once the FCC, after consultation with National Telecommunications and Information Administration, concludes that the harmful interference concerns have been resolved and sends a letter to LightSquared stating that the process is complete.

Ms. SANCHEZ. Could you give us your thoughts on the way forward for JMS and when this decision will be made?

General SHELTON. As we approached JMS Milestone B, the program underwent an Independent Program Assessment. That assessment identified program challenges which resulted in suspending High Accuracy Catalog and Integration and Sustainment contracts requests for proposal. We are reviewing that Independent Program Assessment to determine the appropriate way forward for JMS. We will bring that decision through the Department and to the Congress as soon as possible.

Ms. SANCHEZ. When does the Navy expect to make a decision on MUOS and what are the best options for increasing communications capability in addition or until MUOS is operational? In addition, the Australian Defense Force recently purchased a hosted payload for \$350 million, saving about \$150 million, to augment their UHF capabilities. Have you considered buying a payload as a way to augment our communications capabilities cost-efficiently?

Ambassador SCHULTE. I defer this question to the Navy. For more information on the Navy's MUOS program, please contact the Deputy CNO for Information Dominance and the SPAWAR Program Executive Officer for Space.

Ms. SANCHEZ. What is your long-term view on transforming and sustaining an affordable launch capability?

Ambassador SCHULTE. Assured access to space is foundational to our National Security Space Strategy. Transforming and sustaining affordable launch capability require that we focus on both the availability of affordable launch vehicles and on the infrastructure of our launch facilities and ranges.

As noted in the National Security Space Strategy, the Department seeks to foster a U.S. space industrial base, including launch services, that is robust, competitive, flexible, and healthy, and that delivers capabilities on time and on budget. We understand that the launch industry works better with a predictable schedule that avoids large swings in demand. We think that the Air Force proposal to conduct block buys of Evolved Expendable Launch Vehicles will improve the stability of the launcher production schedule, which should result in cost savings.

We are also enthusiastic about the prospects for increased competition in the launch market, because healthy competition can foster innovation and efficiencies that translate to lower launch costs. It is important that we provide a clear path to certification for new companies, allowing them a fair opportunity to compete based upon value, capability, and performance.

Our primary space launch facilities rely on an aging infrastructure employing unique equipment that is becoming increasingly difficult to maintain as it ages. Launch facilities at Cape Canaveral Air Force Station in Florida and at Vandenberg Air Force Base in California each have the capability to support Evolved Expendable Launch Vehicles. In addition, the Department has launched smaller national security space missions from the Kodiak Launch Complex in Alaska, from NASA's Wallops Island flight facility in Virginia, and from the Reagan Test Site in the Marshall Islands. These smaller sites offer additional flexibility and resilience for our launch enterprise.

We are looking at the most efficient and effective ways to modernize our launch infrastructure. DoD and NASA are co-leading the development of a Launch Infrastructure Modernization plan. We expect that this plan will take a holistic view of the U.S. space launch bases and ranges, and will suggest ways to sustain and improve capabilities. We want to move away from a reliance on customized systems and adopt a versatile launch infrastructure capable of accommodating a variety of boosters and launch profiles with minimal or no reconfiguration.

Ms. SANCHEZ. There has been concern about potential interference with our GPS signal and about what level of study the FCC will require before deciding on issuing a license. Could you give us an update on the next steps to ensure that we avoid any disruption to our GPS capability?

Ambassador SCHULTE. DoD is committed to working with the FCC to ensure that GPS can continue its critical roles in national security, public safety, and the economy. The FCC has conditionally granted a waiver to LightSquared LLC, a mobile satellite services provider, which will allow them to provide terrestrial-based, cellular-type phone communications services on a frequency band immediately adjacent to the GPS Link 1 band. As a condition of the grant of this waiver, LightSquared is required to establish a working group to study GPS interference concerns and report the group's results and mitigation measures to the FCC by June 15, 2011. This must take place before the FCC permits LightSquared to launch its service commercially.

DoD determined that military testing was needed to ensure no disruption of GPS capability and that classified GPS capabilities or vulnerabilities are not exposed. DoD is conducting these tests, independent of the working group process, led by the Air Force's 746th Test Squadron and the Naval Space Warfare System Center. The level of interference to GPS posed by LightSquared is still being analyzed by DoD.

Ms. SANCHEZ. Is there any update you can give us on internal Executive Branch discussions about discussions related to export control reform, and how you plan to balance U.S. and international security without over-constraining opportunities for U.S. exports, how these might affect the space industry?

Ambassador SCHULTE. We are making significant progress toward reforming the U.S. export control system in order to make it more effective, efficient, and transparent. Our reform effort is being conducted in three phases and focuses on the "four singles" of export control reform: a single control list, a single licensing agency, a single export enforcement coordination center, and a single U.S. Government-wide information technology (IT) system for licensing. In Phase I, we have completed important regulatory changes to encryption and dual-national controls, and Phase II activities are well underway. For example, we have been making significant progress toward the creation of a single control list.

The Department of Defense has taken the lead in rewriting the U.S. Munitions List (USML), including the category that deals with spacecraft. We will also begin revising and "tiering" dual-use controls in the near future so that the USML and the dual-use Commerce Control List can be merged into one. On the single IT sys-

tem, the Department has been designated as the Executive Agent for the new U.S. Government-wide export licensing system, which will be based on DoD's USXPORTS system. We are working with the Departments of Commerce and State to establish connectivity with this system. The Executive Order establishing the Enforcement Coordination Center was signed by the President in November 2010, and those implementation efforts are underway.

We have not completed our rewrite of controls on spacecraft in the USML; therefore, I cannot provide a detailed assessment at this time of the effects on the U.S. space industry. However, consistent with our overall approach to export control reform, I expect that we will propose "higher fences around fewer items," and increase transparency and predictability, so that the U.S. space industry will be able to compete globally more efficiently. Current U.S. law limits the flexibility of the President in this area. Energizing the space industrial base, including through export control reform, is a key objective of the new National Security Space Strategy.

Ms. SANCHEZ. What are the benefits to the U.S. participating and joining the EU-proposed Code of Conduct, and what are the downsides of not participating?

Ambassador SCHULTE. There are many potential benefits to the Code of Conduct for Space (the "Code"). The Code calls on subscribing States to refrain from activities that create long-lived debris and to notify others of certain space activities, including those that might risk creating debris. Space debris is a growing concern for all space-faring nations.

The Code is not legally binding and is consistent with U.S. interests in space. The provisions in the Code are similar to other space norms that the U.S. Government has already endorsed: pre-launch notifications under the Hague Code of Conduct, UN Debris Mitigation Standards, and safety of flight practices to share collision warning information.

The Code clearly recognizes a nation's inherent right of self-defense. This preserves considerable flexibility to implement the National Security Space Strategy, signed by the Secretary of Defense and the Director of National Intelligence, to conduct necessary operations in crisis or war. Supporting the Code affords the United States an opportunity to lead by example and to shape behaviors in space while simultaneously not affecting the development of national security capabilities. As Secretary Lynn recently said publicly, "we think [the Code is] a positive. It has a very strong potential of being a positive step" toward promoting responsible use of space.

The Department is conducting a detailed assessment of the Code to help inform the U.S. position and determine what, if any, modifications would be necessary to be able to support the Code. The Department, together with the Intelligence Community, will ensure that our national security interests are fully protected.

Ms. SANCHEZ. When does the Navy expect to make a decision on MUOS and what are the best options for increasing communications capability in addition or until MUOS is operational? In addition, the Australian Defense Force recently purchased a hosted payload for \$350 million, saving about \$150 million, to augment their UHF capabilities. Have you considered buying a payload as a way to augment our communications capabilities cost-efficiently?

Ms. SAPP. [The information referred to is classified and is retained in the subcommittee files.]

Ms. SANCHEZ. What is your long-term view on transforming and sustaining an affordable launch capability?

Ms. SAPP. [The information referred to is classified and is retained in the subcommittee files.]

Ms. SANCHEZ. There has been concern about potential interference with our GPS signal and about what level of study the FCC will require before deciding on issuing a license. Could you give us an update on the next steps to ensure that we avoid any disruption to our GPS capability?

Ms. SAPP. [The information referred to is classified and is retained in the subcommittee files.]

---

#### QUESTIONS SUBMITTED BY MR. FRANKS

Mr. FRANKS. Does the DSCOVR mission meet the Air Force's requirements for solar weather prediction?

Secretary CONATON. Yes, the DSCOVR mission will meet the Air Force's solar wind monitoring requirements that are fulfilled by NASA's Advanced Composition Explorer (ACE) satellite today. However, DSCOVR can't meet the full range of solar weather prediction requirements by itself. DSCOVR will be a critical element of a family of solar weather collectors that, when used jointly, will provide comprehensive characterization and forecasts of solar weather events.

Mr. FRANKS. What is the Air Force's assessment regarding the service life of the DSCOVR spacecraft?

Secretary CONATON. The Air Force has not independently assessed the service life of the DSCOVR spacecraft. However, NASA has indicated that DSCOVR has a two year design life and is being refurbished to fulfill a planned five year mission.

Mr. FRANKS. Did the Air Force propose DSCOVR as a solution to their solar weather requirements?

Secretary CONATON. The Air Force was part of an interagency assessment team that recommended DSCOVR as the preferred solution to fulfill near term solar wind monitoring continuity requirements. The interagency team also considered potential commercial, international, and dedicated US Government options. The DSCOVR solution was determined to be the lowest risk solution.

Mr. FRANKS. Was the Air Force a part of any inter-agency discussions about the DSCOVR mission?

Secretary CONATON. Yes, the Air Force participated in the interagency analysis team tasked by the Office of Science and Technology Policy (OSTP) to recommend a way ahead to continue the ACE solar wind monitoring capability. The group was known as the Committee for Space Environmental Sensor Mitigation Options (CSESMO) and was chartered under the Office of the Federal Coordinator for Meteorology (OFCM).

Mr. FRANKS. Does the Air Force have concerns about the DSCOVR mission?

Secretary CONATON. No, the Air Force agrees with the findings and recommendations of the Committee for Space Environmental Sensor Mitigation Options (CSESMO) that DSCOVR is the best solution to address the near term solar wind data collection continuity requirements.

Mr. FRANKS. Has the Air Force done a risk assessment of the DSCOVR spacecraft?

Secretary CONATON. No, the Air Force did not perform a risk assessment of the DSCOVR spacecraft. However, NASA performed a risk assessment of the DSCOVR spacecraft and documented their findings and recommendations in "DSCOVR—The Serotone Report," dated January 14, 2009.

Mr. FRANKS. Has the Air Force signed a MOA or MOU with NOAA regarding their participation in this mission?

Secretary CONATON. The Air Force, NOAA, and NASA are currently discussing and negotiating a draft MOA to codify the respective agency roles and responsibilities. The Air Force expects that our primary responsibility will relate to the launch of the DSCOVR satellite.

Mr. FRANKS. Has the Air Force signed any contracts for a launch vehicle for DSCOVR?

Secretary CONATON. No, but the DSCOVR launch vehicle will go on contract in FY12. DSCOVR is expected to launch in FY14. Non-EELV launch vehicles are typically put on contract 18–24 months prior to launch, therefore, the DSCOVR launch vehicle will be put on contract sometime in FY12. There is \$135M in the FY12 President's Budget to support this activity.

Mr. FRANKS. Does the Air Force have a follow-on plan after the DSCOVR mission to maintain a solar weather capability?

Secretary CONATON. In accordance with the Committee for Space Environmental Sensor Mitigation Options (CSESMO) recommendations, the Air Force and NOAA are considering commercial data buy options for a DSCOVR follow-on capability. Non-commercial options will also be considered if it is determined that no viable commercial alternatives will be available when needed near the end of this decade.

Mr. FRANKS. I am concerned about the setbacks of the Space-Based Infrared System (SBIRS) program, which is designed to replace the aging Defense Support Program (DSP). I understand that the current total program cost estimate is about 3 times more than what was originally estimated and has experienced significant schedule delays. I would like to know whether this is money well spent or if it's time to consider other options; and, related to this question, are there other feasible options, or are we stuck with waiting for SBIRS and the resulting gap in missile warning and defense?

Secretary CONATON and General SHELTON. The SBIRS program experienced a number of technical and programmatic issues leading to significant cost and schedule overruns earlier in the program. Today, the program has stable requirements and we have resolved the early issues that hindered initial development. Previously, the SBIRS program delivered two HEO payloads to orbit, providing exceptional, high-quality data to the warfighter. Recently, the first GEO satellite (SBIRS GEO-1) was delivered to Cape Canaveral in March 2011 and is preparing for launch in May 2011. Production of SBIRS GEO-2 is nearly complete and launch is scheduled for FY12. Current Air Force plans for SBIRS follow-on include production of two ad-

ditional HEO payloads, as well as SBIRS GEO-3 and GEO-4. Pending Congressional and USD(AT&L) approval, the Air Force also intends to procure SBIRS GEO-5 and GEO-6 through an efficient block-buy approach, beginning in FY13.

Throughout SBIRS program history, alternatives have been considered in light of development issues, including the Alternate Infrared Satellite System (AIRSS) and Third Generation Infrared Surveillance (3GIRS). Based on SBIRS progress, AIRSS was refocused from a competing program to concentrate on technology maturation. In light of Congressional marks and competing priorities, the DoD terminated the 3GIRS program beginning in FY11. The mature Commercially Hosted Infrared Payload (CHIRP) demonstration was transferred from 3GIRS to the SBIRS program for completion. CHIRP is expected to launch in late 2011 and will perform risk reduction and evaluation of Wide-Field-of-View sensors. With current on-orbit DSP and HEO assets and the upcoming launch of GEO-1, SBIRS is ready to meet the nation's missile warning, missile defense, battlespace awareness, and technical intelligence needs.

Mr. FRANKS. I am concerned about the setbacks of the Space-Based Infrared System (SBIRS) program, which is designed to replace the aging Defense Support Program (DSP). I understand that the current total program cost estimate is about 3 times more than what was originally estimated and has experienced significant schedule delays. I would like to know whether this is money well spent or if it's time to consider other options; and, related to this question, are there other feasible options, or are we stuck with waiting for SBIRS and the resulting gap in missile warning and defense?

Ambassador SCHULTE. With current on-orbit DSP and highly elliptical orbit (HEO) assets and the upcoming launch of the first geosynchronous earth orbit (GEO) satellite, SBIRS is ready to meet the nation's missile warning, missile defense, battlespace awareness, and technical intelligence needs. The SBIRS program experienced a number of technical and programmatic difficulties, leading to significant cost and schedule overruns. Today, the program has stable requirements, and we have resolved the early issues that hindered initial development. The SBIRS program has delivered two HEO payloads to orbit, providing exceptional quality data to the warfighter. Further, GEO-1 was delivered to Cape Canaveral in March 2011 and is preparing for launch in May 2011. The remainder of the SBIRS constellation and replenishment vehicles will be acquired through follow-on production efforts.

Throughout SBIRS program history, alternatives have been considered in light of development issues. A mature demonstration, the Commercially Hosted Infrared Payload (CHIRP), is expected to launch in late 2011 and will perform risk reduction and evaluation of Wide-Field-of-View sensors. In addition, the Under Secretary of Defense for Policy is pursuing Departmental assessments of alternative approaches to enhance the resiliency of the SBIRS constellation through low-cost augmentation capabilities to meet the objectives of the National Security Space Strategy.

Mr. FRANKS. I am concerned about the setbacks of the Space-Based Infrared System (SBIRS) program, which is designed to replace the aging Defense Support Program (DSP). I understand that the current total program cost estimate is about 3 times more than what was originally estimated and has experienced significant schedule delays. I would like to know whether this is money well spent or if it's time to consider other options; and, related to this question, are there other feasible options, or are we stuck with waiting for SBIRS and the resulting gap in missile warning and defense?

Ms. SAPP. [The information referred to is classified and is retained in the subcommittee files.]

#### QUESTIONS SUBMITTED BY MR. LAMBORN

Mr. LAMBORN. In Fiscal Year 2009, the Air Force received a \$28 million reprogramming approval to fund the electronic scheduling and dissemination upgrade to the Air Force Satellite Control Network at the 22nd Space Operation Squadron. This reprogramming was a bridge to the Fiscal Year 2012 budget where the balance of the requirement was to be funded. Unfortunately, this was not included in this year's budget. I sent a letter to the Secretary of the Air Force on June 28, 2010, requesting an update on this program. I also visited the 50th Space Wing on July 12, 2010, to see the great work the Air Force is performing at Schriever Air Force Base as well as to learn how important this upgrade is for DoD. What is the current funding and program status of this critical upgrade?

General SHELTON. An FY09 Omnibus reprogramming authorization provided \$28M. The FY12 President's Budget Request (PBR) baseline provides for \$1.3M in FY12.

The current ESD 3.0 Block 1 effort completed Critical Design Review in June 2010 and is in the build and test phase. Additionally, the developmental system completed, integrated and tested four software builds as well as completed an integrated baseline review in Oct 10.

Mr. LAMBORN. What are your plans for this program thru FY12?

General SHELTON. We intend to continue incrementally funding development efforts through a reprogramming action in FY12.

Mr. LAMBORN. What will be the operational impact to the Air Force Satellite Control Network if this upgrade is not implemented?

General SHELTON. Our plan is to complete ESD 3.0; however, if unforeseen circumstances prevent that, we would continue to rely on the legacy system until an enduring solution was provided. As supportability of the legacy system degrades, the work load would necessarily become a manual task.

Mr. LAMBORN. Since the Rapid Attack, Identification, Detection and Reporting System (RAIDRS) is a Program of Record, what are your plans in fielding this system?

General SHELTON. Rapid Attack Identification Detection and Reporting System (RAIDRS) Block 10, is a suite of 5 RAIDRS Transportable Ground Segments (RTGS) strategically located around the world which provide USSTRATCOM with global electromagnetic interference detection and enables geolocation of the source of that interference. The RTGS's will be located in Florida, Japan, Hawaii, Germany and CENTCOM in Southwest Asia. Initial Operating Capability is scheduled for 4th quarter, FY12, while Full Operating Capability is scheduled for 4th quarter, FY 13.

#### QUESTIONS SUBMITTED BY MR. ROGERS

Mr. ROGERS. I understand that the Launch Capability element of the EELV budget pays for the facility and support costs and launch operations.

- Can you tell me why the Capability budget increased from \$771 M in FY 11 to \$928 M in FY 12?
- Can you provide a more detailed breakout of the elements and cost underlying this large number?
- Can you provide me with a much more detailed breakout of the FY 12 EELV Launch Capability budget?

Secretary CONATON. EELV launch capability (ELC) costs have indeed increased from the FY11 PB to the FY12 PB. Costs for sustaining launch capability (infrastructure, engineering skills) for 8 missions a year is paid by the Air Force and NRO, and has historically been shared on a 70-30 basis (70 percent Air Force, 30 percent NRO). However, starting in FY12, the Air Force share has increased from 70 to 75 percent, resulting in a 5% increase or a \$55M increase over FY11PB. The Air Force also received approximately \$100M per year between 2006-2011 in unbilled launch capability and processing work as a result of the transition from earlier fixed price launch service contracts. These so called "contract credits and considerations" have now expired, leading to the higher costs for FY12.

FY12 EELV Launch Capability Budget Estimate (AF-only)

ELC Elements	%	\$
Mission Integration	3%	27.8
Mission Assurance	1%	9.3
Mission Unique Development/design	1%	9.3
Systems Engineering & Program Management (SEPM)	38%	353.0
Supplier Readiness	14%	130.0
Transportation	2%	18.7
Launch Operations	28%	259.2
Depreciation	13%	120.8

**QUESTIONS SUBMITTED BY MR. RUPPERSBERGER**

Mr. RUPPERSBERGER. The Air Force's Evolutionary Acquisition for Space Efficiency (EASE) initiative seems like a sound way to reduce costs by securing block buys of space systems. However the space programs selected for FY12 and FY13 application of EASE—the Space Based Infra-Red System (SBIRS) and the Advanced Extremely High Frequency (AEHF) satellite—are both far over budget and well behind schedule. The impression this creates is that poor performance on space programs will be “rewarded” with block buys. Does the Department plan to apply the EASE block buy approach to well-performing space programs, and if so, what are they and when do you think you will do so?

Secretary CONATON. I understand your concern with the past performance of the AEHF and SBIRS acquisition efforts. Indeed, the Air Force has proposed the Evolutionary Acquisition for Space Efficiency (EASE) approach going forward to address specific root causes of some of those difficulties. The EASE concept is designed to drive down costs, improve stability in the space industrial base, ensure stable investment in technologies that can lower risk for future programs, and achieve efficiencies through block buys of satellites. In providing industrial base stability, we expect the contractor to come in with significantly lower prices. Despite its past problems, the AEHF satellite program is a good candidate for implementation of EASE, because the high-risk development phase is complete, and the satellite design is mature. In addition, the requirements are solid and an experienced government and contractor team is in place. As for the program itself, one satellite has launched, one is in storage awaiting launch, and two more are in various stages of production. The block buy of satellites 5 and 6 will comprise a smooth continuation of the production line. Once the EASE approach is established, the Air Force will examine the application of this acquisition strategy to a wider portfolio of space program. The SBIRS program, which has also experienced cost and schedule difficulties during the development phase, is also now on more stable footing. The first geo-stationary satellite (SBIRS GEO-1) is set to launch in May. The Air Force intends to pursue acquisition of SBIRS GEO-5 and GEO-6 using the EASE approach, but not until FY13.

Mr. RUPPERSBERGER. The Air Force has traditionally been the Executive Agent for Space within the Department of Defense. Yet recently we have learned that the Defense Information Systems Agency has been given a significant FY12 budget increase (more than \$400M) to start the acquisition of a new Ka band satellite system. Can you provide any insight on this DISA initiative, how it might affect the Air Force Executive Agent status and also how it will avoid competing with other space programs for scarce DoD resources?

Secretary CONATON. The DISA Advanced Satellite System in a Single Theater (ASSIST) project will not affect the Air Force's EA status. The Secretary of the Air Force, as the designated DoD Executive Agent for Space, is responsible for coordinating all DoD space efforts, to include integrating and assessing all space communication activities, whether they are acquired by the Air Force, Navy, or DISA. To help manage this portfolio, the DoD Executive Agent for Space chairs the Defense Space Council—to address all DoD aspects of space: policy, strategy, operations, logistics, and acquisition. The Defense Space Council will provide guidance to DISA's ASSIST effort in support of the overall DoD planning/architecture strategy.

As the DoD focal point for commercial SATCOM, DISA procures an Overseas Contingency Operations (OCO) SATCOM capability to address surge capability requirements. The DISA procured commercial SATCOM complements MILSATCOM in meeting the warfighters' bandwidth requirements. Leasing short-term commercial SATCOM on an annual basis to support OCO surge requirements is costly (\$235M per year) and inefficient. DISA, via the ASSIST project, will acquire long-term satellite communications services, to include both the space segment and associated terminals, in the Ka-band (and potentially also Ku-band), to address CENTCOM demand. This would be accomplished either through buying a commercial SATCOM satellite or signing a life-time lease for an entire commercial SATCOM satellite.

Mr. RUPPERSBERGER. The Air Force Space Based Space Surveillance System (SBSS) was successfully deployed last year as a potentially revolutionary new capability to improve space situational awareness. How is the system performing, does the Air Force plan to continue this program and, if so, why did the Air Force eliminate FY12 and outyear funding for the follow on capability?

Secretary CONATON. SBSS Block 10 is performing very well on-orbit, meeting or exceeding all performance requirements. The Air Force has completed the Initialization and Checkout Phase and System Characterization Phase, and all systems are performing nominally. Satellite Command Authority for SBSS Block 10 was successfully transitioned from the Space and Missile Systems Center (SMC) to

AFSPC 50th Space Wing on 23 Feb 11. SBSS Block 10 is on track for 3QFY11 Operational Acceptance and Initial Operational Capability determination.

The FY12 President's Budget does not include SBSS Follow-on primarily due to program affordability and a delayed need for the capability based on the timing of the SBSS Block 10 launch. However, the Office of the Secretary of Defense has directed a study examining alternative capabilities for Low Earth Orbit-based Space Situational Awareness (SSA) of deep space objects, the findings of which will inform future decision making.

Mr. RUPPERSBERGER. The health of the Space Industrial Base has been mentioned in both the National Space Policy and the recent National Security Space Strategy. Overall, how does the Department assess the current health of the space industrial base compared to its health a decade ago (prior to statutory requirements dictating that all satellites and satellite components necessarily be considered munitions for the purposes of exports)?

Secretary CONATON. The overall health of top tier manufacturers in the space industrial base is sound, but there are significant issues for lower tier vendors. For space systems, there are small numbers of suppliers to produce specialized components such as space qualified hardware. Market forces for small numbers of specialized components and inconsistent demand result in production gaps for lower tier vendors and tend to drive suppliers out of the market.

The Air Force is working with the NRO, NASA, and MDA via the Space Industrial Base Council and other inter-agency forums to assess the status of the domestic industrial base and examine potential actions that can enable the long-term health of the industrial base. In addition, the Air Force has taken steps in the FY12 President's Budget to help address industrial base issues, through more effective and predictable acquisition, including the Evolutionary Acquisition for Space Efficiency (EASE) proposal and the proposed Evolved Expendable Launch Vehicle acquisition strategy.

Mr. RUPPERSBERGER. What is the Executive Branch doing to reduce the risk of further degradation to the space industrial base? How important is a statutory change to the current commercial satellite ITAR regime in helping to project and/or grow this industry base? What can be accomplished in this direction absent any further Congressional action?

Secretary CONATON. The Air Force is supporting a periodic report on the health and competitiveness of the U.S. space industrial base chaired by the Department of Commerce. The report should be delivered to the White House in summer 2011, and will recommend actions that can be taken by the government to enhance the space industrial base. In addition, the Air Force is partnering with NASA and the Department of Commerce to conduct a comprehensive data collection of the entire U.S. space industrial base, which includes defense, intelligence community, civil, and industrial sectors. This effort will provide needed information on the critical lower tiers of the space industrial base.

There are a number of U.S. Government, industry, and association reports and studies that point to export controls and ITAR as a significant barrier to the health and competitiveness of the space industrial base. In 2007, the Air Force released a defense industrial base assessment on the U.S. space industry. In that report, more than 70% of the approximately 200 survey respondents cited U.S. export control, specifically ITAR, as a barrier to entry to global space-related business.

The FY10 National Defense Authorization Act requires the Department of Defense to complete a report, known as the 1248 Report, to inform Congress on the national security ramifications of transferring satellites and related items from ITAR to the Commerce Control List. Legislation is required to transfer these items to the discretion of the President, who can then delegate control of these items to the Department of Commerce. In a March 31, 2011 presentation, the National Security Staff indicated that the 1248 report is nearly complete and should be delivered to Congress in the coming weeks.

Currently, many items generally available on the global market for space commerce are prohibited from being exported by U.S. companies without government approval, and the Air Force understands that this system has hurt the U.S. space industrial base. To address this significant challenge, the Obama Administration announced last summer it was pursuing comprehensive export control reform. The Air Force recognizes that controlling sensitive space exports remains a concern. But we need a different approach, and that is just what the Administration, is working toward. As Secretary Gates has said, the goal of this reform is "a system where higher fences are placed around fewer, more critical items."

The new system of controls will feature a single control list (rather than several), and will be executed by a single licensing agency, using IT system for export licensing, operating a single enforcement coordination center. In November of last year,

in fact, an Executive Order established the new “Export Enforcement Coordination Center.”

Currently, the Department of Defense is reviewing existing Technology Release and Transfer Processes, and working with other agencies to transition to a single electronic licensing system based on DoD software. The State Department expects to be integrated later this calendar year; the Commerce Department should be integrated by mid-2012.

Mr. RUPPERSBERGER. The National Space Policy and National Security Space Strategy encourage greater cooperation between the Department of Defense and the commercial satellite industry. How does the Department view the inter-relationship between the commercial industry and the national security space sector?

General SHELTON. The Air Force acknowledges the need for a strong inter-relationship between the commercial industry and national security space sector to ensure industrial base stability and to assess innovative and cost-effective alternatives. Strategic partnerships with commercial firms will continue to enable access to a more diverse, robust, and distributed set of space systems. These strong relationships provide additional options for our space architecture to potentially include a mix of commercial, international, and government systems to meet our needs.

Mr. RUPPERSBERGER. How confident are you in the capabilities of the Executive Branch to maintain control of the most sensitive satellite technologies if other technologies are not ITAR-controlled? In the event of a transfer, do you believe it will be more or less difficult to control the most sensitive satellite technologies?

Ambassador SCHULTE. A report required by Section 1248 of the National Defense Authorization Act for Fiscal Year 2010 is currently in coordination. The report provides the Departments of State and Defense’s assessment of the national security risks of removing satellites and related components from the United States Munitions List (USML). The report includes recommendations on which space and space-related technologies should remain on—or be candidates for removal from—the USML. The report also addresses safeguards and verifications necessary to prevent the proliferation and diversion of these space and space-related technologies. We are working to complete coordination so that we can provide the report to Congress as soon as possible.

One objective of the Administration’s Export Control Reform initiative is to create a single control list. The Department of Defense has taken the lead in rewriting the USML, including the category that deals with spacecraft. We will also begin revising and “tiering” dual-use controls in the near future so that the USML and the dual-use Commerce Control List can be merged into one. The new control list will be based on a three-tiered structure that will better reflect the military and intelligence value of items and technologies controlled by the United States. Tier 1 items will represent the highest level of military and intelligence criticality that are available almost exclusively from the United States. Exports of Tier 1 items will always require a license and will be reviewed with the greatest scrutiny. Tier 2 items will be items that have substantial military and intelligence applications and are available from the United States and multilateral export control regime members and adherents. Many Tier 2 items could be available to Allies and close partners without licenses. Some Tier 2 items or technologies may need to be more closely safeguarded. Tier 3 items will be those that have significant military and intelligence applications but are more widely available outside the United States and multilateral export control regime partners and adherents. Tier 3 items would be available to most of the world. Thus, the tiering of controls in a single control list will significantly enhance our ability to control items based on their national security importance and to make better informed decisions on the national security implications of export requests. It will focus our attention on items and technologies of concern, while allowing us to share more with Allies and close partners.

We have not completed our rewrite of controls on spacecraft in the USML; therefore, I cannot provide a detailed assessment at this time. However, consistent with our overall approach to export control reform, I expect that we will propose “higher fences around fewer items.” Current U.S. law limits the flexibility of the President in this area. Energizing the space industrial base, including through export control reform, is a key objective of the new National Security Space Strategy.

Mr. RUPPERSBERGER. Has your office identified—or are you identifying—specific space capabilities within the industrial base that are in danger of disappearing or have disappeared because of ITAR restrictions?

Ambassador SCHULTE. The new National Security Space Strategy aims, as one of its three strategic objectives, to energize the space industrial base that supports U.S. national security. The strategy identifies export control reform as a key means to this end. Over the past several years, a number of studies, based largely on surveys and interviews, have indicated that the U.S. space industry believes that U.S.

export controls have had a negative impact, particularly on second- and third-tier suppliers. There are certain space technologies that have only one U.S. supplier or are being aggressively developed by foreign competitors. ITAR is one among many factors that may contribute to this. While we cannot point to a specific technology that has disappeared solely due to export controls, the body of work done on the subject supports continuing the export control reform effort that is currently underway. With this effort, our goal is to erect “higher fences around fewer items,” and increase transparency and predictability, so that the U.S. space industry will be able to compete globally more efficiently.

Mr. RUPPERSBERGER. How does the NRO link export control policies to space industrial base concerns? Do you foresee risks to U.S. national security if the current ITAR controls on satellites and their components remain in place?

Ms. SAPP. [The information referred to is classified and is retained in the subcommittee files.]

Mr. RUPPERSBERGER. What is the NRO doing to evaluate the possibilities of revising satellite export controls within your current authority?

Ms. SAPP. [The information referred to is classified and is retained in the subcommittee files.]

---

#### QUESTIONS SUBMITTED BY MR. BARTLETT

Mr. BARTLETT. As you know, NOAA currently gets solar wind data from the Advanced Composition Explorer (ACE) satellite, and uses this data to provide critical forecasts and warnings of solar and geomagnetic storms, related interruptions of GPS and communications, and potentially devastating impacts on satellite and terrestrial infrastructure. In addition to posting this information online, NOAA also shares the data directly with the Air Force for its own forecasting, warning, and space situational awareness activities. ACE is now over a decade past its original design life, and suffers from instrument damage and degradation due to prior solar storms. In FY12, NOAA has requested \$47.3 million to begin refurbishment of the 12-year-old, climate monitoring, DSCOVR spacecraft to replace ACE, with launch anticipated in FY2014. The Air Force has requested \$135 million in FY12 to pay for its contribution to the DSCOVR mission that is the launch of the spacecraft via a commercial provider.

As one who is concerned about the impact of electromagnetic pulse (EMP)—both natural and human-caused—I am concerned about any new or additional vulnerabilities for national space assets. For that reason, I would appreciate your answering a series of questions about the Air Force’s current reliance on ACE data, and about its anticipated reliance on DSCOVR data in the future.

How important is the ACE solar wind data to national security?

General SHELTON. ACE is an important sensing capability because of its location between the Earth and Sun. Located at a stationary point approximately 1 million miles between the Earth and Sun, it gives us 30–90 minutes warning before the detected solar disturbance reaches the Earth and our space assets. This enables us to implement measures to protect our space systems and services.

Mr. BARTLETT. How is the ACE solar wind data currently used by the Air Force and does the data currently provided today meet the Air Force needs for solar and geomagnetic storm forecasting and warning at all storm severity levels that can occur during a solar cycle?

General SHELTON. ACE is used by the Air Force to predict conditions affecting the near-Earth space environment and related impacts on space systems and services. Having knowledge of these conditions enables us to more effectively attribute and mitigate impacts on our space capabilities. Currently ACE data meets the Air Force’s solar wind monitoring needs. However, ACE has limitations during rare severe radiation conditions. We do have techniques to work around these limitations.

Mr. BARTLETT. Has the Air Force examined the capability of the solar wind instruments on DSCOVR and are they sufficient to provide the data needed by the Air Force for forecasting and warning at all potential storm severity levels once ACE meets its demise?

General SHELTON. Yes, the Air Force has examined the capability of DSCOVR’s solar wind instruments and has concluded that these instruments will be sufficient to meet our solar wind data needs.

Mr. BARTLETT. Has the Air Force examined the NOAA plan for solar wind data mission assurance and are they confident that the solar wind mission can reliably survive failures that are not uncommon to launch and spacecraft operations without an interruption in service that could endanger national security?

General SHELTON. Yes, the Air Force has examined the NOAA plan for solar wind data mission assurance and is confident that we will get the data without an interruption in service.

Mr. BARTLETT. What solar wind data and mission parameters does the Air Force user community need to have mission assurance and be able to confidently forecast and warn of communications and GPS degradation due to solar and geomagnetic storms as well as protect their space, air, and terrestrial assets from the impacts of these storms?

General SHELTON. The specific solar wind data and mission parameters needed by the Air Force user community for continuity of operations include the following: solar wind speed, density, pressure, temperature, and 3-D magnetic field. All of these parameters are currently measured by ACE.

