

JIM THOMAS: Thanks, Tom. General Schwartz and distinguished guests, it's really a pleasure to be here today and be part of the panel discussion. I wanted to do four things this afternoon. The first is talk a little bit about the QDR from my perspective. But then try to go from there and talk about one of the Secretary's themes, which has been trying to achieve a better balance within the department. And there, what I'd like to do is talk a little bit about some of the operational challenges that DOD faces, not only today but over the next 20 years, and what some of the implications then are for needed capabilities, as well as S&T and research and development. And finally, I'd like to talk about some of the limitations and obstacles that I see for the department. And again, with special focus on the Air Force as we move forward.

Picking up on Dave Ochmanek's points earlier, I'm just really struck by the degree of continuity and the strategic outlook from the last QDR to this one. The last QDR talked about four operational challenges, from defeating terrorist networks to shaping the choices of strategic competitors, defending the homeland and preventing the acquisition or use of WMD. I think this QDR has done a terrific job of taking those operational challenges forward and deepening our understanding of them.

We talked and touched on the importance of the indirect approach and working and enabling our partners, working with and enabling our partners to achieve many of our goals when it comes particularly to intrastate conflict and dealing with counterterrorism and foreign internal defense. I think this QDR, again, has done a terrific job on taking that forward.

Admittedly, I think this QDR, given the fact that we are at war, has tended to focus a little more on the near term than the far term. I don't think that that's accidental, I think that's a conscious choice. But that said, one of the things we have to do when we talk about balance is not just talking about the balance between irregular and conventional capabilities, but it is really the balance between managing the alligators that are closest to our boat in the near term and the looming dangers that we see on the horizon and the

type of force we want to leave for the next generation of leaders in DOD as they deal with the threats several decades out.

I wanted to touch just briefly on some of the key trend lines that I see in terms of the security environment and what's out there. And I don't think much of this will come as a surprise. I like Dave's formulation in terms of talking about the post post-Cold War era. I was wondering how many other prefixes we can add onto that as we go. I'm sure we'll think of some.

But there are five things that really stand out in this new era that we're in. One I think is, first of all, it's the persistent nature of the transnational and intrastate security threats that we face as a nation. These aren't going to go away with Iraq and Afghanistan, unfortunately. Many parts of the world, and frankly the majority of countries in the developing world, are going to have trouble with governance and policing themselves effectively. Why do we care as Americans? Because as we saw with the 9/11 attacks, these threats can metastasize and intercontinental range threats can materialize from almost anywhere on earth. And so we wanted to deny sanctuaries to our adversaries and we've become well aware that historically, the most effective way to do this is not through a direct approach, but through a combination of direct and indirect means. And in particular, placing emphasis on working through local, indigenous security forces to dry up the sanctuaries for our potential adversaries.

As we look ahead over the next 20 years, I think it's likely that the nature of these irregular threats, the character of these threats, is going to change dramatically over time. In one respect, this is due to the fact that the United States is losing its monopoly on precision, that it's far more likely as we look ahead that not only advanced military powers at the high end, but even at the lowest end, terrorist groups and insurgents are going to have access to precision guided munitions, and the ability to form very simple, rudimentary reconnaissance strike complexes, if you will, to impede our access to a given area, or to operate in local areas.

And this is certainly true at the high end when we think about the growing anti-access and area denial challenges we face in the western Pacific, in the Persian Gulf, in particular. The vulnerability of our forward bases, both to ballistic missiles as well as cruise missile threats, the vulnerability of our logistics lines to submarines, enemy fighter aircraft and other threats, as well as the increasing vulnerability of our space enablers. That given Capillarian physics, our orbits are very predictable to not only kinetic, but also non-kinetic forms of attack. And in fact, this isn't some futuristic threat that's out there, it's really happening on an day in and day out basis. You can go out to the JSpOC today and talk to folks and we are continually under threat whether it's radio frequency interference or other forms of attack today.

In some respects, it's much like the Cold War where there was a silent war being conducted under the seas throughout the Cold War. And it's something we didn't really think a lot about, but it was always there. And today, we can see conflict already beginning to occur in some of those peripheral theaters, particularly in space and cyberspace.

In the cyber domain in particular, I think it's important to note that this is a domain which is offense dominant today, which means it's very unstable and there's a first mover advantage that accrues. What we've seen in a number of war games is there's a proclivity, not only for adversaries, but even for the United States to reach for non-kinetic options very early and to want to use them. And so this is becoming a much more prominent feature of potential operations as we look ahead.

The last point I'd like to make has to do with nuclear weapons and I'd argue that we're really entering a new nuclear era, the nuclear world version 2.0, if you will. We thought that nuclear weapons were a bad thing in the Cold War when only a handful of powers had them. The potential nuclear war we're looking at in the future is a lot scarier, it's a lot messier. Deterrence is harder, and actually thinking about operations in a nuclear environment is something we're going to have to probably return to, whether it's thinking about the loss of control of nuclear weapons by a party and having to conduct WMD

elimination operations, potentially. Or confronting a new nuclear power in a variety of circumstances.

Rebalancing our forces to address these challenges implies the growth of certain missions, particularly for the Air Force. At the top of the list, I really would say WMD elimination is a growth area for the Air Force. It's one where the Air Force is already in the process of stepping up to the plate and has recognized this. But I think that's only going to continue to grow.

Network warfare, there's been a debate in the department over should a service own this or not? Undoubtedly as we create cyber command, all of the services are going to have a major role including, and I'd say particularly, the Air Force. Two others that I would really call out, one is security force assistance. There's always talk about, well when you think of regular warfare, this really is about ground forces. But you all in this room know, and I think there's growing appreciation across the department, how important the entire Joint Force is when it comes to irregular warfare, in particular the role of air power, not only for ISR, but for strike operations. And increasingly, I'd say a growth area is going to be in security force assistance and how we train and advise indigenous aviation forces around the world.

The other point I'd suggest is just as Admiral Mullen has talked about a thousand ship Navy, is there an air power equivalent that we can develop over time? We know just the phenomenal importance of JTACs in terms of air/ground integration. There are an awful lot of problems when it comes to thinking about this, first and foremost in a joint context, but then going one step further and thinking, "What would air/ground integration really look like in a truly combined context? How could our indigenous partners do more not only to leverage their own air power, but potentially U.S. air power?" Is that essentially a global force multiplier as we think about lighter footprints in the world and structuring economy of force.

From these missions, and the last I'd mention is one that has really been the historical domain, and I'd argue the differentiator of the U.S. Air Force, not only from its sister services, but from every other Air Force in the world, and that's global strike, both nuclear and conventional. The Air Force was born at the dawn of the age of power projection as the United States entered World War I and then subsequently fought two world wars and maintained peace in the world throughout the Cold War. That was all really predicated on power projection. And in particular, during the Cold War on the global strike capabilities of the United States. As we look ahead, there's a real question about how we're going to maintain that mission set moving forward.

From these mission areas, I would argue that there are certain capabilities that really get called out for particular attention. The first is going to be the ability to conduct operations from far greater ranges in the future. We're going to need long range, penetrating not only strike platforms, but multi-mission platforms capable of conducting intelligence surveillance and reconnaissance strike, electronic warfare and who knows what in the future. So they need to be highly adaptable and very modular in their design so that they can be. They may or may not be manned, and they may or may not be nuclear capable. But we're pretty sure we're going to need some sort of a penetrating platform that can reach in to an adversary's air space and go after both mobile targets, as well as some very hard targets, such as deeply underground targets. At the same time, we'll also need to strike the right balance between penetrating and standoff.

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MR. THOMAS: Another area which I think is a particularly important for the Air Force is weapons inventory. As we look ahead, we need to make sure we're going to have weapons in sufficient numbers and with the relevant characteristics to conduct a potentially protracted high intensity conventional conflict. This is an area we've got lots of families and classes of weapons. But do we have the sufficient quantities for conflicts which, in fact, could be quite longer than what most people might imagine.

Related to that is thinking about a new class of a cruise missile. Perhaps it's going to be a joint missile in the future. And this is something, as Dave was talking about, there's a lot of promise with the Air Force and the Navy working through a concept of air/sea battle, thinking through potentially a joint air to air surface extended range missile, might be an important part of that.

And finally, thinking about particularly in the DARPA domain, new classes of munitions, of conventional munitions, particularly for going after deep underground targets.

We also have seen the promise of unmanned systems and I think this is likely to be a growth area as well. There are going to be questions, of course, about the coms links and how you do command and control in the future. They may, in fact, require entirely new concepts for communication. But there are a couple of characteristics that I think are going to become more important in the future as we look ahead. One is going to be longer endurance and this is going to be true whether it's for ISR or electronic warfare or strike or communications links, to serve as communications links.

It's also going to be important to operate in non-permissive environments. In some respects, we've been spoiled by the operating environments in recent years that they've not posed the kinds of challenges we could imagine in a more robust IADs environment. In this respect, recent press reports on systems such as the Beast of Kandahar kind of point the direction in terms of, and indicate, where the Air Force is going and where it needs to continue moving.

Two final capability areas that I'd hit on. One is tankers are not terribly sexy, but they're critically important not just to the Air Force, but really to the nation and to the Joint Force as a whole. All kinds of problems in terms of tanker procurement, and I'm sure people will and have getting book agents now to write all of those stories and it's really a terrible tragedy. But nevertheless, this is a procurement that it can't be postponed. It

really is, I think, for the Air Force, it's a rendezvous with destiny in terms of moving ahead to push forward with the tanker program expeditiously.

I would say that our thinking about tanker requirements is based on what I think is an increasingly outdated construct of the old two MTW construct in thinking about how we're swinging our mobility assets as a whole. Increasingly, we really have to thank-- and it gets back to Tom's question early on-- what are your assumptions about the international security environment, and what you think really should be driving our programs. Do you think you're going to be operating transoceanic distances as you conduct some operations in places in the world without access to local bases? If so, that really needs to be factored in up front on what tanker capability is going to look like and what your capacity needs to be.

And the last I really hit on, and I don't mean by mentioning it last to give it lowest priority, because I really think it's at the top of the list. And for all the reasons Dave mentioned not the importance of winning the wars we're in today, but I think importantly in this QDR, the Air Force really has stepped up under the leadership of General Schwartz and all of the operational experience he brings to bear. The importance of thinking about the Air Force's role in special operations, thinking about armed reconnaissance. The critical importance of vertical lift as an enabler, not just for special operations forces, but for our general purpose forces.

In Afghanistan, it's the sine qua non for success. You can build the largest Afghan army in the world, but if you can't move it over the mountains, what good is it going to be to you? And finally, building up and expanding the capability to train indigenous aviation forces is really going to be critical as we look ahead.

On the R&D side, I would just hit a couple of quick points in terms of what I think some of the real focus areas should be for our research and development areas. The first, when we talk about WMD elimination is we've got to be able to find stuff, and we just

simply can't do it today. Locating entities of interest, whether it's nuclear weapons or it's guys driving around in SUVs is going to be critically important.

The second is penetrating advanced IADs networks. There's a big debate over how we're maintaining our stealth advantage. Are we still going to have stealth as we look out 20 years? I don't have a crystal ball, but I'd say that should be a top priority R&D challenge for not only the Air Force, but for the entire joint community. What's going to be the right balance between stealth and electronic attack?

The third category I mentioned is really improving the survivability and resiliency of our networks. We're really brittle today and we have heavy dependencies on some very vulnerable networks. Figuring out how we do secure coms in contested environments, perhaps less reliance on the space architecture or the space component of that's going to be important. What air breathing systems could we use potentially to reduce some of our reliance on SATCOM?

And the last category is, I would say, one of the things you see, particularly at the high end, is the explosion in interest when it comes to ballistic and cruise missiles. And I think everyone in this room understands, there's an unfavorable cost exchange ratio when it comes to thinking about missile defenses. We've got to think about are there technologies out there which potentially are game changers in terms of the offense/defense competition and missiles and missile defenses. In this regard, one of the areas that shows some potential is solid state directed energy. What can we be doing to accelerate our work in this field? It may, in fact, have a dissuasion effect in terms of affecting the acquisition and the R&D calculus of our potential adversaries and could certainly have an operational effect downstream by providing an almost unlimited magazine of defensive weapons.

I think the easy part in any talk like this is laying out the vision of where you want to go, and that's certainly true in the last QDR and I think it's been true in every QDR. It's one of the reasons why I really don't like QDRs as a whole. It's a really bad way to make

strategy. I can't imagine on December 7th, 1941, President Roosevelt saying, "We're going to do a QDR to figure out what we should be doing to fight World War II." The best strategies are probably made in secret with a very small group of people. And a lot of times, they're not written down or ever put in some sort of glossy document. And it's one of the real constraints I think people like Dave operate under in terms of trying to do something and say something that's meaningful and has got some edge to it. And at the same time, it's the product of a bureaucracy and everybody's had a chance to coordinate and chop on it and change the words here and there and add their pet rocks.

But I think there really is a challenge here in terms of, okay, we know the risks we want to pay down as we think about those operational areas. And I think it's easier to get consensus on those than it is to get consensus on, okay, how are we going to pay for it all? And as we look out, I think the picture's pretty bleak. We dodged the bullet in this QDR on the fiscal side, that you actually see a plus up in the budget. But we can't whistle by the graveyard any longer. You look at the fiscal situation that we're in, and my expectation is that at the first signs of recovery, there's going to start being talk about freezes in discretionary spending across the board, including defense. We have to steel ourselves for that time that's coming.

In addition to the top line pressures that are looming out there, there are the bottom up pressures, particularly in terms of personnel costs, as well as the aging equipment and recapitalization challenges we face across the entire Joint Force.

For the Air Force in particular, there are issues in terms of slippage and cost growth in major programs. And as these programs, they tend to stack up almost like aircraft in a blizzard circling around LaGuardia. And everyone wants to come in for the landing. And at some point, you're having to divert planes and send them north to Logan or south to Dulles. There simply isn't going to be room to land. And I guess that's what keeps me awake at night, thinking not just about the Air Force, but about the Joint Force as a whole. We know the challenges that are out there, we know the kinds of capabilities we're going to need to acquire to go after them. But there simply isn't room to land

constraints on our personnel, we ought to incorporate our reserve component in an optimum fashion where the mission sets make sense. And those that require less deployment are a perfect fit for the ARC in some of the missions that you mentioned. And that we're jumping in with two feet to do that. But the Director of the Air National Guard was in my office the other day and we were talking about greater incorporation of International Guard folks doing the remotely piloted aircraft mission, as well as the distributed common ground station analytic back end piece. A perfect match that will truly take us to the next level of total force integration.

DR. EHRHARD: Thanks, sir. Another question? Go ahead.

AUDIENCE: Sky Forrester from the Eisenhower Center of Space and Defense Studies at the Air Force Academy. Couple of references to commercialization, particularly as it relates to space. The reality is, as you all know, a substantial percentage of our capability, information flows, communications, comes from non-U.S. government assets in space, commercialization. To what extent is the commercial sector part of this consideration of what our own space assets ought to be, or are we still predominantly thinking about DOD and Air Force space assets and kind of leaving that to fend for itself? The thousand ship Navy is a bad metaphor, but there may be something-- there's some element of that that might be interesting to pursue. I'd be interested in your comments.

DR. EHRHARD: I can say the space posture review is another one of the reviews that we're sort of waiting to come out. But I do know they've addressed that and we don't really have the right people up here, perhaps, to deal directly with that question. But it always has been a part of how we think about space and the difficulty is that it changes over time. For a while there, it looked like there wasn't going to be a lot of capacity in space toward the end of the '90s. Some of the systems, Iridium, et cetera, were not very successful. So it makes it a very difficult planning challenge to understand just how much capacity is going to be out there. Now we see private, commercial companies getting into even some pretty high fidelity imagery-type work. So there can be no

question that just like in aviation, air power is a larger part of both military and commercial and civil. The same thing applies to space.

I will just say this. Once again, when you start talking about force mix, you have to ask in an era of such constrained resources and the different kinds of challenges that all the speakers talked about here, you have to ask yourself, what is your core capability? What are really the things that you have to have in the U.S. military? And some of the challenges that were talking about here are not easy ones. They have to do with the fact that there's going to be growing challenges to unfettered access and exploitation of space. So there is no doubt about the fact that this, it's changing rapidly, what the composition of those space assets are. But we have to ask serious questions about when you fall back and you're dealing with a bandwidth constrained environment, for instance. What are those pieces that we have to have as military assets up there that do specific jobs for us and going forward the space mix?

Let me just add one other challenge to that. General Deptula deals with ISR every day. And there are huge issues dealing with the space and air mix, as well, and how we hedge against a future, more contested environment in both domains and how we balance those two capabilities. So there's no question about the fact that commercial assets are being used today. They're a critical part of all those predator caps and reper caps that we're running every day, those commercial bandwidth paths. And so they've just become a part of the way we do business, and I don't think that's going to change in the near future.

I want to get off the stage now, we have Secretary Carter, is going to be speaking to you in a minute. I want to thank the speakers again for their words today, and hope we gave you something to think about when it comes to the future force mix for the Air Force. Thank you very much.

END OF SESSION III