

Mr. Riki Ellison:

Good morning, ladies and gentlemen. I'm Riki Ellison. I'm broadcasting from a beautiful day here in Washington, DC. Probably one of the best days. The cherry blossoms are at peak in the Tidal Basin. It's just beautiful to be around.

Like I said, I'm Riki Ellison. I'm the founder and chairman of Missile Defense Advocacy Alliance that we built 20 years ago. And our sole mission, only mission, is to create, develop, and deploy missile defenses for our nation around the world to make our world a safer place. And it is absolutely required everywhere. We've heard it from testimony yesterday from our war fighters, and we're moving forward with that effort with great momentum coming behind us on that. This is our 58th Congressional Roundtable Discussion that we do, and it's pretty exciting on this one. This is: "From rhetoric to weapons in the US Navy's kinetic weapons in the sea lanes of the world."

Yesterday, I had the opportunity to sit behind Admiral Aquilino at the posture hearings at the House Armed Service Committee. And what it stands out from our Congress, and I'm going to say rhetoric, but from our Congress, from the leadership, is that we are not in regional fights with regional enemies. This is a global fight. This is a global movement, where Russia, China, North Korea and Iran share technologies. And specifically, just from our perspective, they are sharing with creating drones, creating missiles, ballistic missiles. They are sharing those lessons learned. And if you look at what's going on in Ukraine, they are producing drones by the thousands. They're on 24 hour shifts. That technology, it's not the technology, it's how they do it, has been proliferated to Iran, to proliferate North Korea. You're getting just a maximum amount of proliferation of cheap capabilities that we are seeing being distributed around the world and against us.

Because from that perspective, it is a cost curve. When you have a \$10,000 weapon coming at you and you've got to shoot it down ... and we have obviously some cheap weapons, but in depth, we end up, if you don't have enough, we end up shooting \$200,000 missiles or the Coyote system or the Roadrunner or the SM-2 or the ... It just goes on. And we have to do that. The cost of a \$4 million, \$2 million is still worth the cost of saving 300 sailors on a \$2.5 billion ship. That's worth it. But we are not winning this cost curve, and we've got to figure out a way to be able to reduce the cost of kinetic energy intercepts, reduce non-kinetic interceptors and put them more in the field to at least equal that cost of intercept. And you just can't ignore it.

Just like Ukraine. They lost their Patriot radar because they flew 75 missiles drones at that radar, and they were able to successfully take out 72 of them and they emptied their entire inventory, but two got through and did the job. It's also about being able to have enough capability, as well as cheap capability to go with it to get this moving. Without a doubt, our US Navy has the best weapon system for integrated, layered missile defense in the world. And they did that because they had to do with to protect the sea lanes. And the sea lanes have been challenged since the

early '70s and continue to be challenged. And so our Navy with MDA has developed the best ever layered missile defense system that goes all the way from space, all the way to a Gatling gun, if it gets close to the ship. And it is our best system.

And we're seeing that challenged. We're seeing the USS Carney in the Red Sea, and it's been kicking ass. Excuse me, it is been winning. And in fact, we have our missile defender of the year, by the way, the MDAA Missile Defender of the Year, she is the lieutenant commander of the fire control. I think it's Rebecca Fleming is on that ship. But the Navy is head of everybody in a single platform defending international sea lanes. This is where we want to go at. We want to ask our practitioners and experts in this panel to lean into this and give us solutions, give us what the problem sets are, and how we move to protect our Navy, but also how do we use those technologies to go elsewhere in the land and all the fight to be able to integrate.

That's where we're going with the discussion. I've got a great honor to have Tom Druggan with us. And these are practitioners. He is a senior associate at CIS, the Missile Defense Project. But much more importantly, he was a developer of the Aegis system, the Aegis weapons system. And having his insight of being able to understand where we're going and how this thing works and where do you get to a place where at least to get that cheap capability out in front is here. So welcome, Tom. Thank you for coming and I appreciate it.

RDML (Ret.) Tom Druggan:

No, it's a pleasure. It's also an honor to represent not only CSIS, but also Strategic Insight Limited which is the company that I lead here in Crystal City. So I'd like you to think about a world where we didn't have Aegis and what would happen in the Red Sea.

We actually have just proven the value of missile defense. Because otherwise any terrorist group, any small group, could shut down sea lanes globally. If you think about that impact, particularly in today's world where a terrorist group is not necessarily confined to a particular territory, and obviously, with communications today, things could be coordinated. Multiple, multiple sea lanes and choke points could be shut down all at once. Except, we do have missile defense. And we have air and missile defense, Aegis Weapon System on board our Aegis destroyers and cruisers, that provide that capability for the sea lanes to continue to be open and operate.

Now there's risk. There's elevated risk, no question about that. And you see that reflected in insurance policies and some companies saying, "Well, we're going to take an extra three plus weeks and go around the Horn of Africa to get to our port." But there's plenty of others that are accepting that risk, knowing that a large part of the threat is neutralized and mitigated by the United States Navy and the Aegis Weapons System. And the Red Sea is Exhibit A of that. I think the Houthis, really thought that they could shut down all shipping through their use of drones, anti-ship cruise missiles and anti-ship ballistic missiles. And my personal thought is there was a

calculus that the anti-ship ballistic missiles were a trump card that we wouldn't be able to defend against those. But we can. And Aegis has that capability.

We have over 100-plus attacks total. The mix of those is drone attacks, anti-ship cruise missiles and anti-ship ballistic missiles, which the Houthis did not make themselves. All that, most of that given to them. And so they're operating on behalf of Iran and some others in order to make a point and shut down the sea lanes and shut down international trade. And we're talking about one out of six, one out of seven tons go through the Bab el Mandeb and the Red Sea for trade. That's a huge chunk of world trade. This local event could have had a global effect, and instead it's been highly mitigated by the air and missile defense of the United States Navy.

I think that's a tribute to the work the Navy has done over the past, really 34 years, and how seriously we take air and missile defense. It's a tribute that we built on the air defense capability of Aegis and went the extra step with the ballistic missile defense. And frankly, with the Missile Defense Agency, having now investing in the light phase interceptor and Aegis weapon system, we're going to extend that capability again. So we're going from anti-ship drone and anti-ship cruise missile to hypersonic missile defense, all the way up to ballistic missile defense. All on the fighting integers, individual ships, which will have the full capability. At the end of the day, that's a tremendous asset, not just for the Navy, but also for the combatant commanders as well as the nation.

Because they're mobile. Each one's sovereign territory. We can put them where we need them when we need them. We operate at some risk. As we saw, our forefathers, the shoulders of the giants that we engineered on, were very prescient in the sense that layered was very important. Had we only invested in terminal defense, I'm sure that we would have damage to an American ship. You have to be able to attrite these raids over time and battle space, and you have to be able to hold the archer at risk.

Today, the preponderance of our effort is defensive from the United States Navy. We're doing some offensive operations, but as you heard in testimony over the past week, we are not at the point of dissuading the aggression. Things are not slowing down. Unfortunately, this appears to be a steady state of arms flowing to the Houthis, and then they're using them, against not just commercial shipping, but our allies, the warships of our allies, and the United States warships. That's a geopolitical situation that has long-term consequences.

Mr. Riki Ellison:

With the low cost of being able to do it. They're able to-

RDML (Ret.) Tom Druggan:

Well, that's right. The low cost of the drones, which can deplete inventories.

Mr. Riki Ellison:

Correct.

RDML (Ret.) Tom Druggan:

So we've known drones have been coming. Just to be clear. We've known drones are coming for a decade. In fact, if you go back in time, Aegis used to not track drones, because they looked very much like clutter, atmosphere, particulate matter. But we knew they were coming. So we improved the program so that we could track UAVs, UASs, the nomenclature.

Mr. Riki Ellison:

How long ago was that?

RDML (Ret.) Tom Druggan:

About a decade. And to get that capability. So we knew they were coming. Now, we also want other ways to shoot them down besides missiles. But that's not where we are today. The systems that are coming that are counter-UAS and counter drone are being fielded, but not at the pace where they can be just pushed out right to these ships. We have a developmental laser program, but that's only been fielded on one ship. We have some electronic warfare techniques that we can use and systems we can use. Those aren't widespread. I'll talk about it later. That's not a panacea at all. It's still a problem for the commanding officer. He has some key choices to make in defending his or her ship.

When you get to the non-kinetic side, it's not a panacea, it's not a silver bullet. There's still important decisions to be made there. And then some other kinetic weapons. Fortunately, we've started to use 5"/54 and 5"/62 lightweight gun mounts to work on the drone problem, so we can get on the right side of the cost curve. That work has been going pretty well, and there's been good success there. Some of, again, our electronic warfare systems, the ones that are out there have been successful.

Unfortunately, both those are pretty close range. And that's the conundrum.

Mr. Riki Ellison:

Can you get those systems out of a ship into the water in front of ... is that where we're going with that?

RDML (Ret.) Tom Druggan:

Well, one of the things we should go is we should have anti-drone drones. Counter-UAS. Not just systems, but drones, which can then be placed out at range as a parameter. So why can't we do that? Well, we can. We could.

It's a matter of will and approval and then pushing those out. And those could be standalone systems. They don't have to be integrated. When you get to the laser, when you get to some of these other electronic warfare, they would be most effective if they were integrated with Aegis. Right now, the impetus is to get those systems out, and the integration then follow. Sometimes that doesn't always happen. Once systems are out, we forget about the enhanced capability that we could have if we actually integrated it with the full sensor suite and the full command and control of the Aegis Weapon System. So that integration does not always happen. Hopefully in this case, given the fact that this is going to be a pervasive threat going forward, no question about it. Even more pervasive on ground warfare.

Mr. Riki Ellison:

When did they get to the overmatch point? Have we reached that where they can overmatch the system with the-

RDML (Ret.) Tom Druggan:

So any system anywhere, and you saw this in Ukraine with the PAC-3 radar, can be overwhelmed. Now, we have some advantages in the Navy where anything that's launched against us has to have a seeker because ships are moving all the time. We also have sea space. So that if we need to buy time and battle space, we can maneuver at high speed and buy some. Now, against an anti-ship cruise missile or an anti-ship ballistic missile, that's not going to change the calculus because they're so fast.

Against a drone, that's only going 100 miles an hour, 60 miles an hour, 150 miles an hour, you can buy time and battle space with maneuver, and that gives you other options. And we've only been talking about single ships so far. We can always operate in packs. We can always operate in packs. We can always operate in multi-ship events, exercises, but importantly, naval operations in this case, and that gives you options.

Mr. Riki Ellison:

That's different than carrier fleet escort and all that.

RDML (Ret.) Tom Druggan:

Or just multiple user ships working together. Very powerful.

Mr. Riki Ellison:

Could you talk a little different about the Taiwan Straits with the ships, versus the Red Sea? Is that a different strategy?

RDML (Ret.) Tom Druggan:

The primary difference is scale. If we have a conflict in the western Pacific, it won't be every few days or once a week that there's an attack. It'll be full on to pushing through, constant combat. The scale is not a few drones, it's many, many drones. It's not a few anti-ship cruise missiles, it's scores of anti-ship cruise missiles. It's not a few anti-ship ballistic missiles, it's scores of those as well. Again, we have advantages against each one of those types of threats. One is, you're in the Taiwan Straits, you lose some because it is clear where you are, but maneuver plays a key part.

Mr. Riki Ellison:

Is that undefendable?

RDML (Ret.) Tom Druggan:

I wouldn't say it's undefendable. Remember, we're not a one trick pony. It's not the United States Navy by itself. There are other assets out there to help the joint force. This includes everything from left of launch and to bringing in air power, whether it's naval air power, or whether it's air force power. We do have some levels of INW. What would take us to the straits in Taiwan? Number one, it's freedom of navigation operations. That's just a reminder that hey, these are international waters. I wouldn't expect a conflict to arise from that kind of operation. Will we be followed? Will we be tailed? Yes. Possibly targeted? Yes. Do I expect a kinetic launch during a freedom of navigation operation? I would not. There would have to be something else going on. What else would take us there? That would be armed conflict, an attack on-

Mr. Riki Ellison:

But there are critics in Congress that say, "Why do we need aircraft carrier, because we can't defend..." Can you defend the aircraft carrier-

RDML (Ret.) Tom Druggan:

You can defend the aircraft carrier.

Mr. Riki Ellison:

... against overwhelming missiles? That's where you have to back your carrier a lot.

RDML (Ret.) Tom Druggan:

If you're going to back us into a box and say the carrier is all by itself and there's a million missiles coming, come on. That's not the world we live in. The world we live in is much more complex. There's lots more options on the table. And that includes not just Navy options, but joint force options, includes national options, all of which on the tables. There's denial of adversary capability, there's deception, there's maneuver, and then there's layered defenses. Is it an impregnable citadel? No. Is there acceptable risk here to move in and do what we need to do? Absolutely.

Mr. Riki Ellison:

But we're trying to figure out the gaps. We're trying to do everything we can-

RDML (Ret.) Tom Druggan:

Listen, Admiral Aquilino is a true war fighter and he is leading the thinking and the strategy in INDOPACOM. And they've got multiple options on the table. But you can't just say, "Well, in this situation..." Situation's going to evolve. There's options every step of the way. And remember, we're trying to deter and dissuade, and that's important. That is one of the concerning things about the Red Sea, is that according to the testimony, Iran is not being deterred or dissuaded in supporting the Houthis. So again, we're at a steady state, which is not a good place to be with ordinance. The combat environment being launched against commercial shipping and allied shipping and United States Navy warships on a regular basis. So there's different ways to change that. One's diplomacy. One's military offensive action. One's threats, one's sanctions. Lots of options here is currently, the mission occurred, of course, assigned to the United States Navy is air missile defense of the Red Sea and all assets there.

Mr. Riki Ellison:

Let's go back to the Pacific. Can you just talk a little bit about hypersonic glide interceptors or hypersonic-

RDML (Ret.) Tom Druggan:

Sure. Yeah, so let's talk about it.

Mr. Riki Ellison:

This is a threat that's grown.

RDML (Ret.) Tom Druggan:

No, it's very good because there's a lot of misconceptions about hypersonic weapons. All right, we've been doing anti-ship cruise missile defense for decades. All right, so that's number one.

We've been doing many decades. We've been doing ballistic missile defense. Well understood. That's intercepts in space. And also for terminal. We've been doing that for a few decades now as well in the United States Navy and the Aegis weather system. Hypersonics. Let's talk about hypersonics. When you talk about hypersonics, you have to divide the conversation. You have to know what you're talking about because context matters. I've seen good people, really smart people talk past each other because one was talking about hypersonic missile defense against nuclear armed hypersonic threats if we're the homeland. That's strategic deterrence, that's national policy. And that's where we have our nuclear response. That is not what most of the time what we're talking about. No threat. It's the regional threat-

Mr. Riki Ellison:

But Guam or Hawaii are US homeland.

RDML (Ret.) Tom Druggan:

No, no, no. But the dividing line here is nuclear threat against the homeland. In which case we have a strategic deterrent posture, which is a nuclear response versus conventionally armed hypersonic threat. See, you walked right into it. So where the navy is the primary capability that's being developed is to be able to take on conventionally armed hypersonic threats. Because if it's nuclear armed, we have a strategic deterrent posture.

Mr. Riki Ellison:

Can we distinguish between that?

RDML (Ret.) Tom Druggan:

You don't know ahead of time.

Mr. Riki Ellison:

So how do you... Okay.

RDML (Ret.) Tom Druggan:

You don't know ahead of time.

Mr. Riki Ellison:

You have to wait and take the first hit?

RDML (Ret.) Tom Druggan:

Well, your choice here is to assume it's nuclear. We're going to rely on those strategic deterrent policy and we're not going to invest in a conventional capability, in which case you're giving the enemy a free shot with conventional arms.

Mr. Riki Ellison:

Is that what we're doing?

RDML (Ret.) Tom Druggan:

No. What we're doing is the smart thing-

Mr. Riki Ellison:

Not to 35.

RDML (Ret.) Tom Druggan:

Well, right, but at least the investment... We talk about the scale of investment, but the investment has started. It is there to develop two pieces of a glide of a hypersonic threat counter, hypersonic missile defense. The first one is-

Mr. Riki Ellison:

The ships, right?

RDML (Ret.) Tom Druggan:

Hang on. The first one is the ship. And today we have a full capability for hypersonic missile defense in the terminal. So we got that. Then we want to add a layer. Why? Because you need to track the raid over time in battle space to make sure that you can defeat the whole raid. That's why the glide phase interceptor program exists. It's at a longer range. The point there is to get the hypersonic threat in its cruise phase where it is not maneuvering very much, and it is a straightforward target.

It is an easier target than terminal. Much easier. Order of a magnitude easier to take out a hypersonic glide vehicle or hypersonic threat in its cruise phase than it is in terminal phase. No question about that. So then we get to targeting. Well, we have the organic capability with the spy radar. We have multi ship spy radars, both of those very good in this realm. And then the Missile Defense Agency. But that's still kind of local. Maybe area. But for these threats, because they are maneuverable over long distances, we have to get to a space-based tracking solution for cradle to grave track custody. Got to have it. So the HBTSS system. Hypersonic and ballistic threat surveillance system is going through prototyping this year they're up.

Mr. Riki Ellison:

Yep. They've been tested. Yep.

RDML (Ret.) Tom Druggan:

And now that's being filled it. And then it'll be over to the Space Development Agency. And to put this on one of their tranches going up in the future to provide a 24/7, 365 global surveillance capability against hypersonic threats. And from space hypersonics, absolutely detectable. And we already know that. So now it's all about what kind of constellation do you need? Where do you put it? How many do you put in the constellation? Which part do you start first? So those are all important. So back to the glide phase interceptor. Glide phase interceptor is down to two competitors and the technical risk is really just in that terminal guidance part. So this is not, we're out of the science and technology, we're out of guessing, we're out of the really hard work, and we're in. It is very doable and it's straight engineering. The path is clear in order to get a capability.

Mr. Riki Ellison:

Mark. Okay, so thank You, Tom. What a great conversation. All right, mark. So we have a practitioner, I mean Mark's on our board. He's obviously [inaudible 00:25:38] of the three, in INDOPACOM or PACOM when it was well known strategy of US Navy. Ladies and gentlemen, Mark Montgomery.

RADM (Ret.) Mark Montgomery:

Thanks. So first I'll talk about what's going on in the Red Sea and then maybe a little bit on hypersonics. First, there are some things, there are four positives, four affirmative things we can take away or that we can see in the operations of the Red Sea over the last five months. Number one is validation, as Tom referred to. This is validation of the Aegis weapon systems and the surface warfare operators that have been utilizing them. It's something we don't get in the surface Navy that often, maybe once every 40 years. So I mean, this has been a good experience. And for those of us who come from an Aegis background, build a little test a little, learn a little. We're learning a lot. And this is good. It's not just good for the several hundred fire controlmen, OSs, officers, and gutters mates that are operating this equipment. But it's also really good for the system engineers because we have really invested a lot over the last few years — in fact, Tom did when he was in the job — in our ability to rapidly turn around assessments of shots and get that information back to the warfighter, enhance your doctrine, enhance your skill sets. So I think that's been really good.

We've had some accidental validations of CIWS. That's something I think I've wanted as a CO, but glad it worked. And so I think that there's been some of that. I think Tom's right. It has taught

us a lot about the high cost right now of almost all US Navy assets being used. I recognize CIWS and guns present some opportunities, particularly CIWS. It's not one that you rely on for a first effort, but to me, that's been good. And I think also the ballistic missile shoot-downs are good.

I think we learned a lot from that. There is some good validation of things we assumed would work but now know would work. By the way, we're shooting down slightly unstable weapons. That in and of itself gives us more validation. Sometimes, it's easier to shoot down that nice Kratos missile that we built and polished to a fine hue and then launched at you. And it did exactly as expected, nice kind of hillbilly ballistic missile that's pulling lefts and right jinks and jags all the way into the shot.

So for me, number one is validation. Number two is, let's remember who did this. It's Iran. I get it. We say it's the Houthis. But so after the three service members were killed at Tower 22 in Jordan, we started to strike back finally way too late, but still struck back both in Iraq and Syria and down in Yemen.

The attacks from IRGC proxy groups in Iraq and Syria against our forces have stopped. But the Houthis are still attacking. And as Tom said, the Houthis do not have a ballistic missile or cruise missile, or even a drone missile factory. They're getting these pieces and parts... They may assemble some of them in Yemen, but they're getting them from the Iranians, either by sea or by a short sea, followed by a land bridge over Oman. At some point we're going to need to hold that supply line accountable and strike that, either strike shipping or strike... Inform the Omanis, "You have 24 hours to stop this." When they don't stop it, call them the next day to say, "That was us who violated your sovereignty and struck all that supply chain moving through your country." But we absolutely have to knock down the supply chain from Iran and hold them accountable.

I do think probably a little different than Tom on this. I do think it's still impacting trade, particularly on the oil and LNG. I think there are such short margins, and low margins on cargo shipping, and container shipping that a higher percentage of that is still making the run through the Suez. But overall, Suez tickets are down about 45% still. So I mean there is an effect. And then that extra 10 to 20% cost in shipping introduces a mild inflationary effect inside of Europe. So there's still some impact, and so I like it. And I'm not sure that we're actually protecting US ships only because there isn't a whole lot to the US merchant these days. There's not a whole lot of US ships out there. But we are protecting shipping, and this is a principle that all of us who served in the Navy have believed in for 225 years, or probably since about 1810, 1815, that we are one of the nations that protects the world's shipping lanes. So I think, so number two is Iran.

Number three is, holy crap, we need to get our directed energy act together. Tom referred to it, but we need to get the HELIOS system out. Look, the reason we're not good at directed energy, in my opinion, is senior officers like myself and others... I won't throw Tom in this bus, but he might belong in it with me, who five and seven years ago or even 10 years ago, we just kind of like things that crash into each other. We're like, I get how you destroy that missile with another

missile. Directed energy just had too many unknowns to it. Well, let's be clear, they aren't all solved, but they're broadly at an engineering level resolved. We can have directed energy. We have a system HELIOS, a high-energy laser and optical dazzler and surveillance system.

It happens to be Lockheed Martin, but it doesn't have to be. It's about at 60 kW plus. We have one of them, as Tom said. I'll add and say it's Preble is our test ship. Slight Navy oops is that we assigned the Preble for a home port shift, not the test range. So we need to get our act together quickly on that. We need to get these directed energies out there. The Army which also struggled with this is finally getting its directed energy systems in the Middle East. And the Israelis, probably the other country of our allies who really tracks for this on this is still working hard on Iron Beam, but a lot of work needs to be done. And I do think we could be getting a little bit of the old, build a little, test a little, learn a lot if we had HELIOS out in the Red Sea right now.

But so, from my point of view, we've got to get to work on that. What this is mostly about is what Riki averred to: the cost curve. In the end, our adversaries build, particularly drones, but even their cruise and ballistic missiles for quite a bit less than our intercept costs of a SM-6 for a ballistic missile, or an SM-2 for a cruise missile, or an ESSM. It's only when you get down to the gun rounds that we get kind of on a par, but directed energy and obviously CIWS is a cost savings, although at some risk. We need to get these directed energies in there.

The thing I would say, one thing this is not, it's not a validation of our tactics and readiness for Taiwan. This is not the Taiwan fight. Tom referred to some of the issues in there. I agree. The speed with which you go Winchester in a Taiwan fight can be measured in watches. That's four-hour-long watches, not days or weeks. By the way, a good lesson learned from here, you better learn how to reload at sea soon, and if you can't reload at sea, then you better be able to build temporary reload facilities rapidly in lots of godforsaken places because we're going to have to be able to ... You can't be sending ships back to Rota or wherever to get a reload. You need to be sending ships two to four to 600 miles for a reload or go to an ammunition ship for reload, if we could get to that level of skill set.

By the way, we had the same issue with torpedoes. We had to figure that out for Taiwan. We got to figure it out from the surface ships, too. But it reminds us that surface ships will be operating in combat. Sometimes when you think about combat in Taiwan, you tend to hear Mark 48 ADCAPs, and then LRASMs and power JDAM and other things off of B-1s, F-18s, F-15s, maybe eventually B-52s on the LRASM and that's it. But the reality is we're going to start delivering maritime strike Tomahawk. It suffered a little bit from being the Phoenix Suns of anti-ship missiles in the sense that it's taken every two years, it seems to be two years away. But I think we're getting close on that and as we deliver that to the fleet, I think surface ships are going to be closer to the fight and they're going to have to be able to fight individually or in small surface action groups. So this is a little bit of validation for that, not a lot.

The final thing, I do want to jump into the hypersonics and just say on hypersonics, I agree with Tom, there's two capabilities. There's a terminal one, and then there's a glide phase intercept. On the terminal one, you better thin the herd, right? I don't want to get into too many techniques involved, but you don't want a whole lot of inbound in the terminal phase simultaneously. You want to thin the herd. You thin the herd in the glide phase. We've known this. We have systems. The problem we have is we have two competing systems that are not on the same timeline and the Navy, and more broadly DOD is trying to get ... At some level, I wouldn't say we're delaying it, but we're certainly slowly rolling the development as we try to get these two ... That's a mistake.

My personal opinion is we're working offensive hypersonics like a drunken sailor. We had eight systems, we're down to seven. We might be down to six soon, but we're going to end up with three or four because I can count three or four services and every service wants a bite in this game. Even the Marine Corps is going to try to figure out how to be there, but the Navy, Air Force and Army each could have weapon systems. There may be multiple ones in the Air Force particularly, but the bottom line is we're building three, four, five different hypersonic attack systems. We're getting up towards the six, eight billion a year in spending on that. We're definitely four to five billion right now. And yet we're spending on the hypersonic missile defense effector, DOD's persistent input is 195 to 250 million a year. Look, I'm not a rocket scientist like Tom, but I can tell that if you're spending four billion to six billion on one end and 200 million on the stop-them end, you're out of sync, right?

I'm not saying lower the offensive, I'm saying put more into the defensive. By the way, bet on both systems, and as soon as one system's ready to go into production, downselect to it and move out. And if you're wrong, this is the exact kind of thing you could be wrong on. We've heard the Department of Defense over the last three sectors say, "We got to take more risk. We have a broken acquisition system. We've got to take acquisition system. We got to take more risks. We got to do more things." Well, here's a perfect example to do it. Hypersonic defense, bet on one system, continue to R&D the other. If it turns out to be kick-ass, bet on that system. And you know what? Having two types of interceptors in the hypersonic glide phase might be good because there are different types of hypersonic attack weapons, whether they use scramjets or not. Issues like that, that definitely would want you to have varying types of interceptors on the defensive side.

So from my perspective, we have got to get hot on this, Riki, and there is no way that the FY25 budget committed last week meets the congressional mandate to have an initial operating capability in 2029. I think that with the DOD's current planning, we'll be lucky to see an IOC by 2034, 2035, and I'll just, for any of us that are going to be operating on those ships or have kids or grandkids operating on those ships, that's a pretty BS answer to say we're going to allow the adversary to have a capability out there for three, four, five years for which we have no answer in the main, where we can't thin the herd and give the terminal defense a chance to win.

All right, I'll pass it back to you if you have any-

Mr. Riki Ellison:

Mark, Mark, Mark, what's the answer then? What is the answer? Is it to plus up money to that, to get-

RADM (Ret.) Mark Montgomery:

So Congress, what it does every year, is double the R&D so that you can pay for both companies to go through it.

Mr. Riki Ellison:

They're still doing the timeframe.

RADM (Ret.) Mark Montgomery:

Then DOD needs to downselect, and Tom and I have talked about this separately, and if you did a downside, that would cause a real budget item to pop in for operational testing and procurement and eventually low-rate initial procurement for a system. But you can't get to that until you get out of the R&D and get a downslide decision. So double the R&D again is the ... I think we just saw that in the 2024 budget that's signed out a couple hours ago. In other words, DOD put in, I think, about 200 million. I think the number's going to come out at four million. It literally just popped, so we had to take a look. But on top of that, take the 2025 one, increase that and then give them the money to support a downslide decision. If they don't do this, Riki, they're not going to make 2029.

Mr. Riki Ellison:

Well, what's the best scenario? How many years would that knock out from '34, '35 if you did it this way? Would we have it in '30 or '31 or '29 or '28? What's-

RADM (Ret.) Mark Montgomery:

I think if you fix this in the '25 budget, really fix it, I think you could be supporting some kind of LREP for initial operating capability in '29, but you'd really have to do that. Now, and DOD would have to be stand up, do their job and push one of the systems in. And as I said, I'm not against either system. I think both of them need to be produced just like I think we need three, four, or five offensive systems.

Mr. Riki Ellison:

But on this system, MDA's got to be the enabler, right? Is it MDAs got to be able to do this?

RADM (Ret.) Mark Montgomery:

Yeah. This is MDA. This is not the Army or the Navy. As it happens, I think one of these interceptors might be something the Navy would recognize and one of these systems might be something that the joint force collectively might recognize. But I think the department, this is not MDA. This is the Department of Defense not prioritizing this issue. We know that. I don't understand why. I can't believe it's money. They're spending 900 billion or 880 billion a year. We're not talking about big money. We're talking about pocket lint on that budget. I think it's a principle that they just don't see the sense of urgency that a lot of the rest of us see.

Mr. Riki Ellison:

I believe it was up there 27 for the last five years and they still are not moving. Tom, do you have any thoughts on this?

RDML (Ret.) Tom Druggan:

And just that the hypersonic glide threat, the hypersonic glide vehicle, which is a hypersonic missile threat, has been fully tested and is in production and that's a problem for us, right?

RADM (Ret.) Mark Montgomery:

I mean, the enemies. The enemies.

RDML (Ret.) Tom Druggan:

Yeah. The enemies. The bad guy.

RADM (Ret.) Mark Montgomery:

That's a mismatch.

RDML (Ret.) Tom Druggan:

And the other way to say that is the threat is coming now. It takes a while to build up numbers, but still the threat, all the ... They have tested their way, they have tested their way to the capability,

Mr. Riki Ellison:

But you both agree that you can move that from '34, '35 to '29 under recent conditions.

RDML (Ret.) Tom Druggan:

This is why it's important to recognize that we're through the S&T. If we were still in S&T and there's really high risk areas, particularly multiple high risk areas, then you can't say that because you're deep in the unknown. That's not true here. There's one risk area. I don't even think it's high risk, right? It's not. And everything else is strange, much of which has been done before. So we're really talking about the front end of this missile. We're not talking about the booster. We're not talking about the first stage. I'm not talking about the second stage. We're not talking about the third stage. We're not. We're talking about the front end and we're only talking about a couple items in the front end. That's it. That's it.

RADM (Ret.) Mark Montgomery:

Yeah. I think the risk is- First of all the DOD is nefarious. They will embrace ... I'm for doing things with Japan. I want to do everything we can with Japan, but I don't want to bring Japan into this unless it's in a completely non-delay way. I think DOD on the other hand's happy to bring them in a way that delays things. And look, I can't understand it. I think it has something to do with, Tom referred to earlier about there's a nuclear, non-nuclear kind of thought process on this, and there's still a handful of people who mistakenly think that this kind of missile defense is strategically destabilizing. That is insane.

I will tell you what's destabilizing is your adversary having a conventional capability that shwacks every IRBM and SRBM and cruise missile capability you have on night one so that the next day, all his other stuff hits you. They're going to do that in a way that kills hundreds of sailors or soldiers, not millions, like a nuclear thing. And suddenly, the idea that you would respond in a nuclear way to a conventional hypersonic attack is completely illogical.

RDML (Ret.) Tom Druggan:

So today was worth it just for this discussion because this point, that hypersonic threats may be nuclear, but just because they may be doesn't mean they are. And you have to assume in a regional fight, they're conventionally armed and we have to have a response.

Mr. Riki Ellison:

Okay. I want to just shift it for a little bit before the questions back from a 20 million interceptor, I don't know what that cost is going to be for that thing, but it's going to be a lot, all the way down to the overmatch that could happen on our ships with cheaper capability weapons coming at us. What are the best ways, whether it's electrical railgun, laser, or getting sensors and shooters away from the ship out there beyond the line of sight to develop? Is that doable because the cost is too much for all these weapons. I mean, you're not going to get these ships fully capable, I don't think. So how do you reduce some of the costs that we are in to do these intercepts by having innovative technology? I'm just throwing it out there.

RDML (Ret.) Tom Druggan:

So one is directed energy, right? So we'll say lasers. HELIOS is a good example, exhibit A.

So the other thing is electronic attack, right? That's where you have an active EW system that's really putting energy and trying to burn out electronics. UAVs, drones highly susceptible to that kind of attack. So there's that. There's smaller kinetic interceptors that are much shorter range, but you could have them in quantities, albeit doesn't exist today, right? On top of that, you can have anti-drone drones, counter-UAVs systems, okay? They exist. They're just not on Navy ships today. Could be. So there's good options everywhere. There's even, with some radars, you may be able to put energy on something and have an effect. All of that is a rich environment for us to get after.

Here's the conundrum. Every commanding officer, every commissioned officer sworn to protect and defend the United States of America, right, against all enemies foreign and domestic, Chapter 8 of Navy regulations, the commanding officer is responsible for the defense of their ship, period. Doesn't say just in peacetime, does it say just in wartime. All the time, and to use all tools at their disposal, right?

So what is the CO to do? What is he or she to do when there's a raid of cheap drones inbound, how long are you asking them to wait? Are you going to ask them not to use a missile and wait for one of these short range systems to have their effects?

It's a conundrum. And when you have the duty to defend your ship, or in this case, international shipping lanes and commercial shipping, yes, non-US, your duty says, use all means at your disposal, which includes your more expensive air defense missiles. It includes everything you've got, and frankly, you'd like a little time. And to wait for an electronic warfare system to be effective, you have to wait until they're pretty close. That's the conundrum. And then you're not guaranteed that they're all going to work because if the raid is large enough. How's your electronic warfare, your laser, your gun? How's it going to service all those targets? This is the conundrum, right?

Mr. Riki Ellison:

I'm going back to-

RADM (Ret.) Mark Montgomery:

No, actually-

Mr. Riki Ellison:

Go ahead.

RADM (Ret.) Mark Montgomery:

I agree with that. And I think we have to get an in-depth defense of the shorter range, lower cost systems. In other words, I think it's reasonable to go to a CO, just like I don't think we're using SM-6s for cruise missile intercepts. I hope I'm right on that. And they're being used for ballistic missile intercepts. But SM-6 is a fairly expensive weapon as we repurchase them. Although it got cheaper by today's deal, I think we will get to start getting into multi-year in many of our weapons systems, which is a big deal. But lowering that cost means creating, of all the systems Tom and I referred to, directed energy, counter-drone drones, although those Coyotes aren't that cheap, gun system and active EW. If a CO has three or four layers of that, it's reasonable to allow drones to be done with that and an ESSM in a last-case event. But where you pull that... You could get more of those other systems into play before your last chance to fire on an ESSM kind of shot. But we have to create that condition for the captain. She or he doesn't have that right now. That's one of the things we have to go back and rework.

RDML (Ret.) Tom Druggan:

We don't know that they work yet, right? That's the other piece. Real quick, real quick, what we know from the Red Sea is Air and Missile Defense did exactly what it was supposed to do, which was to buy time for national decision making. And it has done that in spades and it's doing it, not just day after day, but now week after week and month after month. Missile Defense has served its primary purpose of giving strategic time for strategic national decision making. That's critical. That's number one, actually, of why we need Air and Missile Defense. Then you get to the tactical piece, then you get to the rest of it-

Mr. Riki Ellison:

Let me just...

RDML (Ret.) Tom Druggan:

...but it's done its job there.

Mr. Riki Ellison:

Thanks, Tom. Mark, let me just throw this line on because I'm looking at Ukraine and what they're doing in the Black Sea, being able to track Russian drones and missiles coming over the Black Sea with buoys and sensors on that, why aren't we looking at real application of putting that kind of... Whether it's a remote boat, little boats around your ship to be able to pick up in front like that, or unmanned capability, what sensors to be able to pick those things up, why aren't we thinking about that? Are we doing that?

RADM (Ret.) Mark Montgomery:

Riki, when I think about this, first of all, what we're really talking about here is the interceptor costs. Our detection and systems has been good. Now, we do need improved detection capabilities. I'm not sure moving ships that move and carrier strike groups that move rapidly, laying buoy networks down, there's a value in that.

But the real value is in a littoral environment like the Pacific, where you have a bunch of land bases that you need to protect, like Mitsawa, Okinawa, Guam, Tinian, the compact states, things off of the Philippines, having extra sensors out there that would improve your situational awareness of an inbound threat, both in terms of... It might not be fine track quality, if it's in some kind of acoustic sensor out in the water, but if it's a dirigible up in the air, it could be firing quality.

We need to understand that there are other sensors out here besides our traditional radars and our electronic warfare systems on board ships or land base that we could really help us. And the Israelis are using dirigibles, the Poles are aerostats, the Poles are buying them. We defended Washington DC with them until we got embarrassed. We need to bring back aerostats. We need to investigate the use of acoustic sensors along the way. That's how we hunt submarines. We lay buoy lines, right? And then they-

Mr. Riki Ellison:

Just out of curiosity, who's in charge of this? What service is defending... Is that the navy now? You put that on the Navy for the sea around the island?

RDML (Ret.) Tom Druggan:

It's in the Air and Missile Defense community.

Mr. Riki Ellison:

That's going to go back to the Army?

RADM (Ret.) Mark Montgomery:

Because, look, the principal beneficiary will be the basis whose GPS coordinates can't change. They're the ones that are going to need... And, more importantly, when you're laying the defensive network, they can enhance that known GPS. And same with the aerostat. These are the kind of things that... And, look, the Navy happens to bring E2Ds with it a lot of the times, which is the same kind of service as the aerostat, and we have lots of them and they're ready to go now as opposed to, say, the Wedgetail, which is still a half a decade to a decade away from full operation, having a reasonable number.

My point on this, Riki, is I think it's probably the Army, which is, as someone who's worked in this area and been a fairly joint officer for the last 15, 20 years, it pains me to say that because they have historically been challenged to innovate in this area, is the nicest way to say it. It doesn't mean they don't kick butt once they get something. Our patriot war fighters are excellent, but getting yourself to that point has been a challenge for the Army. But I do think the aerostats, and any kind of acoustic sensor systems, probably because they most support a ground base that the defense of fixed sites, like air bases and logistics, it's going to have to be the Army.

Mr. Riki Ellison:

The Navy's not getting stuck with it, like Aegis Ashore, right? This is going to go right to the Army-

RADM (Ret.) Mark Montgomery:

And by the way, the Navy wasn't stuck with Aegis Ashore. We need to get off of this because the Navy has adopted a framework that Aegis Ashore is bad. As a result, our submarine base in Guam is not defended. If the Navy had allowed Aegis Ashore to go into Guam three years ago, when the CNO was asked, and ran from it, like it was a case of COVID on the Theodore Roosevelt, we'd be in a much better position. We would be building a deck house now with a Spy-6 or Spy-7 radar on it. We would have a VLS installed, we'd have an Aegis C2 installed, and we'd be able to shoot down ballistic and cruise missiles, we'd have to do some overlay and testing, and we'd be in a position where we could put-

Mr. Riki Ellison:

You say you have the capability by '27, that the war fighter wants?

RDML (Ret.) Tom Druggan:

By 2025.

RADM (Ret.) Mark Montgomery:

100%. 2025.

Mr. Riki Ellison:

By '25.

RDML (Ret.) Tom Druggan:

We would've had it.

Mr. Riki Ellison:

We would've had it. Would have, should have. Yeah. That's amazing. It's amazing.

RADM (Ret.) Mark Montgomery:

I blame the Navy for this. DOD made the final bad decision and they were given bad advice by JIAMDO, but in the end, the Navy, taking one step back when they said any volunteers, please step one, step forward, really didn't help the joint force here. And, look, getting sailors to live in Guam is not a problem. This was a complete misunderstanding of the challenge facing them that we have in Poland and Romania. We're getting sailors to go on TDYs there is painful. Guam is a well-respected and reasonably easily filled spot and we would've had no trouble getting sailors from Japan to come over to Guam to man that.

That was a complete fiasco and we're suffering for it. All the questions that we got ahead of time from people had to do with why couldn't we defend Guam and what's the Navy doing to defend Guam. My answer is that we made a mistake five years ago. I'm sorry. About four years ago, the Navy did, and we're living with it now because that was amplified by JIAMDO and the Office of the Secretary Defense.

Mr. Riki Ellison:

Thank you. Do you want to hit a couple of questions, Mark, or do you want to say something, Tom? Do you have any questions?

RADM (Ret.) Mark Montgomery:

We had hit them. Honestly, Riki. I'm looking at all seven of them.

Mr. Riki Ellison:

Very good.

RADM (Ret.) Mark Montgomery:

The one hit was cybersecurity or cyber as a role. I think if we think that a directed energy and an active EW are challenges to convince the captain to use those, telling him some kind of cyber attack on an inbound missile... The cyber attack's got to be on the targeting systems hours before. The questioner is right, cyber is part of it, but it's part of the operational line of effort, not the tactical line of effort. The tactical line of effort is what Tom hit pretty hard early on. Active EW, guns, I throw ESSM in there and then some active drones. Tom, why don't you give us a minute or two. Riki, if it's okay with you, we'll have Tom in the mix.

Mr. Riki Ellison:

Yeah, yeah. Tom's got it.

RDML (Ret.) Tom Druggan:

I want to go back to the Pacific and Mark's point that the Red Sea is not anything that we would see. We should recognize we're not going to have ships in the Taiwan straits duking it out in high kinetic combat situation with the Chinese Communist Party. Not the place for surface ships, right? Might be a place for other US assets, but not surface ships in general, right?

The job of the service Navy at that point will be to preserve the striking power that comes from our aircraft carriers. A maneuver will be high on that list. Deception will be high on that list. And being a fleet in being, and always a threat, is important unto itself regardless of how it's being used. The survival of the fleet is very important because it's a constant and present threat to the adversary and, being so mobile, it becomes a very difficult problem in the calculus for the Chinese Communist Party. If they can destroy our carriers, then they don't have to worry about that and it's really down to air power, if our... Air Force air power. If the carriers remain as a fleet of being, and we did this a lot during World War II to make sure that when we did engage in combat with the aircraft carriers, it was always at an advantage. That'll be important.

We will be fighting at the joint level and the national level because of the range of the Chinese threats. These are the anti-ship ballistic missiles, DF-21, DF-26, and this is where Left of Launch and those kinds of cyber attacks or spec ops or whatever, to neutralize those becomes really important. None of us want that. We want to stay in the deterrent of sway. At the end of the day, you get questions like, what if? And the answer is the United States Navy will answer the call of the national leaders. Period. Whatever they are.

Mr. Riki Ellison:

Yep. Okay. I think we're good. Do you have any closing comments you want to...

RADM (Ret.) Mark Montgomery:

I'll just say, look, again, what I would say is our sailors and officers have done a fantastic job in the Red Sea. I think they've been managed well, and this includes the one striking targets in Yemen every 48 to 72 hours. But the kind of whack-a-mole we're doing in Yemen, and that's not cheap either, and expending weapons at sea, there is a way to be slightly more cost-effective, and that's to shoot the logistics train en route. And we've got to remind ourselves... And, look, I get we can't strike Iran proper, but we could do a lot short of that, and we should be doing more to make it a little bit safer and less expensive for all of us.

Mr. Riki Ellison:

Thanks, Mark. Tom, you want to...

RDML (Ret.) Tom Druggan:

No. Thanks. I appreciate the engagement. This has been excellent. Again, totally worth it just to divide the discussion between nuclear armed hypersonic threats and conventionally armed, which we do need a defense for, right? Totally worked it for today. Covering the events in the Red Sea. Just so proud to be a warrior and the sailors and officers operating the Aegis Westman system have just done a phenomenal job and just really proud of... I'll make one last note: USS Carney, that you opened with, it's one of our older DDGs, right? And it's being effective in a combat situation today.

Mr. Riki Ellison:

That's wonderful. Just like all of you said, the integration of offense and defense with offensive strike and defensive is the way to play the game. It's the way to win the game to reduce the cost, but we're seeing that with Navy first. I think we're seeing that integrated fires with Navy on these ships. Awesome to pinpoint the Red Sea strategies and what we're doing there with the ships there and also give a bigger perspective on the deterrent of China with what we're doing.

You laid out really distinctly that we have engineering capability ready to go, that we can move that ball from hypersonic glide strike from 34, 35 to 29. This laid out the case. You laid out the case, Mark laid out the case. That gap's got to come to that side. And I think that the discussions of cost efficiency was a great perspective for everybody to understand and, really, the leadership of the US Navy and doing this besides the Aegis Ashore movement, which delayed the Guam movement, that was also a very interesting perspective and probably fact, there, of why we may not have Guam defended by '27. Just a great discussion. This is why we're doing this kind of stuff. Mark, go ahead.

RADM (Ret.) Mark Montgomery:

Riki, let me say one last thing. I just want to say this is also validation. Tom Druggan spent his last four or five years in uniform building and developing and maintaining and modernizing the force that's doing this. And it's a real validation of his good work in his last four or five years in uniform to put us in the position where we've been successful and others are involved too. But Tom had a leadership role in making that happen, so thanks a lot, Tom.

Mr. Riki Ellison:

Thank you, Tom.

RDML (Ret.) Tom Druggan:

Thanks. Thanks, Mark. Thanks, Riki. It's an honor to serve.

Mr. Riki Ellison:

Ladies and gentlemen, that was a great discussion. Thank you. Thank you for joining us.