

Intercepting Terror: Strengthening Ukrainian Air Defense



JULY 24, 2025

**Briefing of the
Commission on Security and Cooperation in Europe**

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Commission on Security and Cooperation in Europe
234 Ford House Office Building
Washington, DC 20515
202-225-1901
csce@mail.house.gov
<http://www.csce.gov>
@HelsinkiComm

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The membership of the OSCE has expanded to 57 participating States, reflecting the breakup of the Soviet Union, Czechoslovakia, and Yugoslavia.

The OSCE Secretariat is in Vienna, Austria, where weekly meetings of the participating States' permanent representatives are held. In addition, specialized seminars and meetings are convened in various locations. Periodic consultations are held among Senior Officials, Ministers and Heads of State or Government.

Although the OSCE continues to engage in standard setting in the fields of military security, economic and environmental cooperation, and human rights and humanitarian concerns, the Organization is primarily focused on initiatives designed to prevent, manage and resolve conflict within and among the participating States. The Organization deploys numerous missions and field activities located in Southeastern and Eastern Europe, the Caucasus, and Central Asia. The website of the OSCE is: <www.osce.org>.

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In fulfilling its mandate, the Commission gathers and disseminates relevant information to the U.S. Congress and the public by convening hearings, issuing reports that reflect the views of Members of the Commission and/or its staff, and providing details about the activities of the Helsinki process and developments in OSCE participating States.

The Commission also contributes to the formulation and execution of U.S. policy regarding the OSCE, including through Member and staff participation on U.S. Delegations to OSCE meetings. Members of the Commission have regular contact with parliamentarians, government officials, representatives of non-governmental organizations, and private individuals from participating States. The website of the Commission is: <www.csce.gov>.

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Commission on Security and Cooperation in Europe Washington, DC

The briefing was held from 2 p.m. to 3:08 p.m., Room 210, Cannon House Office Building, Connor Lewis, Policy Fellow, Commission on Security and Cooperation in Europe, presiding.

Mr. PARKER: Good afternoon, everyone. My name is Kyle Parker. I am chief of staff for the U.S. Helsinki Commission. On behalf of Chairman Roger Wicker, I want to welcome you all to this afternoon's briefing on Ukraine's air defense needs. We have a great panel. We will have time for questions—to take questions from the audience following the presentations. This is an on-the-record public briefing of the Helsinki Commission. It does produce a U.S. transcript, so it is a good opportunity to get some things on the record and learn something about this incredibly important and very timely discussion.

With that, I will turn it over to our moderator, Connor Lewis, who can introduce the topic and the panel, and we will go from there. Thank you all.

Mr. LEWIS: Great. Thanks, Kyle. Good afternoon, everyone. I want to thank you for coming out today to attend this briefing, which we think arrives at a particularly important moment in Ukraine's struggle to preserve its sovereignty. My name is Connor Lewis. I am a policy fellow here at the Helsinki Commission. I will be moderating today's discussion, which brings together three distinguished panelists for a conversation focused on Ukraine's air defense and the constantly evolving challenges it faces. We titled this briefing "Intercepting Terror" because there really is no better way to characterize what Russia is currently doing in Ukraine.

As Putin stalls and plays for time in negotiations, his generals have managed only limited territorial gains, and only at enormous cost in lives and equipment. Now, the Kremlin has begun a scaled-up and sustained campaign of deep strikes targeting Ukraine's cities. While we have not wanted for evidence of Putin's depravity, either before or since February 2022, this current pattern of nightly assaults is unprecedented in several respects. First is the human toll. A July 10 report from the U.N. human rights monitoring mission in Ukraine observed that June was the worst month for Ukrainian civilian casualties in three years, with 232 people killed and 1,343 injured by Russian strikes.

It is also important to note who and what the Russians have targeted. According to data from the ACLED initiative, the first half of 2025 has already seen more strikes on

Ukrainian residential buildings and health care facilities than the entirety of any previous year of this war. Then, finally, there is the scale. A quick glance at the June and July figures for the size of Russia's aerial attacks immediately reveals the staggering numbers of missiles and drones threatening Ukrainian cities every night, a massive escalation from past months. The armed forces of Ukraine have worked tirelessly, and quite effectively, to repel these assaults. Limited supplies of the weapons necessary to intercept Russian deep strikes and the ever-growing size of these swarms of one-way attack drones have made effective air defense increasingly difficult. To discuss this dangerous situation, we have gathered three expert panelists.

Major General Borys Kremenetskyi is the defense attaché at the Embassy of Ukraine to the United States. The General enjoyed a distinguished career in Ukraine's Air Force, serving in a number of command staff and administrative roles, including a stint as a military observer with the U.N. mission to Tajikistan. Later, he served on NATO's international military staff before moving to the general staff of the armed forces of Ukraine, where he worked as the head of the Euro-Atlantic Integration Department, and later as first deputy chief of the military cooperation and peacekeeping operations' general directorate. These roles with the general staff bookended a 5-year period as defense advisor at the mission of Ukraine to the EU. More recently, the General served as head of the Ukrainian side of the Joint Ceasefire Coordination and Control Center in eastern Ukraine, before taking up positions as a defense attaché, first at Ukraine's embassy to the U.K. and, since 2020, here at the embassy in Washington. He is a graduate of the U.S. Air War College and the Air Force Engineer Academy.

Dara Massicot is a senior fellow in the Russia and Eurasia Program at the Carnegie Endowment for International Peace. Previously, she worked as a senior policy researcher at the RAND Corporation and as a senior analyst of Russian military capabilities at the Department of Defense. She is a leading expert on the Russia-Ukraine war and has been published, interviewed, and cited extensively for her analysis of the Russian military. She obtained her master's in national security and strategic studies from the U.S. Naval War College and is also a graduate of the University of North Carolina at Chapel Hill.

Finally, John Hardie is the deputy director of the Russia Program, as well as an expert in the Air and Missile Defense Program at the Foundation for the Defense of Democracies. His analysis of Russia, its relationship with the U.S., and its foreign and security policy has been published widely. He completed his master's in security studies at Georgetown University's School of Foreign Service, and studied international relations, political science, and psychology at the University of Georgia.

Now I will turn it over to the General as the panelists begin their opening statements.

Mr. KREMENETSKYI: Thank you very much for the introduction, and good afternoon. First of all, I would say that today is the 1,247th day of full-scale Russian aggression. Despite some skeptics, including in this capital, we are still fighting and holding the line, and we will continue to do so. Taking this opportunity, I would like to thank the American people for their unwavering support for Ukraine. We highly appreciate the U.S. president's peace through strength approach. Despite every day's attack, due to the bravery and sacrifice of Ukrainian soldiers, Russia is not able to reach significant strategic success on the battlefield, and continues to launch massive, combined missile and drone strikes on mostly civilian targets in Ukraine.

Such actions by the Kremlin are primarily aimed at terrorizing the civilian population, reducing resistance to aggression, and forcing the population to accept Russian terms for ending the war. Today, strikes in Kharkiv, Odesa, and my native city, once again show that Russian aggression is using terror and genocide tactics against Ukrainians. This month, the enemy attacks continue with high intensity, using the entire range of weapons. As of July 22nd, 160 missiles of various types were launched, including aeroballistic missiles [Kinzhal type], cruise missiles from strategic bombers, ballistic missiles [Iskander type], or North Korean KN-23.

What is most painful is that some missiles, especially a type of Kh-22, were transferred from Ukraine to Russia in 2000, when we were getting rid of strategic weapons. Now we can see serial numbers on some of these missiles coming back. At the same time, Russians are trying to solve the main task of destroying Ukrainian infrastructure through the massive use of long-range unmanned aerial vehicles. In particular, they continue to intensify the use of strike drones. First couple years, there were Shahed-136, -131 Iranian-made drones. Now the Russian-made Geran drones and Garpiya types, and also [decoys], Gerbera type. [Inaudible]—in July, the enemy used the largest number of these unmanned vehicles, 5,635 already in July [One of the] biggest strikes was in July, 723 drones during one night, and before in June, one night was 506 drones.

It should be noted that since March this year, the enemy has completely changed the tactics of using these drones. In particular, during the strike, the enemy focuses mainly on one or a few cities in Ukraine. Before, they were attacking all [of Ukraine's] territory at once. [Now,] they create a strike group, a swarm of drones, and almost simultaneously attack specific targets. At the same time, in order to reduce effectiveness of mobile air defense groups [and we created a couple thousand mobile groups, which is pickup trucks with 50-calibers machine gun mounted, probably with FLIR camera sometimes]—but to reduce [the mobile air defense groups'] effectiveness they started to fly at an altitude of more than two kilometers, which is not reachable for a 50-caliber machine gun.

Moreover, they attack targets in a few waves from different directions. The ratio of strike drones and attack drones is approximately—I mean, strike drones and false targets [decoys]—it is approximately 60 percent and 40 percent. Depending on the intensity of strikes, it can be up to four waves on one target. For three to four days, the enemy uses up to 100 drones [per day], and then tries to accumulate a big quantity, and then delivers a more massive strike, which is combined with missiles [cruise missiles and ballistic missiles]. Also, they continue to upgrade these drones. They equip them with cluster or cumulative warheads, and what we see now they increase the weight of warheads up to 90 kilos. Before it was 50 kilos. Now they reduce the range but increase [the size of the] warhead.

Also, they started to use on false targets, this Gerbera type, up to three kilos of warhead, including what is absolutely inhuman anti-personnel, these plastic PFM-1 mines, like a butterfly type. I believe you know all of them, and of course, the warhead as well. They also improved the design of drones for difficult weather conditions. They started serial production of these drones in Tatarstan and in the Yelabuga free economic zone. Also, they tried to develop a new type of drone, Geran-3, which is equipped with a turbojet engine and can fly up to 600 kilometers per hour.

They also—and you know that one of the most effective ways to hunt, to fight with this drone was electronic warfare. What we see, we now observe the use of up to 16-channel CRPA antennas. This is a controlled reception pattern antenna, which is very dif-

difficult to jam or spoof by electronic warfare. They plan, by the end of this year, to produce 4,100 units. This factory we know that they started to build a factory in North Korea and in some other places. They also expand the geography of launching bases. We understand that the best way to fight these drones is not just to shoot them over Ukraine, but to destroy bases, their launch pads, and where they are launching.

We believe that soon they will be able to increase attacks during one night, 1 day, up to 1,000 drones, and from this point of view, we see that air defense is really crucial. Since this war started three and a half years ago, we have been saying that the priority for Ukraine is air defense, and we were asking our partners to support us in closing Ukrainian sky. We highly appreciate partner support for providing Ukraine a variety of air defense systems—Patriot, SAMP/T, NASAMS, Hawk, Mistral, and many others. Also, some counter-UAS systems. I can say that there is no country in the world that can deploy and sustain such a quantity of different platforms and different systems. Also, we widely use non-kinetic air defense like electronic warfare.

We need much more air defense to protect our cities and forces, and we appreciate any support in this area. Ukrainian armed forces developed and employed various new tactics, for example, with the Patriot. This system was never used in a way we are using it, using some of its mobile capabilities, and so on. We—our experience shows that the key to success on the battlefield, and especially in particular in air defense, is absolutely asymmetric approach, innovations, and new disruptive technologies like electronic warfare, different types of drone interceptors, and others.

With our American partners, we also developed a project, you may have seen it before in media, called FrankenSAM, which is a unique way to combine Soviet-made launchers and Western-made missiles. It is successfully deployed. Also, we use successfully fixed and rotary-wing aircraft for air defense. We really appreciate platform—F-16 platform, which we widely use against cruise missiles and drones. The aim is to create multilayered, integrated air defense. We are working with our partners and especially, as you may know, within the Ukraine Defense Contact Group, the so-called Ramstein group, which created the Air Defense Capability Coalition. The last meeting of this group was last Monday, July 21st. They discussed a lot about details, how partners can improve air defense capabilities and provide Ukraine with additional systems. I believe you observe in the media a lot of discussions on this.

Ukraine is not only—Ukraine requires air defense, but we are ready to share our own experience. We are ready to test on the battlefield innovative new ideas, and also all new disruptive technologies. We are also working with our partners on the joint production of air defense systems. We believe that our experience can also be used with our American friends while working on a golden dome air defense system. Thank you very much for your attention, and I am ready to answer any questions.

Ms. MASSICOT: Hi, everyone. Happy afternoon. My name is Dara Massicot. I am a senior fellow at the Carnegie Endowment for International Peace. Generally, I think you will find that we are in agreement on a lot of these assessments. Perhaps I could just relinquish my time. I am just kidding.

I just wanted to provide a few thoughts on the evolution of Russian drone and missile technology that we have seen since 2022. My views on this are that the Russian military continues to adapt and evolve, and modify its missile strikes against Ukraine for increasing reliability and accuracy in an attempt to evade and saturate Ukrainian air defense systems. Since they declared a partial mobilization in September 2022, their mis-

sile production rates have risen far above pre-war levels. They have repurposed older Soviet anti-ship cruise missiles, for example, to target apartment buildings in Ukraine, and air defense missiles into land attack roles to supplement what they can do.

The dramatic increase in Russian one-way attack drones, many initially derived from Iranian designs, has supplemented Russia's missile stockpiles. We see salvos against Ukraine varying from 30 missiles to over 150 to 200, although the larger salvos are rarer. The Russian military is regularly experimenting with different strike patterns, as the General has articulated, as they try to overwhelm Ukrainian air defense systems. These include techniques like varying missile flight paths that double back on targets, or they loop around cities for a few hours before they hit their intended target. They change altitudes. They now employ different types of penetration aids, like chaff, flare, or hardening against jamming.

The Russian military is using complex attacks, again, as the General has already articulated. To coordinate their arrival times on a target from several different types of missiles, whether they be air-launched, sea-launched, ground-launched, from several different locations inside Russia or the Black Sea. They are structured to arrive on target within minutes of one another in an attempt to saturate the defenders. This is not something that the Russian military was capable of doing in 2022, and, unfortunately, they continue to experiment with this to make it increasingly difficult for Ukraine's air defenders to engage.

They are also using different types of warheads, occasionally cluster munitions, against civilian and military targets, in addition to the thermobaric rockets associated with long-range artillery systems like TOS-1 and TOS-2. Ukrainian air defense teams are consistently and constantly improving their abilities to intercept these missiles, particularly against the cruise missile varieties. Ballistic missiles do pose more of a challenge, particularly missiles like the Kinzhal hypersonic missile and some that have complicated flight profiles. They are difficult to intercept. Or there are areas of Ukraine that have insufficient air defense coverage due to its size.

The air defense batteries and the air defense teams are high-value targets for the Russian Federation to try to destroy. Russian reconnaissance has improved over the past two or three years to where, if the Patriot teams are deployed too far forward and remain stationary for too long, they are often targeted with Iskander missiles near the front lines or within strike range. The Russians are targeting a variety of military and civilian infrastructure. While I do not have access to their targeting deck, or their strike plans, or what their intentions are, just from observing, since—you know, for the past three years, I conclude that there appears to be no sufficient process, or lack of process, or lack of effort to limit civilian collateral damage.

There are times where it appears that civilian facilities are themselves the target. Examples include—that we have all seen—include strikes at civilian hospitals, busy shopping centers in the middle of the day, high-rise apartment buildings that are targeted with Soviet-era missiles that were designed to sink an aircraft carrier. There is no accuracy in an urban environment, or ballistic missiles that are armed with cluster munitions that land in populated city centers.

A few words about drones. Again, the General has already articulated many of the challenges. In my view, this is the most dramatic aspect of the change in warfare in the past three years has been the evolution in unmanned warfare and drone warfare by both the Ukrainian and the Russian militaries. This includes loitering munitions, first-person

view drones, one-way attack drones, and other reconnaissance strike complexes, which have made most types of movement within 30 kilometers of the front line on either side very difficult. The rise of Russian wired or fiber optic drones since 2024 is a particular challenge to counter. Although I do know that Ukraine is catching up quickly in this area. The General has already articulated the production rates of the Shahed-2 drones at Yelabuga, so I will just skip over that.

I do want to note the size of the attacks that we are looking at has risen even from January of this year to 100 drones per day to 500–700 on average. It is anticipated to climb. Not only are the numbers increasing, but the Russian engineers have made qualitative improvements to these one-way attack drones to make them more lethal and difficult to intercept, including dark paint, a special coating in an attempt to reduce their flight signatures, pop-up maneuvers they do at terminal descent, where they fly straight up and down to try to evade the Ukrainian air teams. They fly faster. They modify their flight paths. It is becoming very complicated. They also fly in Belarusian airspace. They will hug the border until the last moment, and then they fly in to reach their target.

They are not just using them for attack, but they also use them for missions to map locations of Ukrainian air defense teams or other detection networks, or other military assets. As the General noted, they do add decoys to overwhelm or complicate the work of the air defenders. I think we have to talk about what is happening right now in Kherson City. This is what is referred to as a human safari, where Russian drone units there not only target military logistics around the city, but they are also specifically targeting civilians on the streets of the city. They not only target civilians who are carrying their groceries home or women bicycling home, but unfortunately, have now extended to a toddler playing in his playpen in his own backyard.

This is a targeted harassment of the civilian population that has been underway since late 2022, when Russia had to leave the city. I just wanted to include this line from the U.N.'s Independent International Commission of Inquiry on Ukraine in May of this year that concluded, "Russian armed forces have committed the crimes against humanity of murder and the war crimes of attacking civilians through a month-long pattern of drone attacks targeting civilians on the right bank of the Dnipro River in Kherson province in Ukraine. It also found that these acts were committed with the primary purpose to spread terror among the civilian population, in violation of international humanitarian law." This behavior, we should anticipate, could emerge elsewhere along the front line, even if there is a cease-fire in place, unless careful guardrails are established in the settlement.

A few concluding thoughts from me. The Ukrainian air defense network, as it is now, is not sufficient to protect all of the country, given the size and complexity of that task. As long as this network is operational and supported by partners, it intercepts the majority of missiles, particularly cruise missiles. It also has a deterring effect on the Russian Air Force. The Russian Air Force remains reluctant to [risk] losing more aircraft. As long as Ukraine's air defense shield remains viable, the Russian Air Force will hold back its tactical aviation. By the Russians' own admission in their own defense publications, they admit that their own air defense network, while it is very dense and it is learning all the time, still faces critical challenges like friendly fire. They find it difficult to engage Ukrainian drone strikes that are heading into Russia when they are flown in specific ways.

I think it is useful to remember that if this problem seems large and looming and growing that there are still critical vulnerabilities in Russian military power that are

enduring and can be exploited. I would share the General's assessment that one of the most efficient and yet difficult ways to reduce Russian missile strike potential is to damage or destroy the launch platforms themselves. This means certain types of ships, certain types of bombers, as Operation Spider Web did, and various ground launch platforms. I think more effective or purpose-built interceptors to use against Russian attack drones would also be critically important for Ukraine, given the rate of production increase that we are looking at this year. There are rumors and different types of technologies in development to address this.

The bad news here, and there is quite a lot of it, is that Russia is aware of the slow production rates of Western air defense systems—Patriot, NASAMS, and IRIS-T. Over time, they hope to destroy Ukraine's will to continue fighting and to attrit or destroy its air defense capabilities with nightly strikes, while damaging critical infrastructure and depopulating frontline cities like Kharkiv, Kherson, or potentially Dnipro, whose civilians are struggling with the extended timeline of these frequent attacks. They seek to convince the West that they will never produce enough to resolve this challenge.

I have had the opportunity to meet with some of Ukraine's air defenders' teams. The ways that they are modifying our equipment, the partnership that we have, the way they are pushing the equipment to technical heights that we did not even think possible, this is—it is a true partnership and one that I hope continues. I have seen firsthand the operators, and I have seen firsthand the work that they do to protect the cities. Thank you very much for your time.

Mr. HARDIE: Thank you for the opportunity to speak to you today, alongside my distinguished fellow panelists. Our topic could not be more important or timely. Despite President Trump's repeated calls on Putin to stop, Ukraine continues to face a relentless assault, both on the ground and through the air. Putin apparently still clings to the hope that he can break Ukraine's resistance and outlast Western will. I have no doubt the Ukrainians will continue to prove him wrong. They continue to find new ways to surprise the world with their ingenuity, such as Operation Spider Web, which dealt a gut punch to Russian long-range aviation, but Ukraine needs our help. After all, Russia is not fighting alone but with key support from its authoritarian friends in Beijing, Pyongyang, and Tehran.

The past few months have seen Ukraine's air and missile defense capacity, already in short supply, get stretched even further. Despite Western sanctions, as my colleagues have touched on, Russia has steadily expanded its production of ballistic and cruise missiles, and Shahed-type one-way attack drones, in large part thanks to the supplies of components and machinery from China. Meanwhile, North Korea continues to supply Russia with KN-23 ballistic missiles, which have become more accurate thanks to Moscow's assistance. As my colleagues also touched on, Russia has engaged in tactical and technical adaptation with its Shahed-type drones to counter Ukraine's cost-effective mobile fire groups and electronic warfare.

The end result is that not only is Russia launching more of these drones, but more are getting through. In recent weeks and months, Russia has repeatedly broken its own gruesome records for the most projectiles launched in a single night, and Ukrainian civilians have paid the price. According to U.N. data, almost 1,000 civilians were killed or injured in the first half of July alone. In addition to attacking critical infrastructure and Ukrainian civilians, Russia's current strike campaign aims to undermine Ukraine's war effort. One recent example, according to Defense News, is a strike on a Ukrainian

drone company that is working with the U.S. Defense Intelligence Units' Project Artemis. It is a poignant example that what happens in Ukraine has security implications here at home in the United States.

What can we do? First, we need to put meat on the bones of the recent pledges to transfer German Patriots to Ukraine, backfilled by the United States. This new aid mechanism should not be limited to Patriots. It should be expanded to include other material as well, including munitions for Ukraine's other air defense capabilities. In other words, it should not just be one Patriot and done. If these arms are to reach Ukraine in a timely manner, frankly, we may have to accept a little short-term risk with our own stocks, understanding that Ukraine is the one currently in the fight and is actively degrading the Russian military threat. As my colleagues at my think tank, FDD, have argued, the risk is manageable and can be mitigated through investment in maximal U.S. production.

In addition, as my colleague Mark Montgomery argued after a recent trip to Ukraine, the United States should help Kyiv integrate the advanced counter-drone rockets with its F-16s to counter Shahed-type drones—the same rockets that American F-16s and F-15s have recently been using in the Middle East. Earlier this summer, the Pentagon diverted to the Middle East fuses for those rockets that had been procured for Ukraine. With the Iran-Israel war now over, the Pentagon and Congress should reassess the quantities needed in the Central Command area of responsibility and send as many as possible to Ukraine.

Moreover, Western countries should provide funding for Ukrainian companies to scale up production of promised new capabilities, such as counter-Shahed FPV drones and automatic aircraft turrets like the Sky Sentinel. Europe has recently taken a good first step on this front, but more funding would be useful. Any USAI funding that has been committed but not yet obligated should be put on contract as soon as possible. To create maximum leverage over Putin, the Trump administration should tap its remaining Presidential drawdown authority for Ukraine and ask Congress for a Ukraine leverage package that provides additional PDA replacement funding and USAI funding. This can be used in part to bolster Ukraine's air defenses.

Ukraine should not be restricted merely to shooting down arrows. It will always be hard to make that math work, particularly for ballistic missile defense. An optimal approach will combine both defense and offense. Ukraine needs to be able to hit the proverbial archer, as well as the factories that make the arrows. Although Ukraine has struck many Russian military, military-industrial, and energy sites with indigenous long-range drones, many of these drones get shot down or neutralized by electronic warfare. They generally carry pretty small warheads, making it hard to cripple major factories.

More ATACMS, Storm Shadow, and SCALP missiles will be useful, but what Ukraine really needs is longer-range capabilities to hit key missile and drone factories deeper in Russia. This could include missiles like the Tomahawk and, notably, the U.S. Marine Corps wants to cancel its new long-range fire system designed to launch Tomahawks, and will have a few systems left over that could be provided to Ukraine. With the Tomahawk, Ukraine could hit targets such as the plants producing Russia's Geran and Garpiya Shahed-type drones, which are both more than 1,000 kilometers away.

Then, finally, a quick word about sanctions and export controls. They have certainly proven to be imperfect tools, but they do make it harder and more expensive for Russia's military industrial base to acquire key components and machinery. Russian sanctions

enforcement packages should be, and used to be, routine. Since taking office, the current administration has not issued any. As a result, the Russia sanctions regime has atrophied. This is hardly the time to be making life easier for Russia's war machine. We need to combine enhanced enforcement with broader pressure on the Russian economy, especially its oil revenue.

President Trump's objective of peace in Ukraine is the right one, but Putin will continue his unprovoked war so long as he believes it is sustainable and offers a pathway to achieving his goals. Ultimately, U.S. aid for Ukraine is more sustainable than Russia's war. By shoring up Ukraine's air defenses, enabling Ukraine to inflict growing costs on Russia's war machine, as well as pressuring the Russian economy and exhausting Russia's offensive potential on the ground, we may be able to start changing Putin's mind.

Thank you, and I look forward to your questions.

Mr. LEWIS: Great.

Thank you to our distinguished panelists here. We will open it up to audience Q&A in a moment, so think of some questions. First, I am going to ask a few questions of my own.

QUESTION: Generally, there have been a lot of reports [that Dara alluded to] of Ukrainian native interceptor drones used to deal with this new problem of these massive waves of drones, these one-way attack drones coming from Russia. Could you speak to some of the projects that are going on in that respect?

Mr. KREMENETSKYI: Well, I can speak only in general terms that we try to develop all possible technologies to fight with drones. One of these technologies is drone interceptors, and it can be various types of drone interceptors. It can be a drone that is carrying a few smaller drone interceptors. They can be stand by [on the ground] drones, and some others—including also electronic warfare, and also electronic warfare which is deployed on aerial vehicles as well. We are looking at and trying to develop various technologies on this.

Mr. LEWIS: Great. Thank you.

QUESTION: Dara, we had these huge announcements last week. It was obviously in the news quite a bit. Have we seen any movement on shipments of weapons, either restarting or new ones being set aside for Ukraine? What can we expect to see in the near future on that, in your view?

Ms. MASSICOT: So—

Mr. LEWIS: For her, sorry. Apologies.

Ms. MASSICOT: I would—you know, please correct me, sir, if I speak with any mistakes.

The temporary disruption of—maybe it was a month ago—of some of the air defense equipment that was supposed to be shared with Ukraine was a temporary bug in the system, and as far as I understand, that aid is now flowing and has resumed. It is not clear to me how long a disruption, if any, there was. In terms of developments over the past few days, I believe that additional millions have been allocated for various types of small arms ammunition and different types of interceptors to Ukraine. I am not sure the timelines on delivery exactly, but I was—I was heartened to see that those are resuming. I believe the Hawk system is part of that as well.

Mr. LEWIS: Yes, General, if you have anything to add, that would be appreciated.

Mr. KREMENETSKYI: Well, I can add that the flow is ongoing, which was already announced, and you can go to the Pentagon website. It is very clear what was committed, so it is ongoing. Concerning yesterday's announcement that the State Department approved something with Hawk and Bradleys, this is within ongoing commitments that were already declared. It is just notifying that this issue is done, so that is it. We appreciate any help we have, and the Ukraine Defense Contact Group, which was last Monday, also proved that there are some developments, including with our European partners as well. There is a joint common understanding that assistance should continue.

Mr. LEWIS: Great, thank you.

QUESTION: Then, John, you had mentioned this idea of hitting the archer, not the arrow. In terms of the U.S. or other partners of Ukraine, and the systems that have been sent so far, what has been the most effective in that—toward that—toward that end?

Mr. HARDIE: We have had, from the U.K., Storm Shadow, its cousin—it is a French cousin, SCALP, and then from the U.S. ATACMS. I think they have all been useful for Ukraine. I think in some cases, in large part due to the U.S., I guess dithering would be the strongest word, these missiles have been provided out of sequence with important decision points. They have not been able to be used to the maximal extent. I think right now Ukraine's stocks are pretty limited, so it makes it hard to kind of mass effect. Some percentage of them do get shot down.

I think, with regard to kind of hitting the arrow—or, hitting the archer and the factories that make the arrows, you know, many of these key sites are well beyond the range of Ukraine's current Western-provided missile capabilities. As I said, Ukraine has done a really good job of developing indigenous drones, but there is, you know, a limit to what you can do with a drone that, you know, only carries a fairly small warhead. With a system like Tomahawk, for example, I think we could pack a little more punch.

Mr. LEWIS: Great, thank you so much.

All right. We will now open it up to audience Q&A, if anybody has anything.

QUESTION: First, I would like to say thank you all very much for being here. My name is Tyler Jacobs. I am an intern with the Helsinki Commission.

In a speech most recently to Ukraine's plenary session, President Zelenskyy emphasized multiple times the increased need—in the midst of scattered global priorities, the need for an independent Ukrainian defense infrastructure and weapons production infrastructure. What are the challenges to this goal? How can U.S. partner—the U.S. and its allies partner with Ukraine in order to help develop Ukraine's own infrastructure projects in regards to drone and missile production?

Mr. KREMENETSKYI: Well, as we mentioned some time ago, we would like to create a lot of joint ventures, joint production, or localize production in Ukraine. We are already working with many—with a lot of American companies, first to do production in Ukraine, but also to make joint production in some other countries. That is something which we believe should be [happening in the] future.

At the same time, we are ready—we have some unique know-how and we develop some unique technologies, which we are ready to share with our partners and jointly produce new types of weapons or new types of equipment. This work is ongoing, and we discuss it on a daily basis with our business partners here with U.S. companies, but also a lot should be discussed with the U.S. Government on how to deal with some legal and bureaucratic issues as well. This process is ongoing.

Thank you very much. I appreciate it.

QUESTION: A secondary question as well. I am someone who is potentially going into the U.S. armed forces, and certainly, we can learn a lot from Ukraine's own defense against drone warfare and advancements in technology there. During my military training, they told me the best defense against a drone was a shotgun. In terms of on the ground—boots on ground defense, what are some evolutions in strategy or technology that give troops on the ground a better defense against these drone attacks?

Mr. KREMENETSKYI: Well, I should say that tactics are changing almost every day. As we employ new equipment, we employ new tactics. The same as now area on the front line, you cannot hide anymore in trenches. It is a single drone hunting a single soldier, so you need to be very fast. You need to hide yourself. Also, what we see is less deployment [from Russia's side] of main battle tanks, because that is a really clear target. At the same time, we also see, as my colleagues mentioned, fiber optic control drones, which are difficult to jam with electronic warfare. We say that innovation time on the battlefield is from one week to two months. If you miss this time, you are gone. It is very fast-changing, both innovations and tactics.

Mr. LEWIS: Please. Yes, you can come to the podium.

Perfect.

QUESTION: Good afternoon. Thank you so much for taking your time out to the panelists.

General Kremenetskyi, this question is specifically for you. When we talk about integrated air and missile defense, you mentioned a multilayer air defense capability that is integrated. On the integration piece, we talk a lot about weapon systems that are going kinetic or non-kinetic against these drones, missiles, et cetera. When we talk about combat ID and command and control, those things are required to potentially be those force multipliers to help you enable targeting the right air weapon systems targeting Ukraine. You might not be able to go into detail in this setting, on, like, these specifics, but currently, with your ability to combat ID and then command and control your forces to engage the weapon systems you want to in the time that you want to. What are your current, you know, challenges and capabilities? Then what do you need, or what would you like to have that could make that combat ID and command and control better?

Mr. KREMENETSKYI: Well, it is the million-dollar question. [LAUGHS.] In real terms, we understood, and everyone understands, that command and control and situational awareness is the key in the modern—are the key to modern warfare. Since the very beginning, we paid a lot of attention to creating our own situational awareness system, which we called Delta. This is an open architecture system, which you can plug into any other. For example, we also have our own electronic warfare situational awareness system, which can be plugged into this Delta. Every combat commander on his level or her level can see what is going on in real terms. That is first.

Second, having such a big quantity of different platforms, it is quite difficult to—not only to sustain them and maintain, but it is quite difficult to integrate them into something single. We know there is good—Link-16. I will mention Link-16, which all platforms, actually, which we receive from our partners, can be integrated with Link-16. We are working on this. Also, it does not mean we are not creating our own systems to integrate all these multiple platforms into one. That is one of our priority questions, because we have different sensors which belong to different units, different services, and

different branches, and we try to integrate them into one system, so this work is ongoing. We appreciate some American companies and the Department of Defense, which is assisting us in creating this system.

Mr. LEWIS: Please, yes.

QUESTION: Thank you very much. Lev Zinchenko. I work with Razom for Ukraine.

Just a quick question. You did mention that Ukraine has limited stocks of Storm Shadows and SCALPs. Well, Ukraine has limited stocks of everything, to be honest. Where are we on Taurus right now? We have these conversations between the U.S. and European allies concerning the transfer of Patriots and, transfer of other munitions. We do hear certain reports that Germans might be scared of Russians learning how to jam Taurus, that they have learned how to jam Storm Shadows, and SCALPs. Where are we standing right now, if you have any knowledge about that?

Thank you very much.

Mr. HARDIE: Is that for me? Okay. I think you asked about Taurus. I can only tell you what I have seen in the press, which is, the Germans kind of continue to tease it, but right now are not ready to provide it.

Ms. MASSICOT: To that, I would just add, the Russians have learned how to jam certain munitions, and countermeasures are in place, and they learn how to—it is a constant game of evolution. I would say that is the way that warfare is. You know, this fear of, oh no, they will learn how to jam Taurus, and then what will we have? Taurus has been around for a very long time, just as Storm Shadows have, just as ATACMS have. The nature of warfare is that you have to be pushing forward all the time. This is a war that we are—that we are not direct combatants in. You know, I think that is really a call to the defense industrial bases of Europe and the United States, that it is overdue to think about the next generation, in my opinion.

Mr. KREMENETSKYI: Well, I can add to that, it is also very important not to just—we are working—first of all, we are working with all our partners to have more equipment, you mentioned. At the same time, this is not a remedy for what we have. The main idea is to develop our own production. That is something which we believe will increase our capabilities. We are also working on this. We pay a lot of attention to our own production, and the example with long-range drones is a good example of how we managed to do it.

Mr. LEWIS: Please, yes, come on up. If you could introduce yourself when you get to the podium.

QUESTION: Hi. I am Benjamin Bardos. I am a defense policy expert at the Warsaw Institute.

I just wanted to briefly ask upon the question, particularly around the front lines in the tactical and operational areas, regarding the frequency of the VKS' [Vozdushno-kosmicheskiye sily] activities, particularly with their standoff munitions. You guys touched upon the topic of the difficulty of intercepting and deterring Russian aviation near the front line. Right now, recently, in the Pokrovsk theater and around Toretsk, near Chasiv Yar and Kramatorsk. We have seen a dramatic uptick in Russian activity with their FAB-500's, or their glide bomb kits. I just wanted to see what do you see, prospects-wise, to solve this issue?

Ms. MASSICOT: I want to back up a step and note that the reason why the main task of the Russian Air Force at this point is launching FAB bombs, the glide bombs from 30,

70 kilometers back, that is their main mission now. They are not playing a dominant role in this war, as Russia anticipated that they would from the beginning, because they are very concerned about being targeted, again, by Patriot, NASAMS, and IRIS-T, so that is the good news that they are not able to move forward. They are holding them back. They do not mind that they lose soldiers, but when it comes to losing fighter aviation, they are very conservative about it.

The glide bombs are a problem. There really is no easy solution, because once they are airborne, there is only so far forward that Ukrainian air defense teams are comfortable moving before they are struck. The easiest way, given these limitations, is to try to—is to try to attack VKS bases, which Ukrainian forces are doing with their drone attacks, and occasionally, if they are able to range them, with other ammunition provided. The issue is that the Russians have already evolved and anticipated this. They have pulled a lot of their fighter aviation back, at least from missile range from the Ukrainian border. It is an ongoing and very problematic challenge, I will say. I do not have an easy solution, other than destroying the aircraft, but General, perhaps you might.

Mr. KREMENETSKYI: Well, I have almost nothing to add, but, yes, this is a problem. We try to develop something that can fight these bombs while they are in the air, because they are also GPS guided. We can change their precision. At the same time, as you mentioned, the best way to fight them is to destroy fighter jets and bombers that are carrying these bombs. As you see in recent days, they are just using these bombs against civilians in the cities that are close to the border. They cannot fly into Ukrainian airspace because of air defense, so they just terrorize the civilian populations. We are trying different ways to fight this issue.

Mr. HARDIE: I would only add that if you look at the numbers that the Ukrainians report for the number of glide bombs used, it has really noticeably increased this year, despite a kind of lull over the winter due to weather reasons. I would also add that I think Operation Spider Web was really successful, but the more frequent type of attack you are going to see is the long-range drones. The Russians have, over time, established, you know, counters to be able to defend against that, with layers of air defense and EW. They do, you know, scramble aircraft when they see a threat. It certainly is a difficult challenge, and I join my colleagues in saying I do not have a great answer to it.

Mr. LEWIS: Matthew.

QUESTION: Hello. My name is Matthew. I am a fellow at the Helsinki Commission. I just wanted to thank our panelists for being here today and sharing their knowledge with us.

There is a lot of talk today about Russia's increased drone production and increased capability to strike Ukraine. I was curious, with Russia's economic woes and lack of manpower [for] production, how long can Russia keep up this increased production? Second—how would secondary sanctions affect their ability to produce these drones?

Ms. MASSICOT: Well, I will tackle the first part. The Russian government, at this point, is comfortable borrowing from other aspects of its budget to finance this war at this level. I think there are limitations in how much farther they can go. They are not willing to put it beyond a certain level when it comes to destabilizing the politics inside the country. That is the line for the Kremlin. Unfortunately, we are seeing them making expansions in some of their defense industrial base, notably about ballistic missile production.

They have learned that their cruise missiles are particularly vulnerable to interception, and so they are moving in a different direction. The drone production is assisted in some ways by Russia's partners. Obviously, the technology came from Iran. Russia has built upon it and modified it, you know, Geran-2, Geran-3. They are also receiving components and machine tooling from China that help them, particularly with fiber optic drones and their ability to scale up. Short of those factories not being able to produce anymore, I think we should anticipate that this problem is going to continue on the current slow increase.

That being said, you know, we have to keep in mind the vulnerability that the Kremlin has, and it is losing control. They do not—they know that they cannot spend above certain levels before they start to lose control. I do not know that there is much good news in there, but there are—there are real limits and real constraints. Perhaps that segues into the sanctions question, which I am not equipped to answer.

Thank you.

Mr. HARDIE: I would say that, you know, sanctions will never—experience has shown that sanctions are not going to stop Russian production. As we have already noted, Russian production of many things that rely on Western components has increased dramatically. I think sanctions do make it a little harder. Right now, I think if I were Treasury and Commerce, I would be focused on not making Russia's life easier. That means the sort of steady pace of enforcement packages we saw under the last administration. I think where secondary sanctions are probably most—could be most impactful is kind of on Russia's economy at large, especially oil revenue. If you look at Iran, for example, what secondary sanctions were able to do with their oil exports. With Russia, it is tougher, but there is potential there if there is political will.

Thank you.

QUESTION: Hi. My name is Ignacio, and I am an intern for Lloyd Doggett, who has been recently appointed to the Helsinki Commission.

I was curious about, you know, given this current administration's less enthusiastic support for Ukraine, how much would our European allies need to step up to account for less American funding?

Ms. MASSICOT: Is your question how, if we were to withdraw our funding or some of our supplies, and how would that impact the war?

I think that there are—there is certain capabilities that various European companies can produce at higher levels, like Rheinmetall. They produce artillery ammunition and certainly seem to want to expand and have plans to do so. There is specialty equipment that only we produce, most notably the Patriot system and some of the ATACMS and GMLRS.

We are also thinking about creative ways to continue to supply Ukraine, which is going to our allies and partners, and asking them if they would be comfortable providing their systems to Ukraine, and then the United States immediately backfills with production later on down the pipeline, and that is one way that we are managing it. The most critical aspect to continue, I think, is our partnership in terms of some of the, you know, less publicly available aspects of our relationship that the United States provides and has unique capabilities. So far, that is continuing.

Mr. KREMENETSKYI: We are working with all partners. As you noticed this week, there was a development in procuring U.S.-made weapons by a special fund [through]

NATO and by other European partners. There is the Danish initiative. There is also a Czech initiative on ammunition. Within the Ukraine Defense Contact Group, there are some—a few initiatives which can still assist in developing our capabilities.

Thank you.

Mr. PARKER: I think we are about out of time. Before wrapping up and giving everybody an opportunity for a concluding statement, I had two questions. One is hopefully a relatively simple one and practical, and the other is just, I do not know, maybe to test my understanding of how this war is being fought. On the simpler technical side, I would be interested—especially from you, General, we have read comparisons and stats on the Patriot versus the joint French-Italian—the SAMP/T. I would be interested in knowing how you are finding it in use, and how you are finding it is holding up to, you know, changing Russian tactics? I think it has been mentioned, and, you know, they are getting a lot of opportunity to train against our Patriot system as they send in their ballistics and other rocketry.

Then the other question, you know, really goes to how we tried to frame the topic, “Intercepting Terror” in the sense that—are we correct in understanding that Russia is largely using long-range fires, unlike you might expect, sort of, I guess, in a textbook case of a conventional military attacking another conventional opponent? It seems like they are using long-range fires largely to demoralize the population, obviously to kill the population. That is part of the demoralizing, terrorism, striking civilian infrastructure, making—you know, shutting the AC off in the summer, and, you know, pensioners have to walk up to the 13th, 14th floor in a high-rise. Or, obviously, in the winter, we have heard a lot about that. I know the summer has, in some cases, been just as—just as difficult.

Using it that way, as opposed to what we see, you know, a mostly static line of contact, right? You know, we have heard occasionally where they will strike a troop formation or a training ground, but I am just wondering if that is the case. In a sense, the provision of greater air defense is to shore up morale. You know, war is, after all, waged from the heart of a society, right? Clausewitz—there is my professor right there in the front row. I got to—I still remember—I still remembered something from the Naval War College. The idea—and, of course, historically, we have not seen a whole lot of success at demoralizing a populace’s will to fight from the air.

I am wondering if that general assumption is correct, and also the question on the Patriot versus the SAMP/T in actual practical use. For you, General, on that, and anyone else who wants to have a concluding statement.

Thank you.

Mr. KREMENETSKYI: Well, frankly speaking, I am not in a position to give an analysis and to compare SAMP/T with Patriot. We appreciate any air defense system that we received from our partners, but there were some unique cases. For example, shooting—first time in history to shoot a hypersonic missile by Patriot. There were cases where shooting an Oniks missile, which is also a hypersonic anti-ship missile. Both systems are capable, I am sure. The problem is quantity of systems and quantity of interceptors that we have, if we compare with the quantity of missiles attacking our country. I believe that sooner or later we can provide our partners some analysis of shortfalls or caveats of each of these systems, but it will be in the future, and probably in a different audience, I would say.

Concerning your second question, I believe you are absolutely right. There is no use of cruise missiles against—on the battlefield against our troops. There are some cases when some ballistic missiles, Iskander type, were used if a Russian UAV found some concentration of troops or whatever. *Mainly*, they deploy these types of weapons against the civilian population to terrorize, trying to reduce the morale of the population. I would say that this is a big mistake by the Russians. They completely underestimate the will of Ukrainians to fight, the morale of Ukrainians, and it makes us stronger. You can see, despite these very covert and cynical attacks, even when first responders come on the spot to save civilians, they attack again, killing first responders, which is absolutely not acceptable from any humanitarian law, or whatever. Especially in winter, when it is cold, we managed to create what we call resistant shelters, where people can heat themselves, charge their phones, and so on. There is no way that this can reduce morale. It is very hard. Everyone has PTSD; that is what we say in Ukraine. It is really hard, but this is not the way to reduce our morale and will to fight.

Ms. MASSICOT: I would just like to second something that the General said in his opening remarks, is that Ukrainian forces are happy to engage with ours to teach us what they have learned. I would say, just from my direct experience being there inside Ukraine, we should be so lucky as to get their knowledge, for them to share with us what they have done. I have had the opportunity to meet with your teams.

They told me a story, and I will not—I cannot share a lot of the details, but they were having a problem with what the Russians were doing. The Russians had done something new and unexpected. The teams wanted to talk about it. How can we find a technical solution? How can we find a solution? They were able to partner with American partners, and we have a lot of restrictions. We cannot send U.S. military personnel and most defense civilians forward inside Ukraine, so it is remote. We collaborated on a technical solution, and it worked. The teams—the teams in Ukraine were grateful for that opportunity.

What I—what I would tell the General is that, really, our guys and girls are so grateful for the opportunity to learn from you and make our systems work better. To the point where we—our base at Al Udeid was targeted with Iranian ballistic missiles. We intercepted most, if not all, of them, and that came, from what I understand, as a result of the collaboration that we have in pushing our systems to a new technical capability. There is—this is a relationship that is strong, and there are many benefits. If we are worried about lethality in the Department of Defense and evolving to the next future of warfare, then, you know, these folks are at the edge of it, and we should learn from them.

Mr. HARDIE: If I could just piggyback on that. Right now, the Army has a major transformation initiative underway. Part of that is working with the sorts of FPV drones and drone drop munitions that Ukraine has used so effectively. It would be simply criminal if we do not properly leverage Ukraine's expertise and innovation in that area. By the way, for those focused on the pacing threat in China, the Taiwanese are intensely, intensely interested in learning from Ukraine, and also working with Ukrainian companies to stand up Taiwan's own nascent drone industry. Ton of—a ton of opportunities that we cannot afford to let slip by for ourselves and our partners.

Mr. PARKER: Thank you for those answers. One thing, just, I guess, as an aside to—you know, wanted to mention the Department of State's role here as well, not simply as a convener, you know, sort of conduit, but literally in the air defense, or with INL's [International Narcotics and Law Enforcement Affairs] provision of the mobile fire teams that

have done a pretty good job defending cities like Kyiv, particularly against the Geran drones, because they are able to send up, you know, 50—a couple 50-caliber bullets that, you know, these are pennies apiece, as opposed to the cost of your more sophisticated interceptors. Seeing that, they have radars, and they have been quite effective. Yes, hats off to INL's ability to get that—get that equipment in very quickly, and to the Ukrainians to be able to use it to great effect.

Well, thank you. Thank you all for taking the time to educate us on this. I would like to particularly thank the General and our distinguished panelists, as well to Connor Lewis and Tyler Jacobs, for their good work in putting this together for us today. Yes. Slava Ukraini [Glory to Ukraine.] [Applause.]

[Whereupon, at 3:08 p.m., the briefing ended.]





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