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INSIGHT

Large Unmanned Aerial System (UAS) Transfer to Ukraine: Issues for Congress

March 1, 2023

In mid-2022, Ukraine reportedly requested that the Biden Administration transfer to Ukraine large advanced Unmanned Aerial Systems (UAS). Ukraine argues that access to these weapon systems would improve its air operations against Russian ground forces. In addition, the U.S. Air Force reportedly proposed the transfer of MQ-9 Reaper UAS to Ukraine in spring 2022. Some Members of Congress have expressed support for sending large UAS to Ukraine. For example, on September 21, 2022, a bipartisan group of 17 Members of the House of Representatives wrote to Secretary of Defense Lloyd Austin expressing support for the transfer of UAS like the MQ-1C Gray Eagle or the MQ-9A Reaper. Similarly, on November 22, 2022, a bipartisan group of 16 Senators also wrote to Secretary Austin expressing support for transfer of the MQ-1C Gray Eagle. Congress authorized the transfer of armed UAS to Ukraine (through the Ukraine Security Assistance Initiative) in the FY2023 James M. Inhofe National Defense Authorization Act, P.L. 117-263, §1241(b). The Administration has reportedly expressed concern that Russia could capture and exploit some sensitive electronic components on these aircraft, such as electro-optical/infrared cameras. This Insight addresses potential issues Congress may consider if the Administration proposes a potential transfer of large UAS to Ukraine as the situation in the zone of conflict changes.

Large UAS like the MQ-1C Gray Eagle and MQ-9A Reaper—sometimes referred to as medium altitude long endurance UAS—provide continuous surveillance and reconnaissance and can be armed with weapons like the AGM-114 Hellfire II missile, GBU-12 Paveway II laser-guided bomb, and GBU-38 Joint Direct Attack Munition (JDAM). Large UAS require a 5,000-foot runway to take off and land, along with a ground control station (GCS) accommodating multiple two-person crews to operate the aircraft. The radio frequency signal connecting the aircraft to the GCS can be line-of-sight or relayed through another airborne platform or satellite. (For more information, see CRS Report R47188, *Unmanned Aircraft Systems: Roles, Missions, and Future Concepts*.)

Table 1. MQ-1C and MQ-9A Performance Characteristics

Platform	Max Altitude	Max Speed	Endurance	External Weapons Payload
MQ-1C Gray Eagle	29,000 feet	167 knots	25 hours	500 lb. / four Hellfire II missiles

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IN12120

Platform	Max Altitude	Max Speed	Endurance	External Weapons Payload
MQ-9A Reaper	50,000 feet	240 knots	27 hours	3,000 lb. / combination of Hellfire II, Paveway II, and/or JDAM

Source: General Atomics MQ-1C Gray Eagle and MQ-9A Reaper factsheets.

The United States has supplied small and medium UAS to Ukraine. The Biden Administration first announced the transfer of these UAS to Ukraine in March 2022, which included the Phoenix Ghost and Switchblade, categorized as tactical UAS, and the RQ-20B Puma AE, a reconnaissance UAS. In August 2022, the Administration announced the planned transfer of the medium ScanEagle surveillance UAS to improve the Ukrainian military's capability to find and target Russian artillery and troop positions.

Issues for Consideration

Survivability

Russian air defenses and fighter aircraft present a risk to Ukrainian military air operations. Ukraine's Air Force operated the Turkish TB-2 UAS to effectively conduct surveillance and perform strikes early in the conflict. However, Ukrainian-operated UAS reportedly suffered up to a 90% rate of loss between February and July 2022. The MQ-1C Gray Eagle and MQ-9A Reaper can operate at altitudes that make them more survivable than small UAS. Advanced sensor technology also allows both platforms to operate further away from air defense threats while still providing effective surveillance, reconnaissance, and precision weapons employment. Despite these capabilities, Russian fighter aircraft and air defense systems continue to be effective near the front lines of Russian-held territory and accordingly present a risk to aircraft. Additionally, Russian air defense systems—like the medium-range Buk and long-range S-400 missile systems—use advanced radars to engage aircraft beyond visible range and at altitudes in excess of 50,000 feet. Some Ukrainian pilots familiar with Russian air defense threats have expressed skepticism about the survivability of large UAS. These pilots have also reported electronic warfare effects close to the front lines, which may interfere with UAS that depend on radio frequency communications to operate.

Technology Exploitation

Department of Defense (DOD) officials have reportedly expressed concern about sensitive technology exploitation. DOD is reportedly investigating potential technical modifications that could enable the transfer of MQ-1C Gray Eagles to Ukraine, but some analysts note that such modifications are complex and may take time. DOD concerns may stem from Iran's recovery and potentially exploitation of wreckage from large UAS. In the event of any large UAS losses in Ukraine, the United States could lack the flexibility to destroy or recover the wreckage to prevent exploitation, as it has in other areas of operations. Other analysts say exploitation concerns are overstated, arguing that other nations have likely already exploited U.S. UAS after losses in places like Syria.

Cost and Transfer

In January 2023, General Atomics offered to sell Ukraine two MQ-9As for $1, although the transaction would require $10 million for preparation and shipment, with an additional $8 million for annual maintenance and sustainment. Based on FY2023 budget requests, procurement costs for the U.S. for MQ-1C Gray Eagle and MQ-9A Reaper were $11 million and $23 million, respectively. Actual costs may vary based on the associated sensors, weapons, and equipment. The Administration has several options for enabling the transfer of advanced UAS to Ukraine: Foreign Military Sales (FMS) for new UAS systems,

and Presidential Drawdown Authority (PDA) and Excess Defense Articles (EDA) for used systems. It could use Ukraine Security Assistance Initiative (USAI) or Foreign Military Financing (FMF) to assist in funding these options.

Issues for Congress

Congress in its oversight role, as well as legislatively in the annual defense authorization bill, may

- inquire whether large UAS like the MQ-1C Gray Eagle and the MQ-9A Reaper are survivable in the current environment, and the ways in which Russian threats to air operations would affect their utility for Ukrainian Armed Forces;
- inquire of the Defense Technical Support Agency about the potential risk of sensitive technology exploitation in transferring large UAS to Ukraine;
- consider legislation requiring or preventing the transfer of large UAS based on the risk of technology exploitation;
- consider the cost of transfer and sustainment of advanced UAS, as well as how it may affect the total cost of Ukraine assistance; and
- consider how mechanisms to transfer advanced UAS (e.g., PDA or EDA) may require legislation to address funding caps for the current fiscal year, which the 117th Congress passed in FY2022.

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