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The Terminal High Altitude Area Defense (THAAD) System

Background

According to the Department of Defense (DOD), the Terminal High Altitude Area Defense (THAAD) system **(Figure 1**) is a key element of U.S. ballistic missile defense (BMD). THAAD employs interceptor missiles, using "hit-to-kill" technology. Reportedly, THAAD is capable of engaging targets at ranges of 150–200 kilometers (km). THAAD covers the BMD middle tier and defends a larger area than the Patriot Air and Missile Defense System. It complements the Patriot, the Navy's AEGIS Missile Defense System, and the Ground-based Midcourse Defense System.

A THAAD battery consists of approximately 90 soldiers, 6 truck mounted launchers, 48 interceptors (8 per launcher), 1 Army/Navy Transportable Radar Surveillance and Control Mode 2 (AN/TPY-2) radar, and a Tactical Fire Control/Communications component. THAAD provides Combatant Commanders a rapidly deployable capability against short-range (up to 1,000 km), medium-range (1,000–3,000 km), and limited intermediate-range (3,000–5,000 km) ballistic missile threats inside or outside the atmosphere during their final (terminal) phase of flight. THAAD was developed by Lockheed Martin Corporation, headquartered in Bethesda, MD, and is being manufactured in Troy, AL. The Missile Defense Agency (MDA) is responsible for the development of THAAD. According to the MDA,

> MDA is responsible for the sustainment of the THAAD missile defense unique and development items, while the U.S. Army is responsible for the operations and sustainment of the common items. MDA funding provides sustainment for all fielded THAAD batteries, ensures THAAD assets are properly maintained and crews are trained to meet Combatant Commanders' needs.

The Army provides soldiers for THAAD units. As such, the ability to field and operate THAAD batteries can be affected by recruiting and retention shortages, as well as the availability of qualified critical technical military occupational specialties.

The Army currently has eight THAAD batteries. The first THAAD battery (A Battery, 4th Air Defense Artillery Regiment, 11th Air Defense Artillery Brigade) was activated in May 2008 at Fort Bliss, TX. According to 2019's *Army Air and Missile Defense 2028*, three THAAD batteries are based at Fort Bliss; two batteries are based at Fort Cavazos, TX; one battery is based in South Korea; and one is based in Guam. It is not known to CRS where the eighth THAAD battery is planned to be stationed.

Figure 1. THAAD Fire Unit

Source: U.S. Indo-Pacific Command News, https://www.pacom.mil/Media/News/Article/707735/missile-system-would-greatly-increase-defense-capability-in-south-korea/, accessed April 16, 2024.

Brief History of the THAAD Program

According to the Center for Strategic and International Studies (CSIS) Missile Defense Project, the Army began developing THAAD in 1992. In December 1995, the Army attempted its first THAAD intercept test, which was unsuccessful. Five successive test flights—taking place from 1996 to 1999—also failed. The Army redesigned THAAD and relaxed requirements for intercepting targets at lower altitudes. Between 2006 and 2019, the Army and the MDA conducted 18 THAAD intercept tests. Fourteen of the tests were successful, and four were cancelled prior to launch due to target malfunctions.

THAAD Program Activities

The FY2021 National Defense Authorization Act (NDAA) (P.L. 116-283) authorized and funded the procurement of an eighth THAAD battery. On April 21, 2022, Lockheed Martin received a contract totaling $74 million to produce the THAAD battery for the MDA, which was planned to be fielded by 2025. According to the MDA, as of January 2024, the eighth THAAD battery was in production. According to Lockheed Martin, they delivered the minimum engagement package of the eighth THAAD battery to the U.S. government in June 2025.

THAAD Overseas Deployments

THAAD has been deployed on a number of occasions in response to potential ballistic missile threats. According to an April 2013 *Federal Register* notice,

> The U.S. Secretary of Defense directed the Army to deploy a THAAD battery immediately to Guam on an emergency basis in response to potential North Korean missile launch activity.

The Guam-based THAAD unit is designated as Task Force Talon, Echo Battery, 3rd Air Defense Artillery of the Army's 38th Air Defense Artillery Brigade.

South Korea

On July 7, 2016, the U.S. and South Korean governments decided to deploy a THAAD battery to U.S. Forces Korea as a defensive measure designed to ensure the security of South Korea and to protect alliance military forces from North Korea's use of weapons of mass destruction and conventional ballistic missile threats. The THAAD battery is stationed at a South Korean military base in Seongju, about 130 miles south of Seoul.

2023 Middle East Deployment

On October 21, 2023, the Secretary of Defense directed the deployment of a THAAD battery, as well as additional Patriot battalions, to locations throughout the region to increase force protection for U.S. forces, bolster regional deterrence efforts, and assist in the defense of Israel.

United States Deploys THAAD to Israel

On October 13, 2024, the Department of Defense, currently using a secondary Department of War designation under Executive Order 14347, announced,

> The deployment of a Terminal High-Altitude Area Defense (THAAD) battery and associated crew of U.S. military personnel to Israel to help bolster Israel's air defenses following Iran's unprecedented attacks against Israel on April 13 and again on October 1 [2024].

THAAD Use During the June 2025 Iranian Conflict

From June 13 to 24, 2025, the United States and Israel were involved in combat operations against Iran intended to destroy key Iranian military and nuclear facilities. In retaliation, Iran launched a series of regional missile strikes largely directed at Israel. According to one study, THAAD interceptors accounted for almost half of all U.S. and Israeli interceptors used to protect Israel against Iranian medium-range ballistic missiles. The study estimated that 92 THAAD interceptors were used during the conflict out of an estimated supply of 632 interceptors. The study further suggested that it could take three to eight years to replenish the THAAD interceptor stockpile, with each THAAD interceptor valued at approximately $12.7 million.

THAAD and Operation Epic Fury

On February 26, 2026, the United States, in conjunction with Israel, launched Operation Epic Fury to "dismantle the Iranian regime's security apparatus, prioritizing locations that pose an imminent threat." As a result of Iranian retaliation, THAAD has played a role in regional air and missile defense. While information on THAAD-specific intercept rates is unknown, reportedly, "the THAAD system, alongside Patriot and other defenses, contributed to a high interception rate of over 90% against Iranian missiles and drones, particularly in the UAE [United Arab Republic]." Reportedly, it has been alleged that a number of THAAD AN/TPY-2 radars have been damaged and/or destroyed by Iran, thereby degrading THAAD's effectiveness. Another reported concern is that the usage rate of THAAD interceptors during Operation Fury has further depleted limited interceptor stocks.

THAAD to Transfer from MDA to the Army

On March 17, 2026, it was reported that the Army is working with MDA on a plan to transfer THAAD to Army control by FY2027. Reportedly, "bringing THAAD into the Army's portfolio would place it alongside systems such as Patriot and the Integrated Air and Missile Defense Battle Command System, potentially simplifying integration and oversight." It was also suggested that the Army assuming control of THAAD "could also saddle it with significant long-term costs at a time when the service is trying to shift resources toward new capabilities."

Estimated THAAD Procurement and Operations and Support Costs

According to a September 2025 American Enterprise Institute (AEI) working paper titled "Build Your Own Golden Dome: A Framework for Understanding Costs, Choices, and Tradeoffs," incremental costs for a THAAD battery are estimated as

- $2.73 billion to procure a single THAAD battery, including 192 interceptors, and
- $32.5 million annually for each THAAD battery for Operations and Sustainment (O&S).

Potential Congressional Oversight Considerations

Adequacy of Current THAAD Force Structure

With the 2024 THAAD deployment to Israel, at least half of the Army's eight THAAD batteries were, at that time, deployed on operations. Additional THAAD units were likely deployed in early 2026 in support of Operation Epic Fury, with reports suggesting THAAD elements stationed in Korea were deployed to the Middle East to support Operation Epic Fury. It is also possible that additional THAAD units might be required to support the Trump Administration's Golden Dome homeland missile defense initiative. Given the aforementioned considerations, Congress might decide to examine the adequacy of Army THAAD force structure. Such an examination might include an assessment to determine the practicality of creating THAAD units in the Army National Guard to meet potential Golden Dome requirements for additional THAAD units.

THAAD Transfer from MDA to the Army

Congress might decide to examines the MDA's and the Army's plans to transfer THAAD to Army control. Such an examination could include current and future Army resource and budgetary requirements and how these requirements could affect other ongoing Army modernization efforts. In addition, such an examination could discuss timelines associated with transfer of control and what Army organizational changes could be required to accommodate the Army's assumption of responsibility for THAAD.

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