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Israel's Iron Dome Anti-Rocket System: U.S. Assistance and Coproduction
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Overview

Israel's Iron Dome anti-rocket system—along with other Israeli measures such as an early-warning and sheltering system—has been widely credited with protecting the country's civilian population from projectiles fired by Palestinian militants in the Gaza Strip. During the summer 2014 conflict between Israel and Hamas and other Gaza-based militants (which Israel refers to as Operation Protective Edge), many lawmakers praised the performance of Iron Dome. On August 1, Congress passed [H.J.Res. 76](#), the Emergency Supplemental Appropriations Resolution, 2014 ([P.L. 113-145](#)), which appropriated an additional \$225 million in FY2014 funds for Iron Dome. This brings total U.S. defense appropriations for Iron Dome since FY2011 to \$929.3 million. For more information on Iron Dome, see CRS Report RL33222, [U.S. Foreign Aid to Israel](#); and CRS Report RL33476, [Israel: Background and U.S. Relations](#).

Background

Iron Dome is a short-range anti-rocket system developed by Israel's Rafael Advanced Defense Systems and originally produced in Israel. Iron Dome's targeting system and radar are designed to fire its Tamir interceptors only at incoming projectiles that pose threats to the area being protected (generally, strategically important sites, including population centers); it is not configured to fire on rockets headed toward unprotected areas. Iron Dome batteries can be moved to respond to changes in Israeli areas subject to threat.

Iron Dome was declared operational in early 2011. Its first major test came in November 2012 during a weeklong Israel-Hamas conflict (termed Operation Pillar of Cloud/Defense by Israel). [Israeli officials claim that Iron Dome intercepted 85%](#) of the more than 400 rockets fired by Gaza-based militants that were selectively targeted based on the criteria discussed above. (A total of about 1,500 rockets were fired during the conflict.) During the 2012 conflict, four Israeli civilians were killed due to rocket fire.

Between 2012 and 2014, Israel upgraded Iron Dome's various tracking and firing mechanisms and expanded the number of batteries deployed from five to nine. During the 2014 conflict, media reports generally based on Israeli claims would seem to indicate that [Iron Dome's performance was similar to its performance in November 2012](#).

U.S.-Israeli Coproduction of Iron Dome

Because Iron Dome was developed by Israel alone, Israel initially retained proprietary technology rights to it. The United States and Israel have had a decades-long partnership in the development and coproduction of other missile defense systems (such as the Arrow) and, as the United States began financially supporting Israel's development of Iron Dome in FY2011, [U.S. interest in ultimately becoming a partner in its coproduction grew](#).

Congress then called for Iron Dome technology sharing and coproduction with the United States. In conference report language accompanying [P.L. 112-239](#), the National Defense Authorization Act for Fiscal Year 2013, conferees agreed:

The Department of Defense needs to obtain appropriate data rights to Iron Dome technology to ensure us the ability to use that data for U.S. defense purposes and to explore potential coproduction opportunities. The conferees support this policy and expect the Department to keep the congressional

defense committees informed of developments and progress on this issue.

The following year, Section 234 of [P.L. 113-66](#), the National Defense Authorization Act, FY2014, expressed a sense of Congress that:

- "second-source production of parts and components of the Iron Dome short-range rocket defense program that is based in the United States is in the national security interest of both Israel and the United States"; and
- "the move towards such a second-source capacity in the United States for integration and assembly of all-up rounds of the Iron Dome short-range rocket defense program will further enhance the security of Israel by ensuring added production capability of such a vital program."

The act also authorized up to \$15 million for nonrecurring engineering costs in connection with the establishment of a capacity for coproduction in the United States for Iron Dome. In addition, it required the Administration to report on the progress of U.S.-Israeli coproduction of Iron Dome.

Table 1. U.S. Funding for Iron Dome, FY2011-Present

\$ in millions

Fiscal Year	Amount Appropriated or Otherwise Allocated
FY2011	\$205.0
FY2012	\$70.0
FY2013	\$194.0
FY2014	\$235.309
FY2014 Supplemental	\$225.0
FY2015 Request/Proposed	\$175.97/ \$305.972
Total	\$929.309

In March 2014, the United States and Israeli governments signed [a coproduction agreement](#) to enable components of the Iron Dome system to be manufactured in the United States, while also providing the U.S. Missile Defense Agency (MDA) with full access to what had been proprietary Iron Dome technology. U.S.-based Raytheon will be Rafael's U.S. partner in the coproduction of Iron Dome, and Raytheon's facility in Tucson, AZ, may be one of several U.S. sites where production takes place. On September 30, 2014, Raytheon received a \$149 million contract from Rafael to provide parts for the Tamir interceptor. U.S. officials believe a slight cost savings will result from this coproduction arrangement. The FY2014 Emergency Supplemental Appropriations Resolution also exempts funds from coproduction requirements contained in the March 2014 U.S.-Israel Iron Dome Procurement Agreement.

Possible FY2015 Authorization and Appropriation

For FY2015, the MDA has requested \$175.97 million for Iron Dome. Congress has appropriated funding for joint U.S.-Israeli missile defense cooperation exceeding MDA's request over the past several fiscal years. Amounts in both the House-and Senate-proposed FY2015 Defense Appropriations bills ([H.R. 4870](#)), if appropriated, would essentially double the Administration's total request for Iron Dome, increasing it to \$350.9 million. If approved, it would bring total U.S. appropriations for Iron Dome to \$1.28 billion.

However, lawmakers with legislative and oversight roles over defense spending have determined that more progress should be made on U.S.-Israeli Iron Dome coproduction efforts before funding beyond the Administration's requested amount can be provided. The Senate defense appropriations subcommittee stated in its July 2014 report on [H.R. 4870 \(S.Rept. 113-211\)](#) that, among other things, not more than \$175.97 million may be obligated or expended for Iron Dome in FY2015 until Israel's Missile Defense Organization provides additional justification and documentation to the Department of

Defense containing a timeline for FY2015 Iron Dome expenditures, as well as a delivery schedule for items funded with these and prior year funds. Also required is "a report to MDA documenting full and complete delivery by Israeli industry and acceptance by U.S. industry suppliers of all technical data packages required for U.S. coproduction of Iron Dome." The House Armed Services Committee, in a report ([H.Rept. 113-446](#)) accompanying [H.R. 4435](#), the FY2015 National Defense Authorization Act passed by the House in May 2014, stated that in the event of a FY2016 request for Iron Dome funding, the committee holds that MDA "must establish for the committee how those funds will resolve details and agreements needed for U.S.-based coproduction of all-up-rounds and cover the export of Iron Dome technology to U.S. and Israeli allies."