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U.S. Foreign Aid to Israel

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Summary

This report provides an overview of U.S. foreign assistance to Israel. It includes a review of past aid programs, data on annual assistance, and analysis of current issues. For general information on Israel, see CRS Report RL33476, *Israel: Background and U.S. Relations*, by Jim Zanotti.

Israel is the largest cumulative recipient of U.S. foreign assistance since World War II. To date, the United States has provided Israel $134.7 billion (current, or noninflation-adjusted, dollars) in bilateral assistance and missile defense funding. Almost all U.S. bilateral aid to Israel is in the form of military assistance, although in the past Israel also received significant economic assistance.

At a signing ceremony at the State Department on September 14, 2016, representatives of the U.S. and Israeli governments signed a new 10-year Memorandum of Understanding (MOU) on military aid covering FY2019 to FY2028. Under the terms of the MOU, the United States pledges to provide $38 billion in military aid ($33 billion in Foreign Military Financing grants plus $5 billion in missile defense appropriations) to Israel. This MOU replaces a previous $30 billion 10-year agreement, which runs through FY2018.

Israel is the first international operator of the F-35 Joint Strike Fighter, the Department of Defense's fifth-generation stealth aircraft, considered to be the most technologically advanced fighter jet ever made. To date, Israel has purchased 50 F-35s in three separate contracts.

P.L. 115-141, the FY2018 Consolidated Appropriations Act, provides the following for Israel:

- $3.1 billion in Foreign Military Financing, of which $815.3 million is for off-shore procurement;
- $705.8 million for joint U.S.-Israeli missile defense projects, including $92 million for Iron Dome, $221.5 million for David's Sling, $310 million for Arrow 3, and $82.3 million for Arrow 2;
- $47.5 million for the U.S.-Israeli anti-tunnel cooperation program;
- $7.5 million in Migration and Refugee Assistance;
- $4 million for the establishment of a U.S.-Israel Center of Excellence in energy and water technologies;
- $2 million for the Israel-U.S. Binational Research & Development Foundation (BIRD) Energy program; and
- The reauthorization of War Reserves Stock Allies-Israel (WRSA-I) program through fiscal year 2019.

For FY2019, the Trump Administration is requesting $3.3 billion in Foreign Military Financing for Israel and $500 million in missile defense aid to mark the first year of the new MOU. The Administration also is seeking $5.5 million in Migration and Refugee Assistance (MRA) funding for humanitarian migrants to Israel.

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Background

For decades, the United States and Israel have maintained strong bilateral relations based on a number of factors, including robust domestic U.S. support for Israel and its security; shared strategic goals in the Middle East; a mutual commitment to democratic values; and historical ties dating from U.S. support for the creation of Israel in 1948. U.S. foreign aid has been a major component in cementing and reinforcing these ties. Although successive Administrations have disapproved of some Israeli policies, including settlement construction in the West Bank, U.S. officials and many lawmakers have long considered Israel to be a vital partner in the region, and U.S. aid packages for Israel have reflected this calculation. Some observers, including opponents of U.S. aid to Israel, argue that U.S. assistance to Israel supports Israeli arms purchases without providing sufficient scrutiny of controversial Israeli military actions that—these observers assert—contravene various laws and international norms, particularly regarding treatment of Palestinians.

Table 1. Total U.S. Foreign Aid Obligations to Israel: 1946-2017

current, or noninflation-adjusted, dollars in millions

Fiscal Year	Military	Economic	Missile Defense	Total
1946-2016	91,617.786	34,265.675	5,104.874	130,988.340
2017	3,175.000	-	600.735	3,775.740
2018	-	-	-	-
2019 Request	3,300.000		500.000	3,800.000
Total	**94,792.790**	**34,265.675**	**5,705.61**	**134,764.080**

Sources: U.S. Overseas Loans and Grants (Greenbook) and the U.S. State Department.

Notes: The Greenbook figures do not include missile defense funding provided by the Department of Defense. As of February 2018, Congress has not appropriated FY2018 funds.

While overall U.S. public support for Israel remains strong, American public attitudes toward Israel are growing more polarized. In January 2018, the Pew Research Center released poll results about the dispute between Israel and the Palestinians. Among other findings, Pew reported that "46% of Americans say they sympathize more with the Israelis, 16% say they sympathize more with the Palestinians and about four-in-ten (38%) either volunteer that their sympathies are with both (5%), neither (14%) or that they do not know (19%)."[1] Pew also highlighted a widening partisan divide between Republicans and Democrats over their support for Israel, noting that 79% of Republicans sympathize more with Israel than the Palestinians, compared with 27% of Democrats.

[1] "Republicans and Democrats Grow Even Further Apart in Views of Israel, Palestinians," *Pew Research Center*, January 23, 2018. Some observers have criticized this poll, asserting that it conflates American attitudes toward Israel with public opinion of the Israeli-Palestinian conflict. See, "How Not to Measure Americans' Support for Israel," *The Atlantic*, January 26, 2018.

Qualitative Military Edge (QME)

Overview

Almost all current U.S. aid to Israel is in the form of military assistance.[2] U.S. military aid has helped transform Israel's armed forces into one of the most technologically sophisticated militaries in the world. U.S. military aid for Israel has been designed to maintain Israel's "qualitative military edge" (QME) over neighboring militaries.[3] The rationale for QME is that Israel must rely on better equipment and training to compensate for being much smaller in land area and population than its potential adversaries. U.S. military aid also has helped Israel build its domestic defense industry, which ranks as one of the top global suppliers of arms.[4]

Successive Administrations have routinely affirmed the U.S. commitment to strengthening Israel's QME. However, for years, no official or public U.S. definition of QME existed.[5] In order to clarify U.S. policy on preserving Israel's QME, Congress has passed several pieces of legislation addressing the issue. For example, in 2008, Congress passed legislation (P.L. 110-429, the Naval Vessel Transfer Act of 2008) that defined QME as

> the ability to counter and defeat any credible conventional military threat from any individual state or possible coalition of states or from non-state actors, while sustaining minimal damage and casualties, through the use of superior military means, possessed in sufficient quantity, including weapons, command, control, communication, intelligence, surveillance, and reconnaissance capabilities that in their technical characteristics are superior in capability to those of such other individual or possible coalition of states or non-state actors.

Section 201 of P.L. 110-429 required the President to carry out an "empirical and qualitative assessment on an ongoing basis of the extent to which Israel possesses a qualitative military edge over military threats to Israel." The 2008 law also amended Section 36 of the Arms Export Control Act (AECA) to require certifications for proposed arms sales "to any country in the

[2] For many years, U.S. economic aid helped subsidize a lackluster Israeli economy, but since the rapid expansion of Israel's high-tech sector and overall economy in the 1990s (sparked partially by U.S.-Israeli scientific cooperation), Israel has been considered a fully industrialized nation. Consequently, Israel and the United States agreed to gradually phase out economic grant aid to Israel. In FY2008, Israel stopped receiving bilateral Economic Support Fund (ESF) grants. It had been a large-scale recipient of grant ESF assistance since 1971.

[3] The concept of QME (independent of its application to Israel) dates back to the Cold War. In assessing the balance of power in Europe, U.S. war planners would often stress to lawmakers that because countries of the Warsaw Pact had a numerical advantage over U.S. and allied forces stationed in Europe, the United States must maintain a "qualitative edge" in defense systems. For example, see, Written Statement of General William O. Gribble, Jr., Hearings on Research, Development, Test, and Evaluation Program for Fiscal Year 1973, Before Subcommittee No. 1 of Committee on Armed Services, House of Representatives, Ninety-Second Congress, Second Session. February 2, 3, 7, 9, 22, 23, 24, March 6, 7, and 8, 1972. The concept was subsequently applied to Israel in relation to its Arab adversaries. In 1981, then-U.S. Secretary of State Alexander Haig testified before Congress, saying, "A central aspect of US policy since the October 1973 war has been to ensure that Israel maintains a qualitative military edge." Secretary of State Al Haig, Statement for the Record submitted in response to Question from Hon. Clarence Long, House Appropriations Subcommittee on Foreign Operations Appropriations, April 28, 1981.

[4] See, CRS Report R44716, *Conventional Arms Transfers to Developing Nations, 2008-2015*, by Catherine A. Theohary. Also, according to the Stockholm International Peace Research Institute (SIPRI), from 2012 to 2016, Israel was the 10th largest arms exporter worldwide, accounting for 2.3% of world deliveries. See, "Trends in International Arms Transfers, 2016," SIPRI Fact Sheet, February 2017.

[5] William Wunderle and Andre Briere, *U.S. Foreign Policy and Israel's Qualitative Military Edge: The Need for a Common Vision*, Washington Institute for Near East Policy, Policy Focus #80, January 2008.

Middle East other than Israel" to include "a determination that the sale or export of the defense articles or defense services will not adversely affect Israel's qualitative military edge over military threats to Israel." What might constitute a legally defined adverse effect to QME is not clarified in U.S. legislation.

Congress has passed additional legislation addressing Israel's QME. In 2012, Congress passed the United States-Israel Enhanced Security Cooperation Act (P.L. 112-150), which, among other things, reiterated that it is the policy of the United States to "to help the Government of Israel preserve its qualitative military edge amid rapid and uncertain regional political transformation." In 2014, Congress passed The U.S.-Israel Strategic Partnership Act (P.L. 113-296). This act amended Section 36 of the AECA to require that the Administration explain, in cases of sales or exports of major U.S. defense equipment to other Middle Eastern states, what is "Israel's capacity to address the improved capabilities provided by such sale or export."[6] The act also requires the Administration to

- Evaluate "how such sale or export alters the strategic and tactical balance in the region, including relative capabilities; and Israel's capacity to respond to the improved regional capabilities provided by such sale or export."
- Include "an identification of any specific new capacity, capabilities, or training that Israel may require to address the regional or country-specific capabilities provided by such sale or export; and a description of any additional United States security assurances to Israel made, or requested to be made, in connection with, or as a result of, such sale or export."

Finally, P.L. 113-296 amends Section 201(c) of the Naval Vessel Transfer Act of 2008 (22 U.S.C. 2776) by requiring Administration reports on QME every two years rather than (as previously required) every four.[7]

QME and U.S. Arms Sales to the Gulf

Israeli officials periodically express concern over U.S. sales of sophisticated weaponry, particularly aircraft, airborne radar systems, and precision-guided munitions, to Arab Gulf countries. As the United States has been one of the principal suppliers of defense equipment and training to both Israel and the Arab Gulf states, U.S. policymakers and defense officials have sought to carefully navigate U.S. defense commitments, while following the legal requirement to maintain Israel's QME.

Although at times Israel and the Arab Gulf states have coalesced against a commonly perceived Iranian threat, U.S. arms sales to states such as Saudi Arabia still periodically raise Israeli QME concerns. In May 2017, the Trump Administration announced that the United States and Saudi Arabia had completed and proposed defense sales with a potential value of more than $110 billion. While most Israeli government officials refrained from publicly objecting to the deal, several did express concern over whether new U.S. arms sales to Saudi Arabia would erode

[6] Upon signing P.L. 113-296 into law, President Obama issued a signing statement noting: "Sections 11(b) and 12(c)(2) of this bill purport to require me to provide to the Congress certain diplomatic communications and direct the Secretary of State to undertake certain diplomatic initiatives. Consistent with longstanding constitutional practice, my administration will interpret and implement these sections in a manner that does not interfere with my constitutional authority to conduct diplomacy and to protect the confidentiality of diplomatic communications." See Barack Obama: "Statement on Signing the United States-Israel Strategic Partnership Act of 2014," December 19, 2014. Online by Gerhard Peters and John T. Woolley, The American Presidency Project.

[7] QME reports to Congress are reportedly classified.

Israel's QME.[8] According to Israeli Minister of Energy Yuval Steinitz, "We have also to make sure that those hundreds of billions of dollars of weapons to Saudi Arabia will not, by any means, erode Israel's qualitative edge, because Saudi Arabia is still a hostile country without any diplomatic relations and nobody knows what the future will be."[9] The American Israel Public Affairs Committee (AIPAC) also called for the preservation of Israel's QME in light of proposed U.S. arms sales to Saudi Arabia, specifically warning that the U.S. sale to Saudi Arabia of the Terminal High Altitude Area Defense (THAAD) system (notified to Congress in October 2017) could "negatively impact Israel's QME" and would "also improve the kingdom's ability to track Israeli F-15 and F-16 fighters."[10] Some experts note that even after a sale of U.S. major defense systems to Saudi Arabia, U.S. personnel are often involved in the operation, maintenance, and end-use monitoring of equipment, thereby serving as a possible bulwark against client misuse.[11]

United Arab Emirates (UAE) interest in becoming the first Arab state operator of the F-35 Joint Strike Fighter also may raise Israeli QME concerns. The Trump Administration reportedly has agreed to enter into preliminary talks with the UAE on procurement of the F-35.[12] Previously, U.S. officials had said that the United States would not sell the aircraft to the UAE before Israel receives the weapon. In addition to satisfying QME concerns before considering a F-35 sale to the UAE, the United States may also require the UAE to improve its protection of data security due to the sensitive technologies in the F-35's hardware and software.[13] To date, no specific decision has been announced to begin preliminary U.S.-UAE talks on the subject.

U.S. Bilateral Military Aid to Israel

Since 1999, overall U.S. assistance to Israel has been outlined in 10-year government-to-government Memoranda of Understanding (MOUs). MOUs are not legally binding agreements like treaties, and thus do not require Senate concurrence. Also, Congress may accept or change year-to-year assistance levels for Israel, or provide supplemental appropriations. Nevertheless, past MOUs have significantly influenced the terms of U.S. aid to Israel; Congress has appropriated foreign aid to Israel largely according to the terms of the current MOU.

[8] "Israeli Defence Minister says Uneasy over US-Saudi Arms Deal, *Agence France Presse*, May 24, 2017.

[9] "Israeli Minister Expresses Concern over U.S.-Saudi Arms Deal, *Reuters*, May 21, 2017.

[10] "Congress Must Examine Impact of Saudi Arms Sale," American Israel Public Affairs Committee, Near East Report, June 2017.

[11] "Congress OK with Saudi Missile Defense Sale amid warming Israel-Gulf Ties, *Al Monitor*, May 11, 2017.

[12] "Trump could let the UAE buy F-35 jets," *Defense News*, November 4, 2017.

[13] "To Seal F-35 Deal, UAE Must Agree To Protect Sensitive Information," *Aerospace Daily & Defense Report*, November 14, 2017.

Brief History of MOUs on U.S. Aid to Israel

The first 10-year MOU (FY1999-FY2008), agreed to under the Clinton Administration, was known as the "Glide Path Agreement" and represented a political commitment to provide Israel with at least $26.7 billion in total economic and military aid over its duration (of which $21.3 billion was in military aid).[14] This MOU provided the template for the gradual phase-out of all economic assistance to Israel.

In 2007, the Bush Administration and the Israeli government agreed to the current $30 billion military aid package for the 10-year period from FY2009 to FY2018. Under the terms of the agreement, Israel was explicitly permitted to continue spending up to 26.3% of U.S. assistance on Israeli-manufactured equipment (known as Off-Shore Procurement or OSP - discussed below). The agreement states that "Both sides acknowledge that these funding levels assume continuation of adequate levels for U.S. foreign assistance overall, and are subject to the appropriation and availability of funds for these purposes."[15]

The Current 10-Year Security Assistance Memorandum of Understanding (MOU)

At a signing ceremony at the State Department on September 14, 2016, representatives of the U.S. and Israeli governments signed a new 10-year Memorandum of Understanding (MOU) on military aid covering FY2019 to FY2028. Under the terms of this MOU, the United States pledges to provide $38 billion in military aid ($33 billion in FMF grants, plus $5 billion in defense appropriations for missile defense programs) to Israel. According to the terms of the MOU, "Both the United States and Israel jointly commit to respect the FMF levels specified in this MOU, and not to seek changes to the FMF levels for the duration of this understanding."[16] The agreement also acknowledges that "the funding levels in this understanding assume continuation of adequate funding levels for U.S. foreign assistance and missile defense overall, and are subject to the appropriation and availability of funds for these purposes."[17] The new MOU will replace the current $30 billion, 10-year agreement, which runs through FY2018.[18]

[14] See, Joint Statement by President Clinton and Prime Minister Ehud Barak, July 19, 1999. According to the statement, "The United States and Israel will sign a Memorandum of Understanding (MOU) which will express their joint intention to restructure U.S. bilateral assistance to Israel. The MOU will state the United States' intention to sustain its annual military assistance to Israel, and incrementally increase its level by one-third over the next decade to a level of $2.4 billion subject to Congressional consultations and approval. At the same time, the MOU will provide for a gradual phase-out of U.S. economic aid to Israel, over a comparable period, as the Israeli economy grows more robust, less dependent on foreign aid, and more integrated in world markets."

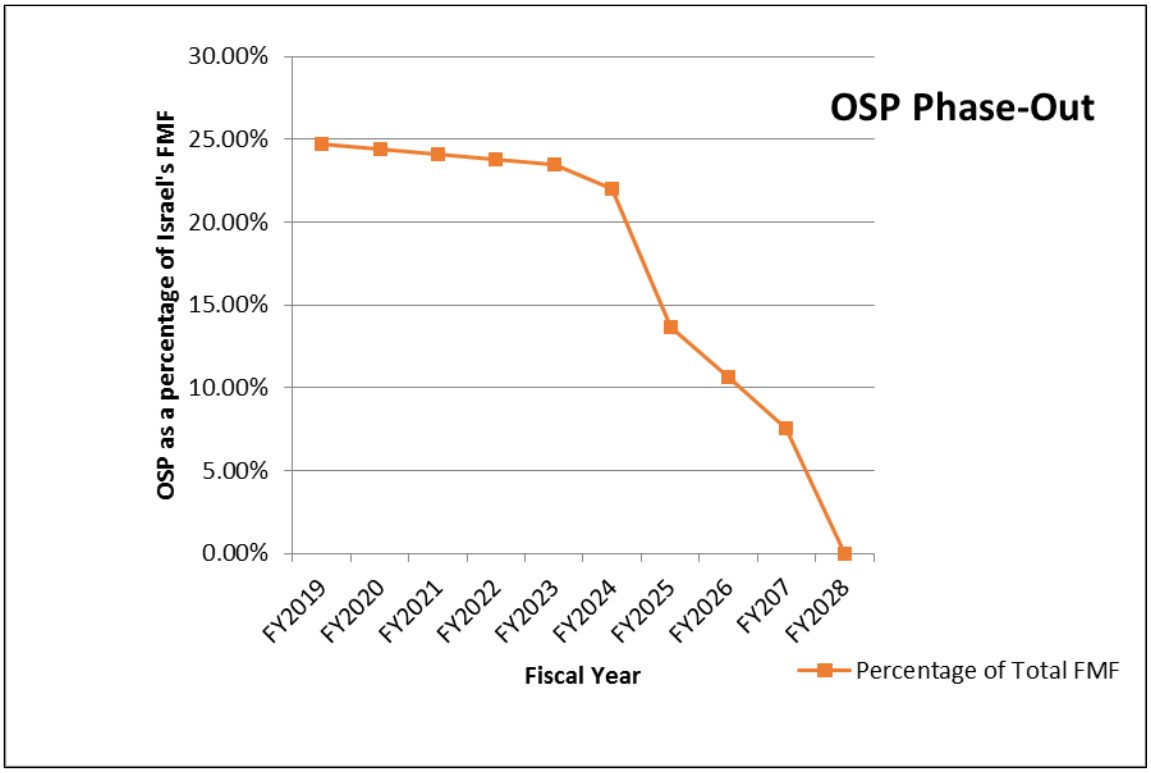
[15] United States-Israel Memorandum of Understanding, Signed by then U.S. Under Secretary of State R. Nicholas Burns and Israeli Ministry of Foreign Affairs Director General Aaron Abramovich, August 16, 2007.

[16] Memorandum of Understanding between the United States and Israel, September 14, 2016.

[17] Ibid.

[18] Congress also separately appropriated $3.984 billion in missile defense funds during that period, not including FY2018.

Figure 1. Phasing Out Off-Shore Procurement Under the MOU



Source: CRS.

The terms of the 2019-2028 MOU differ from previous agreements on such issues as

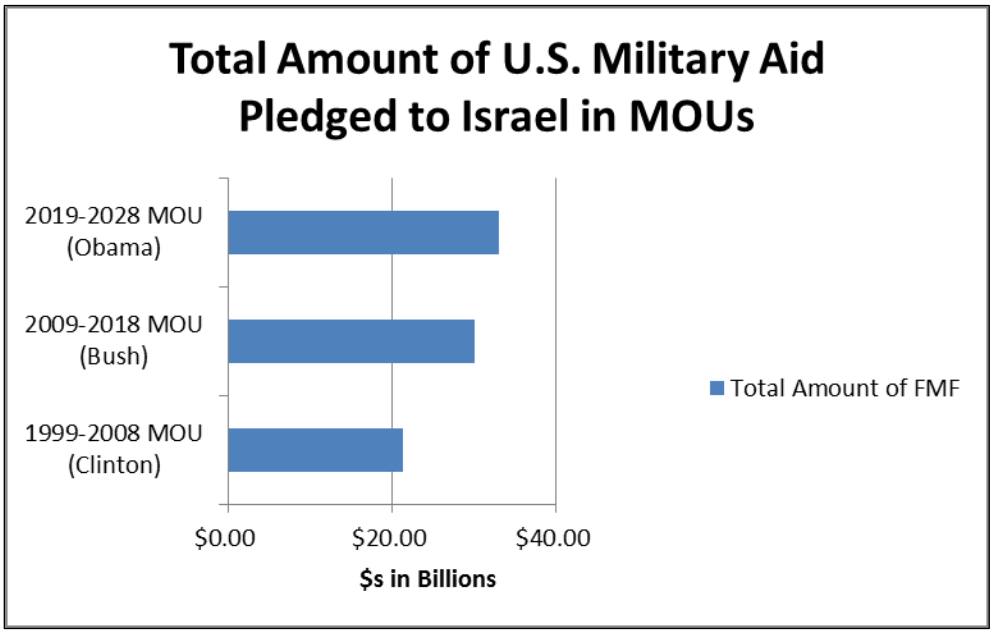
- **Phasing out Off-Shore Procurement (OSP).** Under the terms of the new MOU, OSP will remain until FY2024, but will then be gradually phased out, ending entirely in FY2028. The MOU calls on Israel to provide the United States with "detailed programmatic information related to the use of all U.S. funding, including funds used for OSP." In response to the planned phase-out of OSP, some Israeli defense contractors may be seeking to merge with U.S. companies or open U.S. subsidiaries in order to continue their eligibility for defense contracts financed through FMF.[19]
- **Missile Defense.** Under the terms of the new MOU, the Administration pledges to request $500 million in annual combined funding for missile defense programs with joint U.S.-Israeli elements—such as Iron Dome, Arrow II and Arrow III, and David's Sling. Previous MOUs did not include missile defense funding, which has traditionally been appropriated via separate interactions between successive Administrations and Congresses. While the MOU commits both the United States and Israel to a $500 million annual U.S. missile defense contribution, it does stipulate that under exceptional circumstances (major armed conflict involving Israel), both sides may agree on U.S. support above the $500 million annual cap.
- **No FMF for Fuel.** According to the new MOU, Israel will no longer be permitted to use a portion of its FMF to purchase fuel ("or other consumables")

[19] "Israeli UAV Firm agrees deal for Unnamed US Company," *Jane's Defence Weekly*, July 18, 2017.

from the United States. Under the previous MOU, Israel had budgeted an estimated $400 million a year in FMF to purchase jet fuel from the United States."[20]

- **No "extra FMF" for 2017/2018.** Prime Minister Netanyahu, in a letter to Secretary of State John Kerry accompanying the MOU, pledged to reimburse the U.S. government if Israel receives more congressional assistance than specified ($3.1 billion a year) in the last years (FY2017 and FY2018) of the current 2009-2018 MOU.[21] Some lawmakers criticized this addendum to the MOU, asserting that appropriations are the prerogative of the legislative branch. According to Senator Lindsey Graham, Chairman of the Senate Appropriations Subcommittee on State, Foreign Operations, and Related Programs, the MOU is "not a treaty, and we're not a party to this."[22] Section 7041(d) of P.L. 115-31, the Consolidated Appropriations Act, 2017, provided $75 million in FMF-Overseas Contingency Operations (OCO) for FY2017, which was in addition to the $3.1 billion in regular FMF provided in Title IV in the same Act. In fall 2017, news reports surfaced questioning whether Israel would receive the $75 million of "extra FMF" appropriated in P.L. 115-31. In response, State Department spokesperson Heather Nauert remarked that Israel is "going to get the money."[23]

Figure 2. U.S. Military Aid to Israel over Decades



Source: CRS Graphics.

[20] The White House, Office of the Press Secretary, Fact Sheet: Memorandum of Understanding Reached with Israel, September 14, 2016.

[21] "Caveats of 2016 US-Israel Aid Deal Come into Focus," *Defense News*, January 10, 2017.

[22] "Obama, Lawmakers at Odds over Israel Aid Deal," *Defense News*, September 16, 2016. Senator Graham also filed an amendment to the Senate version of H.R. 2810, the National Defense Authorization Act for Fiscal Year 2018 (P.L. 115-91 as passed). That amendment (S.Amdt. 813) was not adopted. If it had been, it would have maintained the percentage of FMF to Israel designated for OSP at "not less than 26.3 percent from fiscal years 2019 through 2028."

[23] U.S. State Department, Department Press Briefing, September 12, 2017.

Notes: Figures included Foreign Military Financing only. Missile defense funds are not included. Figures are not adjusted for inflation.

Foreign Military Financing (FMF) and Arms Sales

Israel is the largest recipient of U.S. Foreign Military Financing. For FY2019, the President's request for Israel would encompass approximately 61% of total requested FMF funding worldwide. Annual FMF grants to Israel represent approximately 19% of the overall Israeli defense budget.[24] Israel's defense expenditure as a percentage of its Gross Domestic Product (5.8% in 2016) is one of the highest in the world.[25]

Cash Flow Financing[26]

Section 23 of the Arms Export Control Act (22 U.S.C. §276351) authorizes the President to finance the "procurement of defense articles, defense services, and design and construction services by friendly foreign countries and international organizations, on such terms and conditions as he may determine consistent with the requirements of this section." Successive Administrations have used this authority to permit Israel[27] to finance multiyear purchases through installment payments, rather than having to pay the full amount of such purchases up front. Known as "cash flow financing," this benefit enables Israel to negotiate major arms purchases with U.S. defense suppliers with payments scheduled over a longer time horizon.[28]

Early Transfer and Interest Bearing Account

Since FY1991 (P.L. 101-513), Congress has mandated that Israel receive its FMF aid in a lump sum during the first month of the fiscal year.[29] The FY2017 Consolidated Appropriations Act

[24] The Israeli Ministry of Defense provides funding figures for its domestic defense budget but excludes some procurement spending and spending on civil defense. The estimate referenced above is based on figures published by *Jane's Defence Budgets, Israel*, IHS Global Insight, January 29, 2018.

[25] Stockholm International Peace Research Institute (SIPRI), Military expenditure by country as percentage of gross domestic product, 2003-2016, SIPRI Military Expenditure Database, 2017.

[26] For more background, see CRS Report R44060, *Ending Cash Flow Financing to Egypt: Issues for Congress*, by Jeremy M. Sharp.

[27] The United States initially began authorizing installment-style sales to Israel to help it rebuild its military capabilities after the 1973 war with Egypt. Congress appropriated $2.2 billion for Israel in P.L. 93-199, the Emergency Security Assistance Act of 1973. Section 3 of that act stated that "Foreign military sales credits [loans or grants] extended to Israel out of such funds shall be provided on such terms and conditions as the President may determine and without regard to the provisions of the Foreign Military Sales Act as amended." At the time, the Foreign Military Sales Act of 1968 (amended in 1971 and the precursor to the Arms Export Control Act of 1976), capped the annual amount of foreign military sales credit that could be extended to a recipient at no more than $250 million per year. Under the authorities contained in P.L. 93-199, President Nixon, in two separate determinations (April & July 1974), allocated the $2.2 billion to Israel as $1.5 billion in grant military aid, the largest U.S. grant aid package ever for Israel at the time. The remaining $700 million was designated as a military loan.

A year and a half later, the Ford Administration reached a new arms sales agreement with Israel providing that, according to the *New York Times*, "the cost of the new military equipment would be met through the large amount of aid approved by the just-completed session of Congress as well as the aid that will be approved by future Congresses." See, "U.S. Decides to Sell Some Arms to Israel that it had Blocked in the Past," *New York Times*, October 12, 1976.

[28] Cash flow financing is defined in Section 25(d) of the Arms Export Control Act and Section 503(a)(3) of the Foreign Assistance Act.

[29] When government operations are funded by a continuing appropriations resolution, Congress may at times include provisions in such resolutions that would prevent the early transfer of FMF to Israel (presumably until a final year appropriations bill is passed). For example, see Section 109 of P.L. 113-46, the Continuing Appropriations Act, 2014.

(P.L. 115-31) states that "the funds appropriated under this heading for assistance for Israel shall be disbursed within 30 days of enactment of this Act." Once disbursed, Israel's military aid is transferred to an interest bearing account with the U.S. Federal Reserve Bank.[30] Israel has used interest collected on its military aid to pay down its bilateral debt (nonguaranteed) to U.S. government agencies, which, according to the U.S. Department of the Treasury, stood at $148.8 million as of December 2015.[31] Israel cannot use accrued interest for defense procurement inside Israel.

F-35 Joint Strike Fighter

Israel is the first international operator of the F-35 Joint Strike Fighter, the Department of Defense's fifth-generation stealth aircraft considered to be the most technologically advanced fighter jet ever made. In September 2008, the Defense Security Cooperation Agency (DSCA) notified Congress of a possible Foreign Military Sale of up to 75 F-35s to Israel in a deal with a possible total value of $15.2 billion.[32] Since then, Israel has purchased 50 F-35s in three separate contracts (see table below) using FMF grants. Israel is to install Israeli-made C4 (command, control, communications, computers) systems in the F-35s it receives, and call these customized F-35s "*Adirs*."[33]

Table 2. Israel's Purchases of the F-35

Year	# of Planes Purchased	Total Cost	# of Planes in Service
2010	19	$2.75 billion	7
2015	14	$2.82 billion	n/a
2016	17	unspecified	n/a

Source: Jane's World Air Forces, Israel, February 12, 2018.

As part of the F-35 deal, the United States agreed to make reciprocal purchases of equipment (known as "offsets") from Israeli defense companies. If Israel elects to purchase all 75 F-35s, it is estimated that its business offsets could be as high as $4 billion. As of 2017, Israeli firms had received more than 1 billion dollars' worth of business from Lockheed Martin in building components for the F-35.[34]

[30] According to the Defense Security Cooperation Agency (DSCA), "Some countries may establish an account with the federal reserve bank (FRB), New York, for their FMS [Foreign Military Sales] deposits. An agreement between the FMS purchaser's defense organization, the purchaser's central bank, FRB New York and DSCA identifies the terms, conditions, and mechanics of the account's operation. Countries receiving FMFP funds must maintain their interest bearing account in the FRB." See, Defense Institute of Security Assistance Management (DISAM), "The Management of Security Cooperation (Green Book)," 34th Edition, April 2015.

[31] Foreign Credit Reporting System (FCRS), Amounts Due the U.S. Government from Sovereign and Other Foreign Official Obligors as of 12/31/2015, United States Department of the Treasury, Office of International Debt Policy.

[32] Defense Security Cooperation Agency, Transmittal No. 08-83, Israel - F-35 Joint Strike Fighter Aircraft, September 29, 2008.

[33] "After F-35 makes Aliyah, it will get new Israeli Identity," *Israel Hayom*, May 2, 2016. "Adir" is a Hebrew expression for "mighty" or "powerful."

[34] "Israeli F-35 Buy-Back Surpasses $1 Billion," *Defense News*, February 12, 2017.

Figure 3. The Israeli Variant of the F-35A Lightning II

Known as the "Adir" (translated from Hebrew as 'Mighty One')

Source: Lockheed Martin.

Notes: Israel's Minister of Defense Avigdor Lieberman inside the cockpit of the "Adir" during a June 2016 visit to Lockheed Martin's F-35 production facility in Fort Worth, TX.

Excess Defense Articles

The Excess Defense Articles (EDA) program provides a means by which the United States can advance foreign policy objectives—assisting friendly and allied nations through provision of equipment in excess of the requirements of its own defense forces. This program, managed by DSCA, enables the United States to reduce its inventory of outdated equipment by providing friendly countries with necessary supplies at either reduced rates or no charge.[35]

As a designated "major non-NATO ally,"[36] Israel is eligible to receive EDA under Section 516(a) of the Foreign Assistance Act and Section 23(a) of the Arms Export Control Act. According to

[35] To access DSCA's Excess Defense Articles database, see http://www.dsca.mil/programs/eda.

[36] On November 4, 1986, President Reagan signed into law P.L. 99-661, the National Defense Authorization Act for FY1987. In Section 1105 of that act, Congress called for greater defense cooperation between the United States and countries that the Secretary of Defense could designate as a "major non-NATO ally" (MNNA). Such cooperation could entail U.S. funding for joint research and development and production of U.S. defense equipment. In February 1987, the United States granted Israel MNNA status along with several other countries (Egypt, Japan, South Korea, and Australia). According to press reports at the time, in the absence of a U.S.-Israeli mutual defense agreement, supporters of Israel had been advocating for Israel to receive "equal treatment" with regard to certain special military benefits (such as the ability to bid on U.S. defense contracts) that NATO allies received from the United States. See, "Israel seeks to obtain the kind of Financial Aid that NATO Members get from U.S. Government," *Wall Street Journal*, February 3, 1987. Nearly a decade later, Congress passed additional legislation that further solidified Israel's MNNA

DSCA, from 2007 to 2017, Israel received $374.399 million in EDA deliveries (current value only).[37]

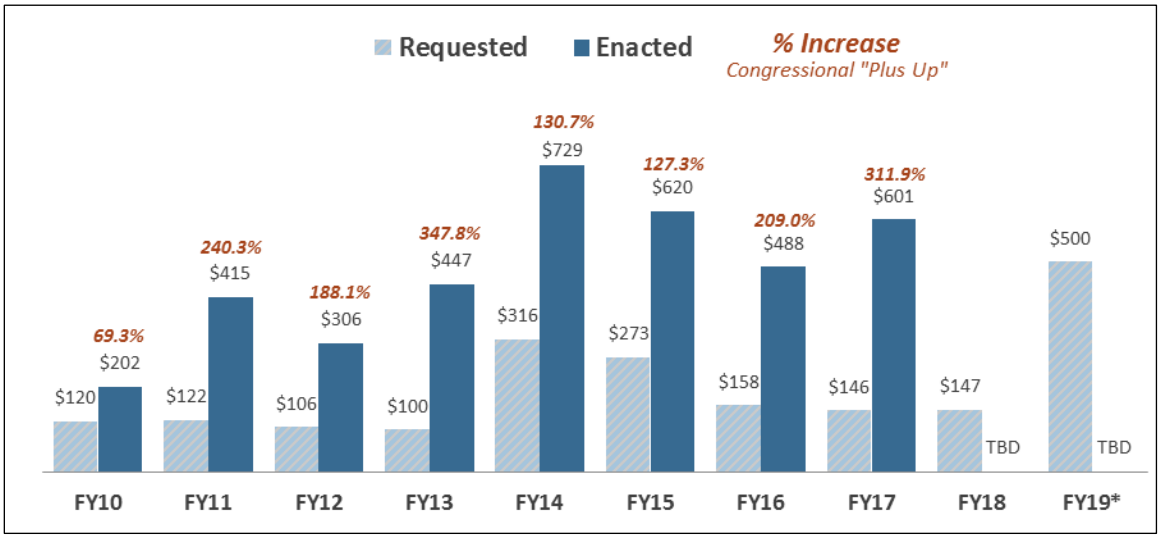
Defense Budget Appropriations for U.S.-Israeli Missile Defense Programs

Congress and successive Administrations have demonstrated strong support for joint U.S.-Israeli missile defense projects designed to thwart a diverse range of threats. The range spans from short-range missiles and rockets fired by nonstate actors, such as Hamas and Hezbollah, to mid- and longer-range ballistic missiles in Syria's and Iran's arsenals. Congress provides regular U.S. funding for Israeli and U.S.-Israeli missile defense programs in defense authorization and appropriations bills. Israel and the United States each contribute financially to several weapons systems and engage in codevelopment, coproduction, and/or technology sharing in connection with them.

The following section provides background on Israel's four-layered active defense network: Iron Dome (short range), David's Sling (low to mid-range), Arrow II (upper-atmospheric), and Arrow III (exo-atmospheric).

Figure 4. Congressional "Plus Up" for Israel Missile Defense: FY2010-FY2017

dollars in millions



Source: Missile Defense Agency.

Notes: The FY2019 request reflects the $500 million pledged to Israel as part of the Memorandum of Understanding on U.S. assistance for FY2019-FY2028.

status. In 1996, Section 147 of P.L. 104-164 amended the Foreign Assistance Act of 1961 by requiring the President to notify Congress 30 days before designating a country as a MNNA. According to the act, Israel, along with several other countries, "shall be deemed to have been so designated by the President as of the effective date of this section, and the President is not required to notify the Congress of such designation of those countries." See, 22 U.S.C. §2321j.

[37] Excess Defense Articles Database Tool, Defense Security Cooperation Agency.

Iron Dome

Iron Dome is a short-range antirocket 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 unpopulated areas. Israel can move Iron Dome batteries as threats change. Israel recently developed a naval version of Iron Dome, which it will install on its corvettes to protect off-shore natural gas facilities.[38]

Iron Dome's Performance

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.

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 Israel's 2014 conflict with Hamas and other Palestinian militants, media reports (generally based on Israeli claims) seem to indicate that Iron Dome had a successful interception rate close to 90%.

According to statistics reported by the Israeli Defense Forces (IDF), Gaza-based terrorist groups fired 35 projectiles into Israel in 2017, of which the vast majority landed in open territory and an estimated 10 struck in residential areas or were intercepted by Iron Dome.[39]

[38] "With high-tech warships, Navy readies to guard gas fields from Hezbollah, Hamas," *Times of Israel*, February 5, 2018.

[39] "More Rockets Fired at Israel in 2017 than Previous Two Years," *Jerusalem Post*, January 8, 2018.

Figure 5. Iron Dome Launcher

Source: Raytheon.

Coproduction and U.S. Funding

To date, the United States has provided $1.397 billion to Israel for Iron Dome batteries, interceptors, coproduction costs, and general maintenance. 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). 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.[40]

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.[41] U.S.-based Raytheon is Rafael's U.S. partner in the coproduction of Iron Dome.

[40] In conference report language accompanying P.L. 112-239, the National Defense Authorization Act for FY2013, 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 co-production opportunities. The conferees support this policy and expect the Department to keep the congressional defense committees informed of developments and progress on this issue."

[41] The co-production agreement is formally titled, "'Agreement Between the Department of Defense of the United States of America and the Ministry of Defense of the State of Israel Concerning Iron Dome Defense System Procurement.''

On September 30, 2014, Raytheon received a $149 million contract from Rafael to provide parts for the Tamir interceptor. The FY2014 Emergency Supplemental Appropriations Resolution, P.L. 113-145, exempted $225 million in Iron Dome funding—requested by Israel on an expedited basis during the summer 2014 Israel-Gaza conflict—from the coproduction requirements agreed upon in March 2014.

Section 1684 of P.L. 115-91, the National Defense Authorization Act (NDAA) for Fiscal Year 2018, authorizes "not more than" $92 million to Israel for the procurement of Tamir interceptors for Iron Dome. It also requires U.S. defense officials to certify that before the United States provides funds to Israel, both the United States and Israel are properly implementing their coproduction agreement for Tamir interceptors.

Table 3. NDAA 2018 Authorized Missile Defense Funding for Israel

dollars in millions

System	Title XLII Research, Development, Test, and Evaluation (P.L. 115-91)	Title XLI Procurement (P.L. 115-91)	Total
Iron Dome	-	92.000	92.000
David's Sling	63.848	120.000	183.848
Arrow II	71.459	-	71.459
Arrow III	133.139	120.000	253.139
Unspecified Israel Coop	105.354	-	105.354
Total	373.800	332.000	705.800

David's Sling

Overview

In August 2008, Israel and the United States officially signed a "project agreement" to codevelop the David's Sling system.[42] David's Sling (aka Magic Wand) is a short/medium-range system designed to counter long-range rockets and slower-flying cruise missiles fired at ranges from 40 km to 300 km, such as those possessed by Iran, Syria, and Hezbollah in Lebanon. David's Sling is designed to intercept missiles with ranges and trajectories for which Iron Dome and/or Arrow interceptors are not optimally configured. It is being developed jointly by Rafael Advanced Defense Systems and Raytheon. David's Sling uses Raytheon's Stunner missile for interception, and each launcher can hold up to 16 missiles. Once the United States and Israel reach a coproduction agreement for the Stunner, the interceptors may be built in Tucson, Arizona by Raytheon. In April 2017, Israel declared David's Sling operational and, according to one analysis, "two David's Sling batteries are sufficient to cover the whole of Israel."[43]

[42] This joint agreement is a Research, Development, Test and Evaluation (RDT&E) Framework agreement between the U.S. and Israel. The joint program to implement the agreement is known as the Short Range Ballistic Missile Defense (SRBMD) David's Sling Weapon System (DSWS) Project. The Department of Defense/ U.S.-Israeli Cooperative Program Office manages the SRBMD/DSWS program, which is equitably funded between the U.S. and Israel.

[43] "IDF officially declares David's Sling Operational," *Jane's Defence Weekly*, April 3, 2017.

Coproduction and U.S. Funding

Since FY2006, the United States has contributed over $1.39 billion to the development of David's Sling. The United States and Israel are negotiating a coproduction agreement to jointly manufacture the Stunner interceptor.

Section 1684 of P.L. 115-91, the National Defense Authorization Act (NDAA) for Fiscal Year 2018, authorizes a total of $183.848 million for David's Sling in two tranches ($63.848 million in Title XLII and $120 million in Title XLI). For the $120 million in procurement funds, the act requires a certification regarding coproduction of components. The act also specifies that prior to the transfer of funds, the Under Secretary of Defense for Acquisition and Sustainment must certify that, among other things, Israel has successfully demonstrated production readiness reviews required by bilateral agreements.

Figure 6. David's Sling Launches Stunner Interceptor

Source: Israel Ministry of Defense.

The Arrow and Arrow II

Since 1988, Israel and the United States have been jointly developing the Arrow Anti-Missile System.[44] The Arrow is designed to counter short-range ballistic missiles. The United States has funded just under half of the annual costs of the development of the Arrow Weapon System, with Israel supplying the remainder. The Arrow II program (officially referred to as the Arrow System Improvement Program or ASIP), a joint effort of Boeing and Israel Aerospace Industries (IAI), is designed to defeat longer-range ballistic missiles. One Arrow II battery is designed to protect large swaths of Israeli territory. In March 2017, media sources reported the first known use of the Arrow II, when it successfully intercepted a Syrian surface-to-air missile (SAM) that had been fired on an Israeli jet returning to Israel from an operation inside Syria.

Table 4. U.S. Contributions to the Arrow Program (Arrow, Arrow II, and Arrow III)

dollars in millions

Fiscal Year	Total	Fiscal Year	Total
1990	52.000	2004	144.803

[44] Shortly after the start of the Strategic Defense Initiative (SDI) in 1985, the Reagan Administration sought allied political support through various cooperative technology agreements on ballistic missile defense (BMD). Israeli interest in BMD was strengthened by the missile war between Iran and Iraq in the later 1980s, and the experience of being attacked by Scud missiles from Iraq during Operation Desert Storm in 1991. A memorandum of understanding was signed with Israel on May 6, 1986, to jointly develop an indigenous Israeli capability to defend against ballistic missiles. Subsequently, a number of additional agreements were signed, including, for example, an April 1989 Memorandum of Agreement (MOA) to develop an Israeli computer facility as part of the Arrow BMD program, a June 1991 agreement to develop a second generation Arrow BMD capability, and a September 2008 agreement to develop a short-range BMD system to defend against very short-range missiles and rockets.

Fiscal Year	Total	Fiscal Year	Total
1991	42.000	2005	155.290
1992	54.400	2006	122.866
1993	57.776	2007	117.494
1994	56.424	2008	118.572
1995	47.400	2009	104.342
1996	59.352	2010	122.342
1997	35.000	2011	125.393
1998	98.874	2012	125.175
1999	46.924	2013	115.500
2000	81.650	2014	119.070
2001	95.214	2015	130.908
2002	131.700	2016	146.069
2003	135.749	2017	272.224
		Total	**2,914.511**

Source: U.S. Missile Defense Agency.

Under the 1986 agreement (see footnote 44) allowing Israel to participate in the Strategic Defense Initiative (SDI), the United States and Israel have codeveloped different versions of the Arrow anti-ballistic missile. The total U.S. financial contribution exceeds $2.9 billion. The system became operational in 2000 in Israel and has been tested successfully. Since 2001, Israel and the United States have conducted a joint biennial exercise, called Juniper Cobra, to work on integrating their weapons, radars, and other systems.

High Altitude Missile Defense System (Arrow III)

Overview

Citing a potential nuclear threat from Iran, Israel has sought a missile interceptor that operates at a higher altitude and greater range than the original Arrow systems. In October 2007, the United States and Israel agreed to establish a committee to evaluate Israel's proposed "Arrow III," an upper-tier system designed to intercept medium-range ballistic missiles. The Arrow III is a more advanced version—in terms of speed, range and altitude—of the current Arrow II interceptor. In 2008, Israel decided to begin development of the Arrow III and the United States agreed to co-fund its development despite an initial proposal by Lockheed Martin and the Department of Defense (DOD) urging Israel to purchase the Terminal High-Altitude Area Defense (THAAD) missile defense system instead.

The Arrow III, made (like the Arrow II) by Israel Aerospace Industries (IAI) and Boeing, has been operational since January 2017. In July 2010, the United States and Israel signed a bilateral agreement (The Upper-Tier Interceptor Project Agreement) to extend their cooperation in developing and producing the Arrow III, including an equitable U.S.-Israeli cost share. In 2018, the Israel Missile Defense Organization plans to hold a series of Arrow III interception tests conducted from Alaska.[45]

Coproduction and U.S. Funding

Since codevelopment began in 2008, Congress has appropriated $743.7 million for Arrow III. Section 1684 of P.L. 115-91, the National Defense Authorization Act (NDAA) for Fiscal Year

[45] "Israeli Arrow 3 Interceptor Test Previews Upcoming Trials in Alaska," *Jane's Defence Weekly*, February 20, 2018.

2018, authorizes a total of $253.139 million for Arrow III in two tranches ($133.139 in Title XLII and $120 million in Title XLI). For the $120 million in procurement funds, the act requires a certification regarding coproduction of components. The act also specifies that prior to the transfer of funds, the Under Secretary of Defense for Acquisition and Sustainment must certify that, among other things, Israel has "demonstrated the successful completion of the knowledge points, technical milestones, and production readiness reviews required by the research, development, and technology agreements for the Arrow 3 Upper Tier Development Program." The certification also requires that missile defense funds for Israel will be provided "on the basis of a one-for-one cash match made by Israel or in another matching amount that otherwise meets best efforts (as mutually agreed to by the United States and Israel)." One observer has identified some congressional concern about whether the United States has sufficient data to determine Israeli contributions relative to U.S. contributions in funding missile defense systems.[46]

The FY2018 NDAA did include a waiver, allowing the Under Secretary to waive the certification requirement if the United States receives sufficient data from Israel demonstrating that, among other things, U.S. contributions are provided to Israel "solely for funding the procurement of long-lead components and critical hardware in accordance with a production plan, including a funding profile detailing Israeli contributions for production, including long-lead production, of the Arrow 3 Upper Tier Interceptor Program." An earlier Senate version of the FY2018 NDAA (S. 1519) included a provision that would have withheld funding for Arrow III until "after the successful completion of two flight tests at a test range in the United States to validate Arrow Weapon System capabilities and interoperability with ballistic missile system components of the United States." According to one account, some lawmakers sought further testing of the Arrow III since "the Israeli military tends to deploy its systems with only limited testing, which is essentially the opposite of the U.S. government's general approach."[47]

Table 5. Defense Budget Appropriations for U.S.-Israeli Missile Defense: FY2006-FY2019 Request

current dollars in millions

Fiscal Year	Arrow II	Arrow III (High Altitude)	David's Sling (Short-Range)	Iron Dome	Total
FY2006	122.866	—	10.0	—	132.866
FY2007	117.494	—	20.4	—	137.894
FY2008	98.572	20.0	37.0	—	155.572
FY2009	74.342	30.0	72.895	—	177.237
FY2010	72.306	50.036	80.092	—	202.434
FY2011	66.427	58.966	84.722	205.000	415.115
FY2012	58.955	66.220	110.525	70.000[a]	305.700
FY2013 After Sequestration	40.800	74.700	137.500	194.000	447.000

[46] "Congress Generous, Again, With U.S. Funds for Israel's Defense" *CQ News*, November 13, 2017.

[47] "Senate Diluted Tough Oversight of Israeli Antimissile Program," *CQ News*, October 4, 2017.

Fiscal Year	Arrow II	Arrow III (High Altitude)	David's Sling (Short-Range)	Iron Dome	Total
FY2014	44.363	74.707	149.712	460.309 (includes supp)	729.091
FY2015	56.201	74.707	137.934	350.972	619.814
FY2016	56.519	89.550	286.526	55.000	487.595
FY2017	67.331	204.893	266.511	62.000	600.735
FY2018	TBD	TBD	TBD	TBD	TBD
FY2019 Request	TBD	TBD	TBD	TBD	500.000
Total	**876.176**	**743.779**	**1,393.817**	**1,397.281**	**4,411.053**

a. These funds were not appropriated by Congress but reprogrammed by the Obama Administration from other Department of Defense accounts.

Emergency U.S. Stockpile in Israel

In the early 1980s, Israeli leaders sought to expand what they called their "strategic collaboration" with the U.S. military by inviting the United States to stockpile arms and equipment at Israeli bases for use in wartime.[48] In 1989,[49] the United States agreed to establish munitions stockpiles in Israel for use by the United States and, with U.S. permission, by Israel in emergency situations. Section 514 of the Foreign Assistance Act of 1961 (22 U.S.C. §2321h) enables U.S. defense articles stored in war reserve stocks to be transferred to a foreign government through Foreign Military Sales or through grant military assistance, such as FMF.

The United States European Command (EUCOM) manages the War Reserves Stock Allies-Israel (WRSA-I) program. The United States stores missiles, armored vehicles, and artillery ammunition in Israel.[50] According to one Israeli officer, "Officially, all of this equipment belongs to the US military…. If however, there is a conflict, the IDF [Israel Defense Forces] can ask for permission to use some of the equipment."[51] According to one analyst, "WRSA-I is a strategic boon to Israel. The process is streamlined: No 60-day congressional notification is required, and there's no waiting on delivery."[52] During the 2006 war against Hezbollah in Lebanon, the United States granted Israel access to the stockpile. In July 2014, during Israeli military operations against Hamas in the Gaza Strip, the Defense Department permitted Israel to draw from the stockpile, paid with FMF, to replenish 120 mm tank rounds and 40 mm illumination rounds fired from grenade launchers.[53]

[48] "U.S.- Israel Strategic Link: Both Sides Take Stock," *New York Times*, October 2, 1981.

[49] In October 1989, the United States and Israel agreed to pre-position $100 million worth of dual-use defense equipment in Israel.

[50] The government of Israel, using both its national funds and FMF, pays for the construction, maintenance and refurbishment costs of WRSA ammunition storage facilities. It also pays for the packaging, crating, handling and transportation of armaments to and from the stockpile.

[51] "US may give Israel Iraq Ammo," *Jerusalem Post*, February 11, 2010.

[52] "Best Friends Don't Have to Ask," *Politico Magazine*, August 14, 2014.

[53] "U.S. Defends Supplying Israel Ammunition during Gaza Conflict," *Reuters*, July 31, 2014.

Section 7034(k)(11)(A) of P.L. 114-113, the FY2016 Consolidated Appropriations Act, extended the authorization of WRSA-I through FY2017.[54]

At times, Congress has passed legislation that has authorized EUCOM to increase the value of materiel stored in Israel. If EUCOM contributed the maximum amount legally permitted in each applicable fiscal year, then the noninflation adjusted value of materiel stored in Israel would currently stand at $2.2 billion. The following legislation authorized increases in value to the stockpile:

- FY1991: P.L. 101-513, the Foreign Operations, Export Financing, and Related Programs Appropriations Act for FY1991, authorized additions to defense articles in Israel up to $200 million in value for FY1991.
- FY1993: P.L. 102-391, the Foreign Operations, Export Financing, and Related Programs Appropriations Act for FY1993, authorized additions to defense articles in Israel up to $100 million in value for FY1993.
- FY1994: P.L. 103-87, the Foreign Operations, Export Financing, and Related Programs Appropriations Act for FY1994, authorized additions to defense articles in Israel up to $200 million in value for FY1994.
- FY1995: P.L. 103-306, the Foreign Operations, Export Financing, and Related Programs Appropriations Act for FY1995, authorized additions to defense articles in Israel up to $100 million for FY1995.
- FY2007-FY2008: Section 13(a)(2)(A)(i) of the Department of State Authorities Act of 2006 (P.L. 109-472) amended Section 514 of the Foreign Assistance Act of 1961, as amended (P.L. 87-195; 22 U.S.C. §2321h) to authorize additions to defense articles in Israel of up to $200 million in value for each of FY2007 and FY2008.[55]
- FY2011-FY2012: P.L. 111-266, the Security Cooperation Act of 2010, authorized additions to defense articles in Israel up to $200 million in value for each of FY2011 and FY2012.
- FY2014-FY2015: P.L. 113-296, the United States-Israel Strategic Partnership Act of 2014, authorized additions to defense articles in Israel up to $200 million in value for each of FY2014 and FY2015.
- FY2016-FY2017: Section 7034(k)(11)(B) of P.L. 114-113, the FY2016 Consolidated Appropriations Act, authorized additions to defense articles in Israel up to $200 million in value for each of FY2016 and FY2017.

Defense Budget Appropriations/Authorization for Anti-Tunnel Defense

In 2016, the Israeli and U.S. governments began collaborating on a new system to detect underground smuggling tunnels and counter cross-border tunnels used (most prominently by

[54] The authorization extension states that (A) Section 12001(d) of the Department of Defense Appropriations Act, 2005 (P.L. 109-108–287; 118 Stat. 1011) is amended by striking "more than 11 years after the date of enactment of this Act" and inserting "after September 30, 2017."

[55] This increase for each fiscal year is based on legislative language contained in Section 12002 of P.L. 108-287, the Department of Defense Appropriations Act, 2005.

Hamas in the summer 2014 conflict) to infiltrate Israel. Reportedly, this new technology uses acoustic or seismic sensors and software to detect the sounds of digging by monitoring vibrations underground.[56]

Section 1279 of P.L. 114-92, the FY2016 National Defense Authorization Act, authorized the establishment of a U.S.-Israeli anti-tunnel cooperation program. This authorization allowed funds from the research, development, test, and evaluation defense-wide account to be used (in combination with Israeli funds) to establish anti-tunnel capabilities that detect, map, and neutralize underground tunnels that threaten the United States or Israel. The authorization requires the Secretary of Defense to report to Congress on, among other things, the sharing of research and development costs between the United States and Israel. Section 1278 of P.L. 115-91, the FY2018 National Defense Authorization Act, extended the authority of the anti-tunnel cooperation program through December 31, 2020. It also required that not less than 50% of U.S. contributions to the program should be used for "research, development, test, and evaluation activities in the United States in connection with such support."

Table 6. U.S.-Israeli Anti-Tunnel Cooperation

dollars in millions

Fiscal Year	Appropriation
FY2016	40.0
FY2017	42.5
FY2018	TBD

Source: Joint Explanatory Statement accompanying Consolidated Appropriations Acts for FY2016-2017.

Aid Restrictions and Possible Violations

U.S. aid and arms sales to Israel, like those to other foreign recipients, are subject to U.S. law. Some U.S. citizens and interest groups periodically call upon Congress to ensure that U.S. military assistance to Israel is conditioned on the Israeli government's compliance with applicable U.S. laws and policies and with international humanitarian law.[57]

Arms Sales and Use of U.S.-Supplied Equipment

The 1952 Mutual Defense Assistance Agreement and subsequent arms agreements between Israel and the United States limit Israel's use of U.S. military equipment to defensive purposes.[58] The Arms Export Control Act (AECA, 22 U.S.C. §2754) authorizes the sale of U.S. defense articles and services for specific purposes, including "legitimate self-defense." The AECA (22 U.S.C. §2753) states that recipients may not use such articles "for purposes other than those for which

[56] "Israel's Underground War—Technology and Specialist Troops deployed in face of Subterranean Threat," *Wall Street Journal*, March 2, 2016.

[57] In November 2017, Representative Betty McCollum introduced a bill, H.R. 4391Promoting Human Rights by Ending Israeli Military Detention of Palestinian Children Act, that would, among other things, prohibit U.S. assistance to Israel (notwithstanding any other provision of law) from being used to support the military detention, interrogation, or ill-treatment of Palestinian children in violation of international humanitarian law.

[58] U.S. State Department, *Treaties in Force*, Agreement relating to mutual defense assistance, Entered into force July 23, 1952; TIAS 2675.

[they have been] furnished" without prior presidential consent.[59] The act stipulates that sale agreements entered into after November 29, 1999, must grant the U.S. government the right to verify "credible reports" that articles have been used for unauthorized purposes. The Foreign Assistance Act of 1961, as amended, also contains general provisions on the use of U.S.-supplied military equipment.[60]

In the late 1970s and early to mid-1980s, the Carter and Reagan Administrations questioned Israel's use of U.S.-supplied equipment during various military operations in the region. After Israel's 2006 war in Lebanon, the State Department issued a preliminary report to Congress concluding that Israel may have violated the terms of agreements with the United States that restrict Israel's use of U.S.-supplied cluster munitions to certain military targets in noncivilian areas.[61]

Human Rights Vetting (Leahy Law)[62]

Section 620M of the Foreign Assistance Act of 1961 (FAA), as amended, prohibits the furnishing of assistance authorized by the FAA and the AECA to any foreign security force unit where there is credible information that the unit has committed a gross violation of human rights. The State Department and U.S. embassies overseas implement Leahy vetting to determine which foreign security individuals and units are eligible to receive U.S. assistance or training.

In February 2016, Senator Leahy and 10 other Members of Congress sent a letter to Secretary of State John Kerry asking the State Department to determine whether alleged extrajudicial killings or torture by Israeli military and police (and Egypt separately) should trigger Leahy law restrictions.[63] In its response to Congress, the State Department stated that no Israeli individual or unit potentially involved in the letter's alleged incidents had been submitted to receive U.S. assistance.[64]

Use of U.S. Funds within Israel's Pre-June 1967 Borders

In some instances, U.S. assistance to Israel may be used only in areas subject to the administration of Israel prior to June 1967 (see "Loan Guarantees"). For example, U.S. State Department-provided Migration and Refugee (MRA) assistance (see below), per agreement between the State Department and United Israel Appeal, may only be used for absorption centers, *ulpanim* (intensive Hebrew-language schools with particular focus on immigrants to Israel), or youth *aliyah* (relocation to Israel) institutions located within Israel's pre-June 1967 area of

[59] Nevertheless, in 22 U.S.C. 2753, the AECA also states that the consent of the President shall not be required for the transfer by a foreign country or international organization of defense articles sold by the United States if the recipient is the government of a member country of the North Atlantic Treaty Organization, the Government of Australia, the Government of Japan, the Government of the Republic of Korea, the Government of Israel, or the Government of New Zealand.

[60] For example, see (among other sections), Section 502B, Human Rights (22 U.S.C. 2304), Section 505, Conditions of Eligibility (22 U.S.C. §2314), and Section 511, Considerations in Furnishing Military Assistance (22 U.S.C. §2321d).

[61] "U.S. Says Israel May Have Violated Agreement on Cluster Bomb Use," *Reuters*, January 29, 2007.

[62] For background on the Leahy Law, see CRS Report R43361, *"Leahy Law" Human Rights Provisions and Security Assistance: Issue Overview*, coordinated by Nina M. Serafino.

[63] The letter's text is available at http://www.politico.com/f/?id=00000153-c56c-d662-a75b-cfecc6be0000.

[64] See the text of then Assistant Secretary of State for Legislative Affairs Julia Frifield's April 18, 2016, response letter to Representative Henry C. Johnson at http://www.politico.com/f/?id=00000154-7c2f-d905-a357-7c7f04750000.

control.[65] In addition, according to agreements between the U.S. and Israeli governments, programs funded by certain U.S.-Israeli binational foundations, such as the U.S.-Israel Binational Science Foundation (see below), "may not be conducted in geographic areas which came under the administration of the Government of Israel after June 5, 1967 and may not relate to subjects primarily pertinent to such areas."[66]

Other Ongoing Assistance and Cooperative Programs

Migration & Refugee Assistance

Since 1973, Israel has received grants from the State Department's Migration and Refugee Assistance account (MRA)[67] to assist in the resettlement of migrants to Israel. Funds are paid to the United Israel Appeal, a private philanthropic organization in the United States, which in turn transfers the funds to the Jewish Agency for Israel.[68] Between 1973 and 1991, the United States gave about $460 million for resettling Jewish refugees in Israel. Annual amounts have varied from a low of $12 million to a high of $80 million, based at least partly on the number of Jews leaving the former Soviet Union and other areas for Israel.

Table 7. Migration and Refugee Assistance Funding Levels for Israel

FY2000-FY2012	$519.3 million total
FY2013	$15 million
FY2014	$15 million
FY2015	$10 million
FY2016	$10 million
FY2017	$7.5 million
FY2018	TBD
FY2019 Request	$5.0 million

Source: U.S. State Department.

Congress has changed the earmark language since the first refugee resettlement funds were appropriated in 1973. At first, the congressional language said the funds were for "resettlement in Israel of refugees from the Union of Soviet Socialist Republics and from Communist countries in Eastern Europe." But starting in 1985, the language was simplified to "refugees resettling in Israel" to ensure that Ethiopian Jews would be covered by the funding. Technically, the legislative language designates funds for refugee resettlement, but in Israel little differentiation is made

[65] This stipulation is found in grant agreements between the U.S. State Department's Bureau of Population, Refugees, and Migration (PRM) and United Israel Appeal (clause 8. F. 2 – Use in Territories Subject to the Administration of the State of Israel Prior to June 1967). The FY2013 agreement (S-PRMCO-13-GR-1041 – March 13, 2013) is for $15 million. CRS Correspondence with U.S. State Department, March 2014.

[66] http://www.bsf.org.il/BSFPublic/DefaultPage1.aspx?PageId=221&innerTextID=221.

[67] The MRA account is authorized as part of the State Department's institutional budget, with funds for the account appropriated through the foreign operations appropriations bill.

[68] The Jewish Agency for Israel's website is available at http://www.jafi.org.il/.

between Jewish "refugees" and other Jewish immigrants, and the funds are used to support the absorption of all immigrants.

Loan Guarantees

Overview

Since 1972, the United States has extended loan guarantees to Israel to assist with housing shortages, Israel's absorption of new immigrants from the former Soviet Union and Ethiopia, and its economic recovery following the 2000-2003 recession, which was probably caused in part by the Israeli-Palestinian conflict known as the second intifada. Loan guarantees are a form of indirect U.S. assistance to Israel, since they enable Israel to borrow from commercial sources at lower rates. Congress directs that subsidies be set aside in a U.S. Treasury account in case of a possible Israeli default. These subsidies, which are a percentage of the total loan (based in part on the credit rating of the borrowing country), have come from the U.S. or the Israeli government. Israel has never defaulted on a U.S.-backed loan guarantee.

Loan Guarantees for Economic Recovery

In 2003, then-Prime Minister Ariel Sharon requested an additional $8 billion in loan guarantees to help Israel's ailing economy. The loan guarantee request accompanied a request for an additional $4 billion in military grants to help Israel prepare for possible attacks during an anticipated U.S. war with Iraq. P.L. 108-11, the FY2003 Emergency Wartime Supplemental Appropriations Act, authorized $9 billion in loan guarantees over three years for Israel's economic recovery and $1 billion in military grants. P.L. 108-11 stated that the proceeds from the loan guarantees could be used only within Israel's pre-June 5, 1967, area of control; that the annual loan guarantees could be reduced by an amount equal to the amount Israel spends on settlements outside of Israel's pre-June 1967 area of control; that Israel would pay all fees and subsidies; and that the President would consider Israel's economic reforms when determining terms and conditions for the loan guarantees.[69]

On November 26, 2003, the Department of State announced that the $3 billion in loan guarantees for FY2003 were reduced by $289.5 million because Israel continued to build settlements in the occupied territories and continued construction of a security barrier separating key Israeli and Palestinian population centers. In FY2005, the U.S. government reduced the amount available for Israel to borrow by an additional $795.8 million. Since then, Israel has not borrowed any funds.

According to the U.S. Department of the Treasury, Israel is legally obligated to use the proceeds of guaranteed loans for refinancing its government debt and also has agreed that proceeds shall not be used for military purposes or to support activities in areas outside its pre-June 5, 1967, areas of control (the West Bank—including East Jerusalem—and Gaza and the Golan Heights).

[69] According to P.L. 108-11, "[Loan] guarantees may be issued under this section only to support activities in the geographic areas which were subject to the administration of the Government of Israel before June 5, 1967: Provided further, That the amount of guarantees that may be issued shall be reduced by an amount equal to the amount extended or estimated to have been extended by the Government of Israel during the period from March 1, 2003, to the date of issue of the guarantee, for activities which the President determines are inconsistent with the objectives and understandings reached between the United States and the Government of Israel regarding the implementation of the loan guarantee program: Provided further, That the President shall submit a report to Congress no later than September 30 of each fiscal year during the pendency of the program specifying the amount calculated under the preceding proviso and that will be deducted from the amount of guarantees authorized to be issued in the next fiscal year."

However, U.S. officials have noted that since Israel's national budget is fungible, proceeds from the issuance of U.S.-guaranteed debt that are used to refinance Israeli government debt free up domestic Israeli funds for other uses.[70]

As of 2018, Israel has issued $4.1 billion in U.S.-backed bonds.[71] After deducting the amounts mentioned above, Israel might still be authorized to issue up to $3.814 billion in U.S.-backed bonds. However, if the Israeli government sought to issue new U.S.-backed bonds, it is unclear whether the loan guarantees available to Israel might be subject to reduction based on Israel's estimated expenditures for settlements in the occupied territories. Since the original loan guarantee program authorization for Israel in 2003, Congress has extended the program four times.[72] The program is currently authorized through the end of FY2019.

In general, Israel may view U.S. loan guarantees as a "last resort" option, which its treasury could use if unguaranteed local and international bond issuances become too expensive. According to one Israeli official in 2012, "We consider the loan guarantees as preparation for a rainy day.... This is a safety net for war, natural disaster and economic crisis, which allows Israel to maintain economic stability in unstable surroundings."[73] Israeli officials may believe that although they have not used the loan guarantees in the last 13 years, maintaining the program boosts the country's fiscal standing among international creditors in capital markets.

Table 8. U.S. Loan Guarantees to Israel: FY2003-FY2018

current dollars in millions

Fiscal Year	Deductions for Settlement Activity	Amount Borrowed by Israel	Amount Available for Israel to Borrow
FY2003	289.5	1,600.0	1,110.5
FY2004	—	1,750.0	1,250.0
FY2005	795.8	750.0	1,454.2
FY2006	—	—	3,814.7
FY2007	—	—	3,814.7
FY2008	—	—	3,814.7
FY2009	—	—	3,814.7
FY2010	—	—	3,814.7
FY2011	—	—	3,814.7
FY2012	—	—	3,814.7
FY2013	—	—	3,814.7
FY2014	—	—	3,814.7

[70] CRS correspondence with the U.S. Department of the Treasury's Office of International Affairs, October 2009.

[71] This includes $1.6 billion in FY2003; $1.75 billion in FY2004; and $750 million in FY2005.

[72] P.L. 108-447, the FY2005 Consolidated Appropriations Act, first extended the authority of the loan guarantees from FY2005 to FY2007. P.L. 109-472, the 2006 Department of State Authorities Act, extended the authority to provide loan guarantees through FY2011. Under that legislation, the loan guarantee program had a stated end of September 30, 2011; however, there was also a "carryover" provision in the statute under which Israel could draw on unused U.S. guarantees until September 30, 2012. In the summer of 2012, Congress passed and the President signed into law P.L. 112-150, the United States-Israel Enhanced Security Cooperation Act of 2012. Section 5(b) of the law extended the loan guarantee authority until September 30, 2015. Section 7034(k)(10) of P.L. 114-113, the FY2016 Consolidated Appropriations Act, further extended the program until September 30, 2019, allowing unused amounts to be carried over into FY2020.

[73] "U.S. to Grant Three-year Extension of Loan Guarantees to Israel," *Ha'aretz*, January 24, 2012.

Fiscal Year	Deductions for Settlement Activity	Amount Borrowed by Israel	Amount Available for Israel to Borrow
FY2015	—	—	3,814.7
FY2016	—	—	3,814.7
FY2017	—	—	3,814.7
FY2018	—	—	3,814.7

Source: U.S. Department of the Treasury and U.S. State Department.

Note: For FY2003-FY2005, the U.S. Department of the Treasury authorized Israel to borrow up to $3 billion per year of the total $9 billion authorized for the Loan Guarantee program.

American Schools and Hospitals Abroad Program (ASHA)[74]

Through foreign operations appropriations legislation, Congress has funded the ASHA program as part of the overall Development Assistance (DA) appropriation to the United States Agency for International Development (USAID). According to USAID, ASHA is designed to strengthen self-sustaining schools, libraries, and medical centers that best demonstrate American ideals and practices abroad. ASHA has been providing support to institutions in the Middle East since 1957, and a number of universities and hospitals in Israel have been recipients of ASHA grants. In FY2015 (the most recent year for which data are available), ASHA grant recipients in Israel included Shaare Zedek Medical Center in Jerusalem, St. John Eye Hospital Group, Nazareth Hospital, and the Hadassah Medical Organization. According to USAID, institutions based in Israel have received the most program funding in the Middle East region.

Table 9. ASHA Program Grants from Israel Account, FY2000-FY2015

Fiscal Year	Amount
FY2000	$2.75 million
FY2001	$2.25 million
FY2002	$2.65 million
FY2003	$3.05 million
FY2004	$3.15 million
FY2005	$2.95 million
FY2006	$3.35 million
FY2007	$2.95 million
FY2008	$3.90 million
FY2009	$3.90 million
FY2010	$3.80 million

[74] According to USAID, recipients of ASHA grants on behalf of overseas institutions must be private U.S. organizations, headquartered in the United States, and tax-exempt. The U.S. organization must also serve as the founder and/or sponsor of the overseas institution. Schools must be for secondary or higher education and hospital centers must conduct medical education and research outside the United States. Grants are made to U.S. sponsors for the exclusive benefit of institutions abroad. See http://www.usaid.gov/our_work/cross-cutting_programs/asha/.

Fiscal Year	Amount
FY2011	$4.225 million
FY2012	$3.00 million
FY2013	$3.800 million
FY2014	$3.052 million
FY2015	$3.075 million
Total	**$45.000 million**

Source: USAID.

U.S.-Israeli Scientific & Business Cooperation

In the early 1970s, Israeli academics and businessmen began looking for ways to expand investment in Israel's nascent technology sector. The sector, which would later become the driving force in the country's economy, was in need of private capital for research and development at the time. The United States and Israel launched several programs to stimulate Israeli industrial and scientific research, and Congress has on several occasions authorized and appropriated[75] funds for this purpose to the following organizations:

- **The BIRD Foundation** (Israel-U.S. Binational Research & Development Foundation).[76] BIRD, which was established in 1977, provides matchmaking services between Israeli and American companies in research and development with the goal of expanding cooperation between U.S. and Israeli private high-tech industries. The mission of the Foundation is "to stimulate, promote and support joint (nondefense) industrial R&D of mutual benefit to…" the two countries.[77] Projects are supported in the areas of homeland security, communications, electronics, electro-optics, software, life sciences, and renewable and alternative energy, among others.[78] According to the Foundation, $339 million in grants have been awarded to almost a thousand projects. Awards typically range from $700,000 to $900,000. The award size varies based on total project budget and other considerations. The recipients must provide at least 50% of the total project budget. While support for military projects are not a part of the program, several of the completed ventures have yielded products that might be useful in a military setting, including the Aircraft Enhanced Vision System (EVS) camera, "which is designed to provide day/night improved orientation during taxiing or flying. It allows visual landing in reduced visibility conditions, such as fog, haze, dust, smog etc." The Foundation also funded the creation of a

[75] With the exception of recent funding for U.S.-Israeli energy cooperation (see "U.S.-Israeli Energy Cooperation" section below), Congress has not appropriated funding for binational foundations since the mid-1980s. At this point, the foundations are able to sustain grant making with interest earned from their respective endowments and fees collected from companies who successfully profited after receiving research support from the foundations.

[76] See http://www.birdf.com/default.asp. Congress helped establish BIRD's endowment with appropriations of $30 million and $15 million in 1977 and 1985, respectively. These grants were matched by the Israeli government for a total endowment of $90 million.

[77] Eitan Ydilevich, "Building U.S.-Israel Economic Partnerships, The BIRD Model," Washington, DC. June 10, 2010, p. 2.

[78] BIRD Foundation, What is BIRD?, available at http://www.birdf.com/Index.asp?CategoryID=22&ArticleID=79.

Through-Wall Location and Sensing System that is portable and "detects whether people are present behind walls, how many, and where they are situated."[79]

- **The BSF Foundation** (U.S.-Israel Binational Science Foundation).[80] BSF, which was started in 1972, promotes cooperation in scientific and technological research.
- **The BARD Foundation** (Binational Agriculture and Research and Development Fund). BARD was created in 1978 and supports U.S.-Israeli cooperation in agricultural research.[81]
- In 1995, the United States and Israel established **The U.S.-Israel Science and Technology Foundation (USISTF)** to fund and administer projects mandated by the U.S.-Israel Science and Technology Commission (USISTC),[82] a bilateral entity jointly established by the United States Department of Commerce and the Israel Ministry of Industry, Trade, and Labor in 1994 to foster scientific, technological, and economic cooperation between the two countries.

U.S.-Israeli Energy Cooperation (BIRD Energy)

In 2005, Congress began to consider legislation to expand U.S.-Israeli scientific cooperation in the field of renewable energy. Lawmakers reviewed legislation in the House and the Senate entitled, "The United States-Israel Energy Cooperation Act." Various forms of the bill would have authorized the Department of Energy to establish a joint U.S.-Israeli grant program to fund research in solar, biomass, and wind energy, among other directives. Section 917 of P.L. 110-140, the Renewable Fuels, Consumer Protection, and Energy Efficiency Act of 2007, contains the original language of the U.S.-Israel Energy Cooperation Act (H.R. 1838). Although it did not appropriate any funds for joint research and development, it did establish a grant program to support research, development, and commercialization of renewable energy or energy efficiency. The law also authorized the Secretary of Energy to provide funds for the grant program as needed. Congress authorized the program for seven years from the time of enactment, which was on December 19, 2007. Then, in December 2014, the President signed into law P.L. 113-296, the United States-Israel Strategic Partnership Act of 2014, which reauthorized the U.S.-Israeli Energy Cooperation program for an additional 10 years until September 30, 2024.

[79] Information from the BIRD Foundation website, http://www.birdf.com.

[80] See http://www.bsf.org.il/Gateway4/. Congress helped establish BSF's endowment with appropriations of $30 million and $20 million in 1972 and 1984, respectively. These grants were matched by Israel for a total endowment of $100 million. According to the treaty establishing the Foundation, the Foundation shall use the interest, as well as any funds derived from its activities, for the operations of the Foundation.

[81] See http://www.bard-isus.com/. Congress helped establish BARD's endowment with appropriations of $40 million and $15 million in 1979 and 1985, respectively. These grants were matched by the State of Israel for a total endowment of $110 million. In recent years, Congress has provided funds for BARD in annual Agriculture Appropriations legislation at approximately $500,000 a year.

[82] The U.S.-Israel Science and Technology Commission (USISTC) was established in 1993 to facilitate cooperative ventures between high tech industries in the two countries. The goal of the program is to "to maximize the contribution of technology to economic growth." While the collaborative work may be somewhat similar to that supported by the BIRD Foundation, "the Science and Technology Commission assists in the commercialization of new technologies with longer lead times to market. These projects involve higher risk and require substantial capital commitments." The ventures are funded and administered by the U.S.-Israel Science and Technology Foundation. The U.S. and Israeli governments each committed $15 million to the effort over three years for a total of $30 million.

To date, Congress and the Administration have provided a total of **$15.7 million** for the grant program, known as BIRD Energy. As of 2017, total combined U.S. and Israeli investment in BIRD Energy for 37 approved projects stands at $30 million.[83]

U.S.-Israeli Water Cooperation

As one of the world's leaders in water reuse and desalination technology, Israel has expanded its cooperation with various U.S. states to export water reuse technology. At the federal level, Congress has supported U.S.-Israeli cooperation through legislation. P.L. 114-322, the WIIN Act (Water Infrastructure Improvements for the Nation Act), calls on the White House Office of Science and Technology Policy to develop a coordinated strategic plan that, among other things, strengthens "research and development cooperation with international partners, such as the State of Israel, in the area of desalination technology."

U.S.-Israeli Cybersecurity Cooperation

In 2016, Congress passed P.L. 114-304, the United States-Israel Advanced Research Partnership Act of 2016, a law that permanently authorized the expansion of an existing joint research-and-development program at the U.S. Department of Homeland Security and expanded it to include cybersecurity technologies. In January 2017, the House passed H.R. 612, the United States-Israel Cybersecurity Cooperation Enhancement Act of 2017. If enacted, the bill would "establish a grant program to support cybersecurity research and development in accordance with existing bilateral agreements between the United States and Israel."

Author Information

Jeremy M. Sharp
Specialist in Middle Eastern Affairs

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[83] U.S. Department of Energy, Department of Energy Announces Five New Projects Through BIRD Energy Partnership with Israel, November 1, 2017.