

ANNUAL REPORT



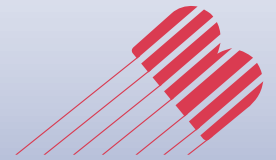
BIRD FOUNDATION

ACCELERATING GROWTH THROUGH STRATEGIC PARTNERSHIPS

BIRD

Israel-U.S.

Binational Industrial Research
and Development Foundation



BIRD'S

MISSION STATEMENT

To stimulate promote and support industrial R&D
of mutual benefit to Israel and the U.S.

THE BIRD FOUNDATION REACHES 1000 APPROVED PROJECTS



It is standard practice and a long-standing tradition that the BIRD Foundation holds two semi-annual meetings of the Board of Governors each year, the first in June and the second in December. The December meeting is always held in Israel, where the weather is often better at that time of year, and the June meeting is typically held in Washington, D.C.

However, the meeting of the Board of Governors held in Israel on December 17, 2019, was far from “routine.”

The meeting began with the formal approval of BIRD HLS projects, previously selected in a competitive process at a meeting headed by senior officials of the U.S. Department of Homeland Security (DHS) and the Israel Ministry of Public Security. BIRD HLS is an expansion of the pilot program, BIRD First Responders, initiated in 2016 (see Page 12 for a summary of the BIRD HLS program). The BIRD HLS program is now entering its fifth year. The U.S. FY2020 budget has been secured and the program is included in the U.S. FY2021 DHS budget request. We are now working to expand the cybersecurity component of this program.

Next, a report was provided to the Board on the U.S.-Israel Energy Cooperation, including both BIRD Energy and the U.S.-Israel Energy Center. BIRD Energy was launched in 2009 and, since that time, has funded 42 joint projects with 9 additional projects approved in 2019 (see Page 10 for a summary of the BIRD Energy program). The U.S.-Israel Energy Center was authorized by Congress in the U.S.-Israel Strategic Partnership Act of 2014 and launched in 2018, after the first U.S. appropriation for the program. An Israeli Government

decision from 2016 provides the matching Israeli funds for both of these programs. BIRD HLS, BIRD Energy and the U.S.-Israel Energy Center have more than doubled BIRD’s funding capability for U.S.-Israel R&D collaborations.

The majority of the December meeting was dedicated to the discussion and approval of new projects. Nine were approved (see Pages 08 and 09 for the projects approved in 2019). Though typical of such meetings, this was a special occasion because at its conclusion, BIRD reached a major milestone, celebrating 1000 projects approved since its inception!

The Board discussed the newer programs and continued its tradition of robust discussion towards the approval of funding for innovative U.S.-Israel projects by applying the Foundation’s proven model of cooperation.

In addition to the efforts described above, BIRD is pursuing new initiatives, including enhanced U.S.-Israel collaboration in Artificial Intelligence, a sector identified as critical for both the U.S. and Israel. Both governments have declared their intention and show significant motivation to pursue such an initiative.

At the conclusion of the meeting, the Board of Governors, the BIRD Team and other participants said farewell to Dr. Phil Singerman, who served as the U.S. co-Chairman of the Board since 2011. His tenure was very productive, including the approval of over 200 U.S.-Israel R&D projects. We thank Dr. Singerman again for his leadership and active involvement.

The December 2019 Board was, by no means, “routine.” At the conclusion of the meeting, the Board and the BIRD Team warmly welcomed Dr. Walter Copan, Under Secretary of Commerce and Technology and Director, National Institute of Standards and Technology (NIST), who assumed the role of U.S. co-Chairman, starting January 1, 2020.

04 BOARD OF GOVERNORS

BIRD

THE BOARD OF GOVERNORS MEETS SEMI-ANNUALLY – EVERY JUNE IN THE U.S. AND EVERY DECEMBER IN ISRAEL.
EACH GOVERNMENT HAS THREE REPRESENTATIVES ON THE BOARD.

U.S. Governors



Dr. Phillip Singerman – co-Chairman

Associate Director for Innovation and Industry Services
National Institute of Standards and Technology – NIST
Department of Commerce



Dr. Jonathan Margolis

Deputy Assistant Secretary
Bureau of Oceans, International Environmental and Scientific Affairs
Department of State



Mr. Anthony Marcus

Director
Middle East and North Africa
International Affairs
Department of Treasury

Israeli Governors



Dr. Amiram Appelbaum – co-Chairman

Chief Scientist
Ministry of Economy and Industry
Chairman, Israel Innovation Authority



Mr. Shay Rinski

Director General
Ministry of Economy and Industry



Mr. Shai Babad

Director General
Ministry of Finance

BOARD OF GOVERNORS

Designees who have acted on behalf of the Governors during 2019

Ms. Yifat Alon-Perel Israel Embassy, Washington, DC

Mr. Jared Banks U.S. Department of State

Dr. Lev Drucker Israel Ministry of Finance

Mr. Gil Erez Israel Ministry of Economy and Industry

Mr. Ofer Lapid Israel Innovation Authority

Advisor to the Board

Dr. Harry Hertz



Joining the Board meetings during 2019 were:

Mr. Les Abelson Israel Innovation Authority

Mr. Gregory Basile U.S. Department of Treasury

Dr. Katya Delak U.S. Department of Commerce

Mr. Christopher Green U.S. Embassy, Tel Aviv

Mr. Michael Lauer U.S. National Institute of Health

Dr. Hong Liang U.S. Department of Commerce

Mr. Daniel Lernerbaum Israel Embassy, Washington, DC

Mr. Michael Molnar U.S. Department of Commerce

Dr. Robert Rudnitsky U.S. Department of Commerce

Mr. Israel Shamay Israel Innovation Authority

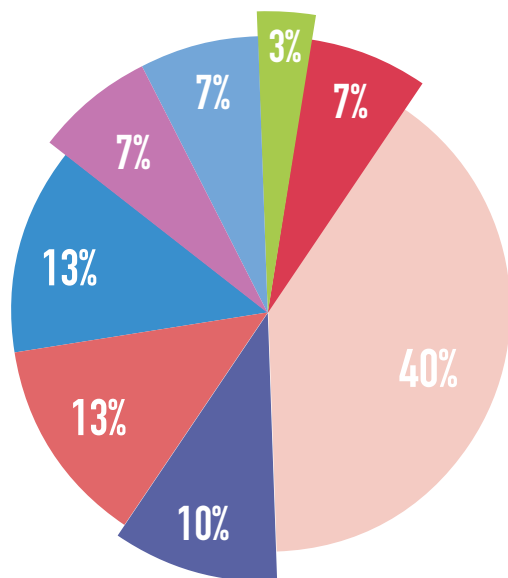
Dr. Riju Srimal U.S. Department of State

Special Attendee

Dr. Walter Copan Undersecretary of Commerce for Standards and Technology and Director of NIST, U.S. Department of Commerce

ACTIVITY SUMMARY

Statistics - 2019



Approved Projects

Sector	Total
Agrotechnology	2
Communications	1
Electronics/Software	2
Energy, Water, Envir. *	12
Healthcare IT	3
HLS & Cyber **	4
Life Sciences	4
Other	2
Total	30

* includes 9 BIRD Energy projects

** includes 3 BIRD HLS/First Responders projects

Financial Summary - 2019

	Income				Grant Payments	
	Endowment		Repayments			
	Year (\$M)	Cum. (\$M)	Year (\$M)	Cum. (\$M)	Year (\$M)	Cum. (\$M)
2012	7	243	3	96	6	301
2013	8	251	3	99	8	309
2014	8	259	3	102	10	319
2015	7	266	2	104	10	329
2016	7	273	1.5	105	10	339
2017	8	281	0.9	106	7.4	346
2018	8	289	2.4	109	8.7	355
2019	8	297	1.9	111	7.8	363

Income

BIRD's annual income is comprised of interest on the Endowment Fund and Repayments from companies who have participated in projects that were successful. This annual income is at a level that allows BIRD to meet all its financial obligations promptly.

Since its inception, BIRD has received interest of approximately \$297 million on the Endowment Fund and Repayments of approximately \$111 million from successful projects. Over that period, Grant Payments to companies have reached approximately \$363 million (all amounts are nominal, not adjusted to inflation).

Activity Summary - 2019

Direct Sales	Repayments	Grant Payments	Approved Projects		
2019 \$42 million	2019 \$1.9 million	2019 \$7.8 million	Full-scale projects (2019) 18 projects*	Mini projects (2019) 0 projects	Total projects (2019) 18 projects
Cumulative \$5 billion	Cumulative (from 458 companies) \$111 million	Cumulative \$363 million	Cumulative 821 projects	Cumulative 179 projects	Cumulative 1,000 projects

*Not including BIRD Energy and BIRD HLS Programs

ABOUT BIRD

The U.S.- Israel Binational Industrial Research and Development (BIRD) Foundation works to encourage cooperation between U.S. and Israeli companies in a wide range of technology sectors by providing funding and assistance in facilitating strategic partnerships for developing joint products or technologies.

BIRD provides support of up to 50% of a project's budget, beginning with R&D and ending with the initial stages of sales and marketing. BIRD shares the risk and requires repayment only if the project achieves revenue. BIRD supports projects without receiving any equity or IP rights in the participating companies or technologies.

BIRD's scope extends to Advanced Manufacturing, Agrotechnology, Cleantech and Environment, Communications, Construction Tech, Electronics, FinTech, Gas, Homeland Security and Cyber Security, Life Sciences, Nanotechnology, Semiconductors, Software, and other areas of innovative technology with commercial potential.

Since 1977, the Foundation has approved investment in 1000 projects, which have yielded direct and indirect revenues of more than \$10 billion. BIRD approves projects twice a year. Projects are evaluated by expert reviewers appointed by the Israel Innovation Authority (IIA) and the National Institute of Standards and Technology (NIST), U.S. Department of Commerce.

The Foundation manages the BIRD Energy Program focused on promoting and supporting U.S.-Israel joint development projects relating to clean energy technologies. This program is the implementation of a cooperation agreement between the U.S. Department of Energy, the Israel Ministry of Energy jointly with the Israel Innovation Authority. BIRD Energy adheres to the same rules and procedures as BIRD.

In addition, the BIRD Foundation also manages the binational program, "BIRD Homeland Security" a joint U.S.-Israel program to foster and support the development of advanced technologies for First Responders, technologies and methods to secure critical infrastructure and public facilities, safe and secure cities, border protection, including maritime security, technologies in the use of unmanned aerial systems and law enforcement supporting technologies to combat cyber-crime. This program was established by the U.S. Department of Homeland Security (DHS) and the Israel Ministry of Public Security (MOPS) as part of the agreement between the Government of the United States of America and the Government of the State of Israel on Cooperation in Science and Technology for Homeland Security Matters. The collaboration agreement was designed to improve and enhance the preparedness of national rescue forces including fire, police and first-aid units, and their capabilities in the field. This program supports collaborations between U.S. and Israeli companies and allows for universities and research institutions to participate by partnering with a company/corporate entity.



APPROVED PROJECTS – JUNE & DECEMBER

Agrotechnology



Israeli Co.	U.S. Co.	Title of Project
AgroScout Ltd.	Birdstop Inc.	Saturn - Automated Agronomic Intelligence
Israel Aerospace Industries Ltd.	Headwall Photonics Inc.	Precision Agriculture Decision Support System (DSS) for Large Scale Areas Utilizing Wide Area Hyper-Spectral Imager (WAHS) and Fixed Wing Mobile UAV

Electronics/ Software



Israeli Co.	U.S. Co.	Title of Project
Shamayim - Social Business Ltd.	Karyopharm Therapeutics Inc.	Development of the Debrief Control Tower Platform
Snappers.tv Ltd.	Turner Studios Inc.	The Affiliate Crowdsourced Video Platform (ACVP)

Communications



Israeli Co.	U.S. Co.	Title of Project
NovelSat Ltd.	iGolgi Inc.	FUSION - End to End, Joint Encoding-Modulation Techniques to Improve Satellite Broadcast Efficiency for Carrying Multi-Channel Audio-Video Programs Carried Over Satellite

Energy, Water, Environment



Israeli Co.	U.S. Co.	Title of Project
Advanced MemTech	Agar Corporation	Development and Commercialization of Breakthrough Oil-Water Separation Membrane Technology Products to Solve the Oil & Gas Industries Long Standing Challenging Issues
Fluence Water Products and Innovation Ltd.	Energy Systems Group LLC	Energy Efficient Nutrient Removal
Netafim Ltd.	Onvector LLC	Spark Filter / Pulse Electric Fields for Advanced Disinfection of Irrigation Water

APPROVED PROJECTS – JUNE & DECEMBER

Healthcare IT



Israeli Co.	U.S. Co.	Title of Project
DosentRx Ltd.	Contents Trader Inc.	Integration and Commercialization of the ReX System into the U.S. Specialty Pharmacy Market, to Advance Medication Management, Increase Patient Adherence and Assist with Data Collation
M.You Cognitive Technologies Ltd.	Cosan Group LLC	Expanding the Clinical Network for Optimized, In-Home Care with AI-based Patient Engagement
WizeCare Technologies Ltd.	The Cleveland Clinic Foundation	Tele-Rehabilitation, Monitoring and Detection Platform for PD Patients

Life Sciences



Israeli Co.	U.S. Co.	Title of Project
GoldenGait Ltd. (dba GaitBetter)	Spaulding Rehabilitation Network	Virtual Reality for Gait Rehabilitation
Igntify Ltd.	Thermo Fisher Scientific Inc.	Clinical Grade Interpretation & Reporting Software Platform for Next-Generation Sequencing (NGS) based Preconception Carrier Screening Genetic Test
MDI Health Technologies Ltd.	Thermo Fisher Scientific Corp.	Personalized & Precise Medication Treatments
OncoHost	RayBiotech Life	Host Response of NSCLC Patients Treated with anti-PDI Immunotherapy

Homeland Security (HLS) & Cyber Security



Israeli Co.	U.S. Co.	Title of Project
NanoLock Security (Israel) Ltd.	Micron Technology Inc.	Preventing Persistent Attacks on Connected Cameras

Other



Israeli Co.	U.S. Co.	Title of Project
3PLW Ltd.	Corumat Inc.	Food Waste Derived High Performance Compostable Packaging
Raicol Crystals Ltd.	Qubitekk Inc.	Commercial Quantum Entangled Source for Quantum Computers based on PPKTP Crystal

BIRD ENERGY

BIRD ENERGY develops innovation through U.S.-Israel cooperation in a range of clean energy technologies including renewable energy, energy efficiency, natural gas and energy-water technologies.

The program is the implementation of a cooperation agreement between the U.S. Department of Energy, the Israel Ministry of Energy jointly with the Israel Innovation Authority and the BIRD Foundation. BIRD ENERGY was launched in 2009.

BIRD ENERGY projects address energy challenges and opportunities of interest to both countries while focusing on commercializing clean energy technologies that improve economic competitiveness, create jobs and support innovative companies.

BIRD Energy follows the BIRD Foundation's rules and procedures.

BIRD Energy Statistics 2009 - 2019

Approved Projects	Signed Projects ⁽¹⁾	Funding from Governments	Grant Payments ⁽²⁾	Repayments ⁽³⁾
58	41	\$37.69 M	\$19.51 M	1.25 M

1. Signed projects until December 31, 2019

2. Payments to all projects in development stage

3. Repayments from 7 projects

BIRD Energy Executive Committee

Members of the BIRD Energy Executive Committee include:

Mr. Robert Sandoli Director, Office of Europe and Eurasia Office of International Affairs, U.S. Department of Energy

Dr. Gideon Friedmann Acting Chief Scientist, Israel Ministry of Energy

Mr. Israel Shamay Executive Director, Strategic Initiatives and Head of the Americas Operations, Israel Innovation Authority

Dr. Phillip Singerman (representing BIRD Board of Governors), NIST, U.S. Department of Commerce

Others who have acted on behalf of the Executive Committee during 2019:

Dr. Ami Ben Shalom Friedman Technology Division, Israel Innovation Authority

Mr. Josh McKearin Deputy Director, Office of Europe and Eurasian Affairs, U.S. Department of Energy

Ms. Blair Pasalic Senior Analyst, Office of European and Eurasian Affairs, U.S. Department of Energy

Dr. Joav Rockman Evaluator, Israel Innovation Authority

Dr. Riju Srimal Senior Foreign Affairs Officer, U.S. Department of State



BIRD ENERGY APPROVED PROJECTS BY SECTORS

Biomass



Israeli Co.	U.S. Co.	Title of Project
Exency Ltd.	Brayton Energy LLC	Low Cost and High Efficiency Solid Biomass and Solid Waste Fueled Electricity Generation System

Fuel Cells



Israeli Co.	U.S. Co.	Title of Project
Elbit Systems Ltd.	Ballard Unmanned Systems Inc.	Hydrogen Powered VTOL Drone for Long Endurance and Zero Emission

Energy Efficiency



Israeli Co.	U.S. Co.	Title of Project
EcoPlant Technological Innovation Ltd.	Atlas Machine and Supply Inc.	Novel Solution to Optimize Compressed Air Energy Efficiency and Quality for the Food & Beverages Industry
Eta-Bar Ltd.	Adesto Technologies Corp.	Efficient Power Supply for Grid Connected Electronic Devices
Zero Energy Solutions Ltd.	Driftwood Hospitality Management LLC	Self-Learning Climate Intelligence for Hotels

Storage



Israeli Co.	U.S. Co.	Title of Project
3DBatteries	NEI Corporation	Lithium-ion Cathodes for EV Applications Utilizing Water Soluble Ion-Conductive Polymer Binders
Chakratec Ltd.	Blink Charging Co.	Boosting EV Charging through Energy Storage System

Natural Gas



Israeli Co.	U.S. Co.	Title of Project
Ramot at Tel-Aviv University Ltd.	Gas Technologies LLC	Scalable Production of a Novel Methane Dry Reforming Catalyst and its Implementation into a Synthetic Fuel Plant

Water-Energy Nexus



Israeli Co.	U.S. Co.	Title of Project
Netafim Irrigation	Polaris Energy Services	Integrated Irrigation & Energy Management

BIRD HLS / HOMELAND SECURITY TECHNOLOGIES

Homeland Security Technologies

Under the agreement between the Government of the United States of America and the Government of the State of Israel on Cooperation in Science and Technology for Homeland Security Matters, the U.S. Department of Homeland Security (DHS) and the Israel Ministry of Public Security (MOPS) established a program to foster and support U.S.-Israel joint development of advanced technologies for First Responders and Homeland Security Technologies.

BIRD HLS follows the BIRD Foundation's rules and procedures.

Lead Program Representatives

Ms. Megan Mahle Industry Partnerships, Office of Innovation and Collaboration, Science & Technology, U.S. Department of Homeland Security

Dr. Gadi Frishman Chief Scientist, Head of Technology Division, Israel Ministry of Public Security

Other Representatives

Ms. Jennifer Vesser Office of Innovation and Collaboration Science & Technology International Software Programs, U.S. Department of Homeland Security

Mr. Yaron Kron Head of Technology Division, Israel Ministry of Public Security

HLS PROGRAM STATISTICS 2016-2019

Approved Projects	Signed Projects ⁽¹⁾	Funding from Governments	Grant Payments ⁽²⁾
10	6	\$8.93 M	\$2.89 M

1. Signed projects until December 31, 2019

2. Payments to projects in development stage

APPROVED PROJECTS – HOMELAND SECURITY TECHNOLOGIES – 2019

Israeli Co.	U.S. Co.	Title of Project
Blue White Robotics Ltd.	Easy Aerial Inc.	Multi-Mission, Multi-Type HLS Drone Command & Control Capability
Cawamo Ltd.	LiveView Technologies	A Fully Turn-Key AI based Analytics Video Security Solution for Remote Sites
S.H Goren Management & Innovation Ltd.	3AM Innovations LLC	FLARE - IL-US Enclosure Ruggedization

EXAMPLES OF SUCCESS STORIES

Kramer Electronics

iRule

Distributed Advanced Commercial Control Solution

A cloud-based, automated, control solution for audio/video, lighting and systems that include pre-automated components for the commercial, industrial and education markets. The solution combines innovative hardware and software and cutting edge IoT (Internet of Things) technology that will allow control, automation and monitoring from any device, anywhere, anytime.

Using distributed architecture enables improved scalability and self-healing. When one processor goes down, another will pick up the load and keep the system running flawlessly.

The solution features a simple, intuitive user interface on a standard commercial tablet. This user-friendly and reliable environment will enable every employee to be more efficient and at ease when using collaboration and presentation systems and virtually eliminate the need to rely on IT support staff.

On December 2016, the Israeli company Kramer Electronics announced the acquisition of iRule LLC.



Approved: December 2015

TIGI

Free Hot Water

Solar Thermal Heating System for US Farms

An overall cost effective “cookie cutter” green heat system with initial focus on the agricultural market.

Using transparent insulation collector technology from TIGI and system know-how from Free Hot Water, a commercial solar thermal system was designed to bring better performing, lower cost, environmentally-friendly solution to this industry. These systems are easily integrated into a farm’s exiting infrastructure and can be remotely supported and monitored.

The industrial grade control and monitoring solution is designed from the ground up to be a flexible platform that enables the seamless commissioning and integration of the solar system with the existing infrastructure for optimal system performance.



Approved: November 2014

BIRD EVENTS



BIRD Reception
U.S. Embassy's DCM
Residence
Herzliya - Dec. 19, 2019



BIRD Reception
Washington D.C.
June 19, 2019



BIRD Seminar
SkySong ASU
(Arizona State University)
Scottsdale, AZ - April 28, 2019



BIRD HLS Seminar
Israel Export Institute
Tel Aviv - Feb. 28, 2019



U.S. - Israel Innovation:
Cyber, HLS, Government
Fairfax, VA - Nov. 13, 2019



BIRD Energy Seminar
Israel Export Institute
Tel Aviv – May 28, 2019



Israel EdTech Delegation
ASUGSV Summit
San Diego, CA
April 7-10, 2019



Funding R&D Partnerships
with U.S. Companies
Caesarea - Jan. 14, 2019

REPRESENTATIVES

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