

Elbit Systems – EHS Report 2022

As part of Elbit Systems' overall Sustainability Strategy – 2022, this report summarizes the key elements and achievements of our EHS (environment, health and safety) activities in 2022.

Global EHS Management System

Our global EHS management system covers 99.7% of Elbit System's global business operations, which include sites where we have full operational control, as well as our activities at major customers' sites (Scope 3). We facilitate compliance with applicable EHS regulations and our internal policies on EHS matters. We strive to improve our performance by collecting, analyzing and reporting indicators internally to management and to the board of directors and externally through our bi-yearly [Sustainability Report](#). Our Company-wide system also provides us the opportunity to share learning across our global organization and engage employees throughout our operations in regular communications and activities.

Elbit Systems has established a [Global EHS Policy](#) endorsed by management, which guides our activities to advance environmentally friendly practices and to reduce the environmental impact of our operations. Our EHS Policy also supports our commitments to enhancing precautionary measures to protect our employees' health and safety.

We maintain leading international standards on Environment and Occupational Health and Safety Management Systems. We are certified to ISO14001 and ISO45001 at our main sites, covering 78% of our employees, and we are in the process of certifying additional sites.

Managing Our Environmental Impacts Throughout Our Operation:

Elbit Systems recognizes the potential environmental impacts of our ongoing operations. We have a robust climate change strategy, which is based on a multi-disciplinary Company-wide risk management process. A committee made up of senior management from different areas of the organization, including finance, business units, facilities, procurement, security and the Chief Operating Officer (COO), gather on a yearly basis to identify and assess the main EHS risks and opportunities for the organization, including climate-related issues. The evaluation covers short and long-term horizons, and as an output the team establishes action plans for the upcoming years. The main outputs from our risk management processes can be found in our 2023 CDP report.

As part of our global environmental, health and safety (EHS) management, we conduct environmentally-friendly manufacturing activities and ongoing measurements to reduce electricity, water and fuel consumption.

In line with our commitment to continuously improve our EHS management, we monitor key metrics and establish long-term goals in several areas as shown below. Since 2021 we have submitted our key environmental indicators and greenhouse gas report covering all scope emissions to be verified by a third-party independent auditor in accordance with ISO14064-3.

Moreover, the global EHS team set global targets for most of our environmental indicators, which are approved during the EHS Management Review presentation to our board of directors.

The Coronavirus disease 2019 (COVID-19) was declared a pandemic by the World Health Organization in March 2020. In the following two years we had an increase in remote working with fewer employees in the offices. Additionally, many sites closed their kitchen facilities and offered take-out options only. These and other changes impacted the data during these years, and in 2021 we see the beginning of a shift to a post-COVID baseline. However, we have chosen to continue using 2020 as our baseline year, since we have already committed to reduction targets.

1- Energy Efficiency

In recent years we have completed several reduction projects throughout the global organization, such as improving air conditioning and lighting controls, LED lighting replacements and consistently maintaining our manufacturing operations to achieve maximum efficiency. These projects have helped to reduce our consumption in certain key areas, and we expect upcoming projects to help us further reduce our consumption. The following table shows our energy consumption in the last several years:

Energy consumption in MWh				
Direct energy (Scope 1)	2019 (including IMI)	2020 (including IMI and new site in USA)	2021	2022
Diesel	4,952	9,184	11,029	13,845
LPG	1,761	8,297	526	4,778
Aviation Fuel	649	7,600	375	259
Gasoline	63,721	57,475	48,615	56,565
Natural Gas liquids (LNG)		487		
Kerosene			125	116
Total direct energy (Scope 1)	71,083	83,042	60,670	75,563
Purchased electricity (Scope 2)	234,662	276,083	269,746	269,672
Total energy consumption (Scope 1+2)	305,746	359,125	330,416	345,235

For electricity consumption, the target established for electricity efficiency in 2022 was a 5% reduction of kWh per square meter (area) with a parallel target of 5% reduction in our electricity (scope 2) emissions, in comparison to our 2020 baseline. We did not meet the electricity reduction goal, but we have met the emissions reduction goal. The latter is due to more environmental-friendly electricity suppliers with reduced emissions factors, as discussed below. Additionally, we have set a long-term Scope 2 target using the Science Based Target calculator as a guide, with an aim for less than 2 degrees of warming. This target aims for a 15% decrease in Scope 2 emissions by 2026. Our goal to start generating renewable energy was reset for 2022, and one of our sites now has functioning panels, which we hope will show a further decrease in emissions in future reports. We are working toward adding solar panels at 3 additional sites, which is planned for 2024.

Electricity consumption					
Type	Units	2019 (including IMI)	2020 (including IMI and new site in USA)	2021	2022
Purchased electricity	kWh	234,662,467	276,082,655	269,746,182	269,671,933
Purchased electricity costs	USD	25,587,069	29,812,124	29,896,135	28,987,596

2- Water and Waste Generation Efficiency

Elbit Systems is committed to avoiding environmental pollution, primarily water and soil pollution. In addition, our continuous improvement to achieve minimum waste of resources and maximum operational efficiency has led us to adopt numerous activities to improve water and waste management. For example, these measures include smart metering to detect water leaks and monitor consumption, implementation of processes of water recycling and water efficient installations in washrooms, waste reduction at source, re-use of packaging materials and recycling programs covering all waste streams.

Water withdrawal in Mm3	2019	2020	2021	2022
	(including IMI)	(including IMI and new site in USA)	(including IMI and new site in USA)	(including IMI and new site in USA)
Total water withdrawal	0.799	0.916	1.026	1.009

Although we see a decrease in water consumption from 2021, the water consumption target was 5% reduction of cubic meters per employee in comparison with 2020 baseline year. Our water consumption increased by 10% in part due to the return of employees to the sites after an extended period of remote working due to the pandemic. All water consumption at our operations is drawn from municipal water supplies.

Source separation of several non-hazardous waste streams is in place at most sites (paper, cardboard, metal, electronics, used oils and wood). At our headquarter site in Haifa, we are currently working to implement organic waste separation as well, and have been working with local industrial park management and neighboring businesses on this project. Waste disposal information collection, particularly non-hazardous waste, has been a challenge in previous years. We have streamlined our global efforts to obtain and report precise information. A small amount of waste is classified as hazardous, and we dispose of it safely and in accordance with applicable regulations.

Waste production goals follow-up						
Total waste in tons	2019 (including IMI)	2020 (including IMI and new site in USA)	2021	2022	2022 goal (Baseline 2021)	2022 change
Waste to recycling	3,116	8,765	4,117	4,099	+5%	-0.4%
Waste to landfill	7,028	23,671	6,649	6,298	-5%	-5.3%
Total waste (non-hazardous)	10,144	32,436	10,766	10,397		
Hazardous waste	1,445	1,410	1,944	1,422	-5%	-26.8%

In 2022 there appeared to be a significant reduction in waste production, in particular hazardous waste. Our percentage of non-hazardous waste to recycling has shown a steady increase since previous years. Waste management is often done by external companies, and the data received is from those companies. As such, it can be difficult to get consistent and accurate data. The difference in numbers may be a result of differences in data collection. One of our goals in the coming years is to increase the quality of our waste data collection. We have begun a waste survey, and will be continuing this extensive project over the next few years. Our 2022 target was 40% of waste to recycling relative to total waste produced.

3- Greenhouse Gas (GHG) Emissions Efficiency

Our GHG report from 2022 includes Scope 1, Scope 2 and Scope 3 emissions, and is verified by a third-party independent auditor in accordance with ISO14064-3. Our global GHG activities are divided according to the GHG protocol as followed:

- Scope 1 (direct emissions) - emissions are those from activities owned or controlled by our organization:
 - LPG consumption
 - Gasoline consumption
 - Aviation fuel consumption
 - Diesel consumption
 - Kerosene
 - Refrigeration operating emissions (AC systems for office and Communication Rooms)

- Scope 2 (energy indirect) - emissions released into the atmosphere that are associated with our consumption of purchased electricity, heat, steam and cooling:
 - Electricity

- Scope 3 (other indirect) - emissions that are a consequence of actions that occur at sources we do not own or control and are not classified as Scope 2 emissions:
 - Electricity T&D and WTT (associated with grid losses, the energy loss that occurs in getting the electricity from the power plant to the organization).
 - Water use
 - Paper consumption
 - Business Travels emissions
 - Waste disposal - landfill
 - Waste disposal - recycling (paper, mineral oils, plastics, wood, metals, WEEE and mixed waste)

UK Government conversion factors for greenhouse gas (GHG) reporting were used in all calculations, except from CO₂ emission factors of electricity generation and T&D, that were based on information provided by the International Energy Agency (IEA) and electricity generation from DURAD and Negev Energy, private companies in Israel that provide electricity from low-carbon sources - based on natural gas, instead of the national grid that is primarily coal-sourced, to several of our sites.

In order to report GHG emissions, we used market-based emissions factors from the private suppliers and location-based emission factors from the IEA for other locations where we purchase electricity from the national providers. Therefore, our GHG emissions report has both location and market-based information, as per the GHG Protocol guidance.

Greenhouse gas emissions (tCO₂e)	2019 (including IMI)	2020 (including IMI and new site in USA)	2021	2022	2022 goal (2020 baseline)	2022 change
Scope 1 emissions	18,034	22,165	17,042	20,996		
Scope 2 emissions	109,592	112,925	110,934	104,088	-5%	-7.8%
Total greenhouse gas emissions (Scope 1 +2)	127,626	135,090	127,977	125,084		

Note: Scope 2 emissions here are shown based on the market-based values.

The goal established for GHG emissions efficiency was 5% reduction for 2022, of emissions per area (tCO₂e /1000 m²) in comparison with 2020 baseline. Additionally, we have set a long-term Scope 2 target using the Science Based Target calculator as a guide, with an aim for less than 2 degrees of warming. This target aims for a 15% decrease in Scope 2 emissions by 2026, using a 2020 baseline (an average of 2.5% decrease per year). Our yearly targets will be based on this, giving us our 2022 target of 7.5% reduction from 2020.

We have not paid any significant fines (> USD \$10,000) related to environmental or ecological issues in the past four fiscal years.

Volatile Organic Compounds (VOC)

Elbit’s direct Volatile Organic Compounds (VOC) emissions are only relevant for a few of our operations in Israel. In 2022, we had a total of 92.3 tons of direct VOC emissions. We engage with the Israeli government reporting requirements for companies for the emissions permit report and Pollutant Release and Transfer Register (PRTR), which is a database or inventory of pollutants released to air, water or soil by factories, and/or transferred off-site for treatment or disposal. Among all information described, our VOC emissions are reported on this platform on a yearly basis.

Volatile Organic Compounds	2019	2020	2021	2022
VOC emissions (tons)	79.5	92.0	74.3	92.3

Occupational Health and Safety

Elbit Systems operations include a range of development, manufacturing, testing, logistics and support activities. Protecting our employees through consistent attention to occupational health and safety is fundamental to the way we work. As a responsible employer, our goal is to maintain a healthy working environment for our employees. Therefore, we are committed to leading precautionary standards as well as implementation of emergency preparedness systems at all sites. We strive to enhance the safety of our employees, minimize risks, prevent hazards and maintain a safe environment at each facility.

Elbit Systems employs thousands of employees globally. As a responsible employer, our goal is to provide a healthy working environment for our employees. Mandatory health examinations are conducted routinely for employees that work under conditions that may pose potential health issues. We offer employees the opportunity to participate in designated health insurance programs.

Injuries - including contractors	Unit	2019 (including IMI)	2020 (including IMI and new USA site)	2021	2022
Fatalities	Number	0	0	0	0
Injury frequency rate (LTIFR)	# per million hours worked	3.71	2.98	2.81	2.75

We closely monitor all accidents and safety-related incidents at our operations. Since 2019 we have added to our follow-up contractors' accidents to better understand and prevent such events. Lost-time Injury Frequency Rate (LTIFR) is calculated by the number of "lost-time" injuries per million hours worked in a fiscal year. We are pleased to note that we had no fatalities for the reported years, and we met our goal of incident rate reduction.

The goal set for 2022 was 10% reduction from the 2021 baseline. We did not manage to achieve the target but did manage to reduce the injury frequency rate by about 2%. Our target for 2023 is 5% of reduction from our 2022 baseline.

Sustainable Innovation in Our Products and Services

Elbit Systems has significant ongoing investment in breakthrough technological solutions that help protect the environment.

We implement a clear sustainable innovation methodology in our development and manufacturing processes that support environmental protection, mainly in the choice of materials and components, type of energy utilization, weight, quality and other relevant factors. Some of those processes have a direct impact on environmental aspects, for example:

- Building materials - source the lightest and most durable materials, for example fiberglass - which allows greater time and distance propulsion and corresponding energy efficiency.
- Building materials - some UAS (unmanned aircraft systems) parts are produced by three-dimensional printing, for example aluminum parts, reducing both the UAS' fuel consumption, chip processing, as well as waste generation.
- Lead-free structural walls - a dedicated model was implemented for airborne lead-free platforms with the understanding that in the near future lead-based materials will not be allowed to be used.
- Removal of carcinogenic and/or hazardous components from our products, including paints and microchips. We comply with RoHS and REACH standards and with customer's requirements.

- Propulsion - hybrid engines
- Electrical energy sources:
 - Lithium-ion batteries - Most of Elbit's electric UAVs are now based on rechargeable lithium-ion batteries, a cutting-edge technology above all other available solutions in the market. The batteries consist of suitable cylindrical standard in 18650 configurations, and control card BMS (Battery Management System). The role of the BMS is to provide electrical protection to the battery, store its database and transmit the data to the aircraft computer during the mission.
 - Fuel Cells type PEM (Proton Exchange Membrane) - an electrochemical device that converts the chemical energy of the reactants directly into electrical energy. The fuel cell is fed with hydrogen coming from the storage system and hydrogen supply, a “state of the art” solution for propulsion and motion.
 - Solar panels - This technology is improving consistently, our flexible solar cells with GaAs technology and “Rider 10” platform, have already improved by approximately 30% the utilization of a single cell.
- Simulators – realistic training solutions for air, naval and land forces training and homeland security provide environmental impacts reduction, such as fuel consumption reduction. As an example, one hour at the simulator could save 4000 liters of aviation fuel. In partnership with Israel’s air force we have been gradually increasing the proportion of trainings at simulators over time. In 2015 we have started with 3%, in 2020 we have reached 14%, and we strive to improve by establishing a goal to reach 30% of all trainings to simulators by 2026. We estimate an average of 10 million liters of aviation fuel savings due to the simulators in 2021, approximately 22,908.2 tCO₂e.

We monitor the use and performance of our sustainable innovation products at our customers’ facilities. Also, there is an ongoing effort to upgrade the mid-life of the products, thus maintaining their efficiency and improving performance.

Sustainable aspects of end of product life also is managed. We often "re-purchase" the product for reuse or recycle of the product as a whole or its raw materials. In cases where products cannot be returned to us, we support implementation of the best disposal alternatives in compliance with local regulations.

For over five decades, Elbit Systems has achieved sustainable growth and market leadership through innovation. Elbit Systems implements its Open Innovation strategy through [Incubit Ventures](#) – a deep-tech, early-stage Incubator and through Elbit Systems’ Corporate OPIN collaboration team for more mature startups. Several examples of sustainability innovation projects being developed by the technology start-ups in which Elbit Systems has invested, which include:

- **NewRocket:** Developing advanced, environmentally friendly rocket engines based on innovative gel-propellant technology, NewRocket provides a new alternative to both solid rockets that once ignited cannot be controlled or shut down and reignited, and to liquid rockets, that are difficult to maintain and rely on very toxic or cryogenic propellants. NewRocket's gel-propellant rocket engines combine the best of both solid and liquid rockets – they are safe and simple to use, yet feature high performance and controllability. This gel is a green fuel in accordance with European standards.
- **Cens:** Developing breakthrough technology to increase the energy and power of super-capacitors and lithium ion batteries by connecting carbon nanotubes (CNT) with various electrode materials to create highly conductive 3-dimensional structures, CENS is set to meet the increasing demands of electronics, transportation, medical device and defense markets. CENS technology enables significantly greater utilization of CNT properties – including much improved power and energy: The CENS CNT-particle clusters provide super-capacitors with about 50% more power than equivalent type cells produced with conventional CNT mixtures; thereby enabling desirable features such as fast charging, longer cycle life, and better reliability.
- **FlyWorks:** breakthrough propellant technology which is hybrid and combines in a unique way electric and petrol engines to achieve a longer duration of drone flight. The new “fuel cells” created (based on magnesium hydrid - H₂) only expel water, which reduces pollution and does not require additional protection for the generators.
- **Greenvibe:** IP protected method in order to measure very accurately the concrete strength, temperature, humidity and conductance, in real time and provide projections on the exact curing dynamics and strength development. After the construction is done, the system continues to monitor the structure health.

All the factors above provide resource efficiency benefits and GHG emissions reductions during their use phase to your customers and consumers, and therefore can be considered as low carbon products.

Additional start-ups in which Elbit Systems has invested focus on the safety aspects, for example:

- **Spectralics:** develops a thin film optics which will be adjacent to the vehicle's windshield to create a highly wide field of view and an infinite focal depth, both of which are necessary in order to create an immersive and natural augmented reality experience on the vehicle's windshield.
- **Sealartec:** Autonomous launch and recovery system for manned and unmanned surface vehicles and vessels.

- **Ultrawis:** Remote control of tower cranes. Nowadays, operated manually from a top tower cabin, with on ground verbal coordination – this leads to a Large number of fatal accidents, inefficient operations, and projects delays. Ultrawis’s Solution is based on Elbit Systems’ technology and 14 registered patents.
- **ReSight:** Capture the physical surroundings and embed augmented reality content in it, by building a live, crowdsourced, 3D semantic map from all the users while not compromising their privacy. This enables developers to build persistent, robust, and multi-user experiences at scale. This technology is being developed with the purpose, among others, to provide support inside buildings to emergency response teams.