

Opinion | Finally, Israel's Military Has Recognized the Importance of Lasers (1)

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Prime Minister Naftali Bennett recently called the Magen Or laser air-defense system a “strategic game changer.” I welcome this change in the government's attitude, but would caution that words aren’t enough. This solution must be implemented with determination and urgency, on condition that this is done within the parameters necessary for the task of fully defending Israel’s home front.

Interceptor missiles are very expensive, and we will never have enough of them to deal with the full scope of the threats facing us. Only a powerful laser can neutralize this enormous and diverse array of threats.

After many years of opposition, the defense establishment has finally recognized the strategic importance of lasers. But it still views them primarily as supplements to the Iron Dome system. As I understand it, the defense establishment plans only a limited increase in the proposed laser system’s power level, which means it will only be able to deal with fairly short-range threats. In other words, it will provide only limited protection to the home front.

But the developed laser must have a longer range, so that it can effectively protect most of the home front against sophisticated threats. Developing laser systems in stages – first a system for short-range protection, and only later a system for longer ranges – will waste resources and delay the necessary solution, which essentially means abandoning the home front.

The argument over the type of laser – chemical or electric – is obsolete. A decade ago, the option of accomplishing an electric laser to suitable power levels didn’t exist, whereas chemical lasers with such power levels had already been produced and proved themselves in previous decades. A chemical laser system could have been implemented in Israel as far back as 2001, and had we done so, the reality around us would be different, as Maj. Gen. David Ivry, a former Israel Air Force commander, has said. But in the last two years, there have been technological developments that enable electric lasers to be upgraded to a very high power level.

The goal for our electric laser system – and it is a feasible one – must be longer ranges than currently planned. Otherwise, the home front will remain vulnerable to enemy missiles, some of which, thanks to their characteristics (maximum precision, hypersonic speeds, maneuvering ability and warheads of hundreds of kilograms or more), have become strategic threats. We must make every effort to obtain a system with higher power levels, which translates into longer ranges, to provide the home front with optimal protection.

To the best of my knowledge and experience, a complex project like a long-range laser system will require cooperation with the United States. This is not only due to America's technology and know-how, but also to the sheer volume of resources needed to produce such systems once their development has been completed. These are resources we don't have.

Brig. Gen. Yaniv Rotem, head of research and development for the Defense Ministry's Directorate of Defense Research and Development (known by its Hebrew acronym Mafat), had the right idea – an airborne laser system with a power output of 300-500 kilowatts, capable of intercepting missiles from a range of 100 kilometers. Such a solution was proposed to Israel back in 2003 by a leading U.S. company. Nevertheless, the power level proposed here is still insufficient.

Only integrating a powerful ground-based laser (on the order of 1 megawatt) with a powerful airborne laser would provide effective protection for the entire country. In my view, such power levels can be achieved in a relatively short timetable. And I would caution that a less powerful laser system, with only a limited effective range, cannot properly protect either the home front or vital strategic sites.

Removing the home front, which has recently become the front line, from the cycle of combat, would give the IDF increased room of maneuver, allowing it to be guided by strategic and operational considerations rather than having to respond to attacks on the home front. To achieve this, we vitally need an emergency national project to develop an integrated laser system, both ground-based and airborne, with power levels on the order of 1 megawatt. The threat is on our doorstep, and we must take urgent action to prevent a disaster.

Dr. Oded Amichai, a physicist, is an expert on laser weapons systems and chair of the Magen Laoref (Home Front Shield) nonprofit organization.

(1) <https://www.haaretz.com/opinion/2022-06-12/ty-article-opinion/finally-israels-military-has-recognized-the-importance-of-lasers/00000181-58df-d43f-a1fd-dbfad260000>