NG''s Skyguard Lacks Mobility Army Seeking In High-Energy Laser

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By Michael Fabey

While Northrop Grumman is hoping the recent Hezbollah missile attacks on Israel will create interest in its Skyguard chemically powered high-energy laser weapon system either abroad or for American homeland security, it's clear that the U.S. Army wants to wait for a more tactical and mobile system.

While more mobile and cheaper than earlier planned high-energy laser (HEL) proposals, Skyguard lacks the mobility of solid-state high energy systems the Army would rather have, according to Northrop and Army officials.

A demonstrator for such a system probably won't be ready until the mid part of the coming decade.

Army officials have made their need for a very mobile system known this year in congressional testimony. More telling, the service has no current funding plans for anything like a Skyguard system.

Israel and the United States were working on a mobile tactical high energy laser (MTHEL) until last year, but the joint program fell apart partly because Israel was ready to move forward while the Army wanted a more tactical system.

"The U.S. Army wanted something that was more mobile," said Loren Thompson of the Lexington Institute.

By that time, the two countries had invested at least $400 million, according to Northrop, the contractor for the program. Northrop took the technology and investment and created Skyguard.

Skyguard is about one-half the cost of THEL, according to Northrop estimates. The first system would cost about $150 million, and, depending on the number of units ordered, the cost could drop to $30 million.

Skyguard is a quarter the size of the THEL test bed, thanks to advancements in the miniaturization of components. It's packaged into the equivalent of three standard, 20-foot by 8-foot containers.

That makes it transportable. But it's not what the Army would call mobile. The service is looking for something that fits into a much smaller vehicle.

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"The Army wants something that is fully mobile. Something that can fit into a truck," Mike McVey, Northrop Vice President, Directed Energy Systems, said in an Aug. 7 interview. "With that, though, it will be less capable and have less power, to be mobile."

And, he added, more costly.

Northrop says it can have a 100 kilowatt-producing demonstrator by 2013, or even earlier if the Army needs it.

"It's constrained by funding," McVey said.

There are other constraints, according to John Alexander, a retired U.S. Army colonel who's an expert of directed energy systems such as high-energy lasers.

Alexander wrote the 2003 book, "Winning the War, Advanced Weapons, Strategies, and Concepts for the Post -9/11 World," which is used by future war game planners in the Pentagon.

The lack of understanding about how directed energy weapons work is keeping them - and will continue to keep them - from being deployed, Alexander said in an Aug. 8 interview.

For example, the Active Denial System (ADS) - which uses microwave beams to disperse crowds, stop people or hold them back without hurting them - was ready to be deployed in Iraq, but never made it there.

"It wasn't the technology," Alexander said. "People recognize the emotional baggage of a system like that."

There's also a danger in using demonstrators out in the field. "You take it to the field and it falls short. Instead of saying, 'the demonstrator didn't work,' people say, 'the technology is bad,'" he said.

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> Alexander predicted it would take at least a decade for a truly mobile high energy laser system, including a solid state-powered one - to be deployable.
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> But industry already has made technological jumps in adaptive optics to make high energy lasers militarily feasible, says Doug Beason, a retired Air Force colonel who now is the director of threat assessment for the Los Alamos National Laboratory.

Beason, another directed energy research expert, holds a doctorate in laser-tech physics and wrote a 2005 book about such systems titled "The E-Bomb."

Beason points out that transistorized, or solid state, laser technology is being driven by the telecommunications industry, which has made much of the lasting advancements in this arena.

The Defense Science Board recommends solid-state lasers over chemical ones for the U.S. services for future ground vehicles, ships and planes - including unmanned aerial vehicles - mostly because the transistorized systems can be easier to move and operate.

"Because they rely on electrical power, solid-state lasers may impose less of a logistical burden than chemical lasers, which require large quantities of various chemicals to sustain lasing action" says the Lexington Institute's Thompson. "On the other hand, solid-state lasers are relatively inefficient.

"Because solid-state lasers utilize electrical power rather than chemical reactions to generate their beams, the same diesel fuel used in Army tactical vehicles could be used to run the laser's generator," Thompson added.