

## Army Developing New Self-Propelled Howitzer

ARMY NEWS SERVICE (SEPT. 1, 2011)

Kris Osborn

WASHINGTON—The U.S. Army is developing a next-generation, 40-ton 155mm Howitzer artillery cannon able to fire precision rounds, accommodate additional armor protections, and power more on-board electrical systems.

The M109 Paladin Integrated Management, or PIM, is slated to begin low-rate initial production by 2013, and features a 600-volt on-board power system designed to accommodate emerging networking technologies as they become available.

The PIM is the Army's modernization program for the 155mm self-propelled Howitzer fleet, said Lt. Col. Dan Furber, product manager, Self-Propelled Howitzer Systems.

"The [space, weight, and power] buy-back the PIM will provide is huge," Furber said. "It allows us to add additional armor to the platform and it allows us to add additional capabilities such as automation or electronic packages."

The PIM's on-board power system harnesses technologies developed for the Non-Line-of-Sight Cannon, or NLOS-C, a 155mm Howitzer formerly developed for the Future Combat Systems, Manned-Ground Vehicles program. That program was canceled in 2009.

"We've also harnessed the electric drives from the NLOS-C, which are faster than the hydraulic drives used in the existing fleet," Furber said. "With the electric drives and rammer, we are finding more consistent ramming of the round which allows for more consistent muzzle velocities, and we are a little more accurate and responsive with the electric drives."

Prototypes of the vehicle, built by BAE Systems, are now undergoing government testing in preparation for an low-rate initial production decision. The PIM vehicle's cannon rests on a chassis built with Bradley Fighting Vehicle common components including engine, transmission, and tracks.

"Being common with Bradley decreases the logistics footprint that echelons above brigades will have to manage," Furber said. "In the long term, it will decrease the amount of money needed to sustain the Bradley and Self-Propelled



The M109 Paladin Integrated Management, or "M109 PIM," is slated to begin low-rate initial production by 2013. The 40-ton, next-generation 155mm Howitzer artillery cannon is able to fire precision rounds, accommodate additional armor protections and power more on-board electrical systems.

U.S. Army photo

Howitzer fleets. We will only have to manage one engine, for example, in the supply chain, so there are economies of scale that are beneficial to the Army."

The testing includes reliability, availability, and maintainability mission testing as well as ballistic hull and turret testing. Both testing regimes are designed to prepare the program for a Milestone C production decision by 2013.

Like other 155mm artillery systems, the Paladin will be configured to fire precision munitions such as the Excalibur and the Precision Guidance Kit. The PIM is being designed to provide key fire-support for a range of potential combat operations to include conventional, hybrid, irregular, and counterinsurgency scenarios.

"While PIM is associated with the heavy brigade combat team, it is a full-spectrum operational platform," Furber said. "For instance, it would allow the artillery crew supporting light infantry on a forward operating base to be protected from indirect fires—something towed artillery pieces are not able to do."

The PIM includes a sustained rate of fire of one round per-minute and a maximum rate of fire of four rounds per-minute, said Ed Murray, Department of the Army Systems Coordinator-Artillery.

The Army plans to build 580 new Paladin PIM sets. Each set includes a self-propelled howitzer and an ammunition resupply vehicle. The existing fleet of M109A6 Howitzers are nearing obsolescence. Those weapons were originally designed in the 1950s and produced in the 1960s.

As a result, the current fleet exceeds its weight and power capacity and does not provide for growth in mobility and force protection, thus emphasizing that the PIM program is necessary to address the existing capability gaps for self-propelled artillery.

*Osborn writes for the office of the assistant secretary of the Army for Acquisition, Logistics and Technology Public Affairs.*

### **Army Embracing Acquisition Reform**

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Kris Osborn

ARLINGTON, Va.—The U.S. Army acquisition community is immersed in a series of reforms aimed at improving procurement practices such as streamlining requirements, better managing cost and schedule issues, integrating new technologies before they are sent to theater, and working more closely with industry.

Lt. Gen. Bill Phillips, principal military deputy to the assistant secretary of the Army for Acquisition, Logistics and Technology, outlined the reforms Sept. 8 at an Association of the U.S. Army Institute of Land Warfare event in Crystal City.

“There’s not a day that goes by that I don’t think about what we can do to support our soldiers. As we modernize our Army, we want to put the right capability in the hands of our soldiers to make sure that they do their missions quickly and safely and come home to their families and friends,” Phillips told the audience.

In particular, Phillips said the Army is implementing as many as 63 of the 76 proposed recommendations emerging from a recently completed Army Acquisition Review, a holistic study commissioned by the secretary of the Army designed to look at improving the acquisition process. [Editor’s note: see [www.army.mil/article/64557/](http://www.army.mil/article/64557/)]

“Through the Office of the Secretary of the Army, we are executing the results of that study. The study did a great job in providing us a blueprint for how to improve our operations,” said Phillips.

In fact, Phillips said the Army has already implemented a series of the recommendations proposed by the study such as working more closely with industry, standing up a deputy as-

stant secretary of the Army for services, and spearheading efforts to reform the Nunn-McCurdy notification process.

Acquiring more technical data packages, conducting testing earlier in the acquisition process, and increasing cost-saving multi-year contracts are also among the many recommendations in the Army Acquisition Review currently being implemented by the Army.

Another key aspect of the study which the Army is already working on involves efforts to improve the synchronization of requirements and acquisition procedures at the front end of the process so as to ensure achievable, clearly defined cost and schedule goals, Phillips said.

The Army’s approach to its Ground Combat Vehicle program, or GCV, which “tiered” requirements with a mind to emphasizing technological maturity, clearly set cost parameters and a seven-year timeline, is an example of this new approach, he added.

In addition, Phillips explained that in some instances requirements established for acquisition programs could be “traded-off” in order to lower costs in today’s more fiscally constrained environment.

“We want PMs and PEOs to come forward and let us know what requirements are difficult to produce from a technical perspective. Are we reaching too far, or is a certain requirement something that does not make sense?” Phillips said.

Phillips also cited substantial progress through the Army’s Capability Portfolio Review, or CPR process, ongoing initiatives to look across portfolios of systems to gain efficiency and eliminate redundancy where possible. So far, the CPR process has already saved the Army more than \$5 billion, he said.

### **The NIE Process**

The Army’s ongoing Network Integration Evaluations, semi-annual exercises at White Sands Missile Range, N.M., designed to evaluate and integrate emerging technologies in a combat-relevant environment before they are sent to combat, are a critical part of the ongoing efforts to reform acquisition, Phillips said.

The Army is already harvesting key lessons learned from its first NIE, which finished up in July and is preparing for the next NIE slated to begin in October. The idea is to evaluate and perform key integration on emerging or promising technologies in a realistic test environment before sending systems into theater.

This approach ensures that new technologies are properly integrated before being deployed and also helps Army acquisition keep pace with fast-moving technological changes.

“The NIE is really a new way of doing business. It is an effort designed for us to take a system that we would have been testing downrange, and take it out to White Sands Missile Range and evaluate it in the hands of soldiers. This allows us to get critical soldier feedback and improve our programs,” Phillips said. “This is going to be something that we will institutionalize within the Army.”

Plans for the upcoming NIE, which include the evaluation of as many as 53 emerging technologies, were formed in large part due to responses to Army “Sources Sought” notifications asking industry to propose technical solutions designed to address or fill specific network-related capability gaps identified by the Army.

“We got 73 White Papers from industry. We did an evaluation of each White Paper and selected 53 of those systems to be evaluated at the next NIE,” Phillips said. “We are aligning our programs today to be able to fit within the NIE window.”

Partnering with industry in order to identify and develop new technologies able to fill key network capability gaps is a critical part of the NIE process, Phillips emphasized.

New technologies developed or acquired through the Operational Needs Statement or Joint Urgent Operational Needs Statement process will go through NIE testing procedures, said Gen. Peter Chiarelli, Army vice chief of staff.

“The NIE construct is an exercise every six months, involving a fully equipped brigade combat team at Fort Bliss, Texas. That is all they do. We are going to take the integration requirement off of the commander who is fighting and put it on that brigade combat team,” Chiarelli said.

As an example of the importance of Army acquisition, Phillips recounted the story of 1st. Lt. Jason Miller, a soldier whose life was saved when his advanced combat helmet stopped bullets shot at him by Taliban insurgents in Afghanistan.

“He somersaulted backward. Then he stood up, dusted himself off, grabbed his M4, and killed the two Taliban fighters. Jason Miller is alive today because the process worked,” Phillips told the crowd.

*Osborn writes for the office of the assistant secretary of the Army for Acquisition, Logistics and Technology Public Affairs.*

### Army, Pentagon Seek Small, ‘Throwable’ Robots

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Kris Osborn

WASHINGTON—The Army, Marine Corps, and the Pentagon’s Joint Improvised Explosive Device (IED) Defeat Organization are working to procure and deliver thousands of small, easily transportable “throwable” robots equipped with surveillance cameras designed to beam back video from confined spaces, buildings, tunnels, and other potentially dangerous locations, Service officials said.

“These robots can provide dismounted troops that extra bit of stand-off distance,” said Marine Corps Lt. Col. Dave Thompson, project manager, Robotic Systems Joint Project Office.

The Joint IED Defeat Organization, or JEIDDO, is in the process of responding to a joint urgent operational needs statement (JUONS) for an ultra-light recon robot capability to support dismounted operations in Afghanistan; combatant commanders are looking to receive an initial delivery of about 4,000 of the small robots, some of which are engineered to be thrown through a second-story window to provide “eyes” on a potentially hazardous combat situation, said Mathew Way, program integrator for Mitigate and Neutralize, JIEDDO.

After finishing up a market survey of which commercially available technologies might be able to meet the needs of the JUONS—and quickly conducting testing on numerous small robots designed to establish quantitative data with the National Institute for Standards and Technology—JIEDDO chose three lightweight, “throwable” robots to run through a series of combat assessments in Afghanistan.

Included among those systems are iRobot’s 110 First Look robot, MacroUSA’s Armadillo V2 Micro Unmanned Ground Vehicle, and QinetiQ North America’s Dragon Runner .

About 50 of each of these robots will be deployed with forces in different parts of Afghanistan in order to assess the capability of the “throwbots” to perform across different types of combat terrain. The bots will be placed with infantry, engineering, and explosive ordnance disposal units, among others, Way said.

“What we are going to try to do is give a sampling of every type of system downrange across different regions of Afghanistan. More than likely, there will be more than one system needed to answer this JUONS,” said Way.



A soldier throws a Recon Robotics–Recon Scout Throwbot XT robot. The barbell-shaped robot is only 1.2 pounds, can withstand a 30-foot vertical drop, and provides “eyes” or forward-positioned cameras able to capture images from dangerous locations. The device is currently being acquired by the Army’s Rapid Equipping Force.

Photo courtesy Recon Robotics

The theater assessment in Afghanistan, called an OCONUS trial, or Outside the Continental United States, is aimed at informing development of requirements regarding the tasks the systems will be needed to perform.

“This OCONUS trial will give us the soldier feedback that we need. This will allow us to go to industry and tell them what we want. JIEDDO can then use those precise requirements to support a rapid, open competition, to then field the final solution or solutions to fulfill the warfighter need,” Way said.

At the same time, the Army-led RS JPO is coordinating efforts across the DoD and also working on developing, purchasing, and deploying several of the small, mobile “throwable” robots such as iRobot’s First Look and the Recon Robotics Recon Scout XT Throwbot.

“This is an area of joint interest. JIEDDO has a large part of this, as does the Army’s Rapid Equipping Force and the Marine Corps. We are all looking at similar systems. RS JPO is trying to do some coordination between all of these organizations and see if we can look at the systems that are out there, look at the requirements, and start to posture ourselves for the sustainment and the maintenance of these systems in the long term,” said Thompson.

The anticipated value of the “throwbots” is in part driven by the frequency of dismounted small unit and squad patrols

in Afghanistan, where soldiers and Marines routinely check areas for IEDs and insurgent activity, Thompson explained.

At the moment, many units use the Small Unmanned Ground Vehicle 320, a small tactical robot equipped with video reconnaissance technology that is 32 pounds. Still, there is a need for something that is lighter, more easily transportable by dismounted units on the move, and able to be “thrown” into forward locations such as buildings and caves, Way and Thompson said.

### Throwbots

The Recon Scout XT Throwbot, for instance, is only 1.2 pounds. The device is designed to withstand a 30-foot vertical drop and provide “eyes” or forward-positioned cameras able to capture images from dangerous locations. It is a small, barbell-shaped robot with wheels at each end of a titanium tube along with a camera, antenna, and illuminator. The Recon Scout also includes an operator control unit with a small viewing screen and joystick. The Recon Scout is currently being acquired by the Army’s Rapid Equipping Forces, or REF.

“The Recon Robot XT responds to the soldiers’ need to see where they’re going before they get there. With this throwbot capability, warfighters gain situational awareness of an area, thus mitigating risks and casualties,” an REF spokesperson said.

QinetiQ's Dragon Runner, originally developed for the Marine Corps, weighs about 14 pounds and includes cameras, motion-detectors, and an optional small manipulator arm able to lift about 10 pounds.

iRobot's First Look is about 10 inches long and weighs less than five pounds. The robot has four built-in cameras facing different directions and is engineered to withstand a 15-foot drop. It is waterproof up to three feet and is designed to climb steps as high as eight inches. The robot is configured like a miniature model of the well-known and widely used PackBot robot. The First Look's sensor payload includes cameras, thermal imagers, and chem-bio radiation sensors.

The Armadillo V2 is also about 5 pounds. It has four small wheels, is built to withstand eight-meter "throws," and also includes multiple cameras and thermal imaging.

*Osborn writes for the office of the assistant secretary of the Army for Acquisition, Logistics and Technology Public Affairs.*

### **Before Stepping Down, Lynn Assesses 'Signature' Issues**

AMERICAN FORCES PRESS SERVICE (OCT. 5, 2011)

Karen Parrish

WASHINGTON—Since taking office Feb. 12, 2009, Deputy Defense Secretary William J. Lynn III has championed several issues, among them cybersecurity, energy, space, and the defense industrial base.

Following a speech at the Center for American Progress here, Lynn discussed those areas and his Defense Department service with Pentagon Channel and American Forces Press Service reporters. Oct. 5 is Lynn's last day in office; Ashton B. Carter will be sworn in Oct. 6 as the 31st deputy defense secretary.

Lynn noted that the Defense Department has this year developed and published strategies for both cybersecurity and space.

"I think in cybersecurity, the central challenge is [developing] the partnership with the Department of Homeland Security, and through Homeland Security with the private sector, to ensure that critical infrastructure sectors—the transportation grid, the power grid, the financial networks—are at the appropriate level of protection, given their importance to the national economy and national security," the deputy secretary said.

The most important development in space is the increasing international presence there, Lynn said. While during

the Cold War two superpowers dominated the domain, he noted, more than 60 nations now vie for territory there.

"The U.S. still relies heavily on space for its technological edge in the military, but it's a much more crowded environment," he said. "We need to adjust our strategy to reflect that environment."

DoD shares the nation's approach to renewable energy in two areas, but has a uniquely military concern as well, Lynn said.

"It's part of lowering carbon footprints, it's part of a green initiative President [Barack] Obama is stressing, and it's going to make the planet safer," he said. "Second, energy efficiency saves money, and given the fiscal times we're in, anything that saves money is something we're interested in as a department."

From a military perspective, Lynn observed, renewable energy also saves lives. In Iraq and Afghanistan, convoys routinely traversed dangerous territory to get fuel to the troops, he noted.

"If we can reduce the number of convoys by reducing the amount of fuel consumed, we can save lives," he said. "That is the most important driver of a new operational energy strategy."

During his tenure as deputy secretary, Lynn has advocated strengthening the U.S. defense industrial base by increasing competition and opening up foreign markets. He sees improvement in both those areas, he said today.

"On a governmentwide basis, President Obama has been stressing export reform," he said. "We have a system now that's, frankly, archaic. It's built on a Cold War model, and the result of it is we seem to have a system that's designed to keep equipment from our closest allies, even those that we're fighting next to. And it isn't really protecting critical technology."

He added DoD is part of a governmentwide effort to make U.S. defense industries more competitive by putting higher walls around a "critical few" systems, while making many others available for international sale.

The other major DoD initiative is a "sector-by-sector, tier-by-tier review of the industrial base," the deputy secretary said. DoD's goal in the review, he added, is to ensure as department leaders make budget decisions, they understand the impact of those choices on industry.

With that knowledge, “if we need to, we can adjust to protect critical sectors or critical capabilities,” he added.

Lynn said the DoD workforce he has served with is “second to none.”

“We’re a nation at war,” the deputy secretary said. “That’s tough not only on the troops and their families, but ... on the supporting personnel, the defense civilians, as well. We’re requiring longer hours, and it’s a tougher mission, and they have measured up in every way.”

### **Dempsey: Partnerships, Innovation Crucial for Future Force**

*AMERICAN FORCES PRESS SERVICE (OCT. 13, 2011)*

*Karen Parrish*

WASHINGTON—Military operations since 9/11 teach that capabilities are spreading, international relationships matter, and innovation is essential to the joint force, the nation’s senior military officer told Congress today. Army Gen. Martin E. Dempsey, chairman of the Joint Chiefs of Staff, and Defense Secretary Leon E. Panetta both testified before the House Armed Services Committee for the first time in their current jobs, discussing the future of national defense and the military 10 years after 9/11.

As more than 2 million men and women have deployed to support operations in Afghanistan, Iraq, and elsewhere in the past decade, the joint force has demonstrated great initiative, strength, and resolve, the chairman said. The global security landscape has shifted during the same period, and capabilities that previously were the monopoly of nation states have proliferated, Dempsey noted.

“As a consequence, we must learn faster, understand more deeply, and adapt more quickly than our adversaries,” he said.

Coalitions and partnerships matter more than ever in that new landscape, adding capability, capacity, and credibility to shared security responsibilities, Dempsey said.

“Therefore, we are committed, even in the face of some of the budget pressures that have been described, to expanding the envelope of cooperation at home and abroad,” the chairman said.

Army, Navy, Air Force, Marine, and Coast Guard forces are potent individually, and together form an unmatched team, he said. “We still need our Services to maintain and be the masters of their core competencies and their unique Service

cultures, but ... we must continue to value and advance joint interdependence,” the general said.

The force has fielded a number of new technologies in the last decade, Dempsey noted.

“We must continue to unleash innovation in the ranks and challenge ourselves to leverage these emergent capabilities in new and creative ways,” he said.

Leadership remains at the military’s core, and has allowed the force to learn, adapt, and achieve results over the past decade, Dempsey said.

“Developing the next generation of joint leaders will preserve our nation’s decisive advantage over any would-be adversary,” he added.

Forces must preserve not only capabilities, but also capacity—“the ability to sustain those capabilities over time,” Dempsey said. The joint force the nation will need in 2020 must be powerful, responsive, resilient, and versatile, he added.

“It must preserve our human capital, and have the capability and capacity to provide military options for our nation’s leaders,” the general said. “And it must be affordable. Be assured, I am fully committed to reducing costs without compromising our nation’s security needs.”

Defense capabilities must be versatile, the chairman said, because “we generally find that we don’t predict the future with any degree of accuracy.”

“Tell me what you want me to do [and] how often you want me to do it; I can build you a joint force,” the chairman said. “And we’re working on that now.”

Risks to the force could accrue as defense leaders determine they must limit capabilities, or underestimate the necessary future force size and ask “more and more of our young men and women on a rotational base that we can’t sustain,” he said.

Leaders must make spending choices “at balanced risk” and avoid “hollowing the force” of needed people, equipment, and training, the chairman said.

“These choices need to be deliberate and precise,” he emphasized.