



COVER STORY

# The New Nuclear Age

As the military restructures itself to meet 21st-century threats, the nation's three-pronged nuclear strategy increasingly looks like a remnant of the Cold War era due for revision

By Megan Scully

**S**HORTLY AFTER TAKING OFFICE, President Obama traveled to Prague and pledged to move toward a world without nuclear weapons. He called on the United States, two decades after the fall of the Berlin Wall, to abandon Cold War thinking, reduce the nation's strategic reliance on nuclear weapons and urge other nations to do the same.

His most tangible progress to date on those goals has been pushing a divisive arms-reduction treaty with Russia through the Senate in the waning days of the 111th Congress. Today, his administration is contemplating a move that could be one of the most far-reaching of his presidency—a series of proposals that could shrink the nation's nuclear force by as much as 80 percent.

Doing so would be a significant political victory for the president, whose aspirations for creating a nuclear-free world helped win him the Nobel Peace Prize. But any such decision could require Obama to make good on perhaps the most elusive of the promises made in Prague: persuading his administration and Congress to move beyond the mindset of a bygone era.

Administration officials and lawmakers from both parties still cling to what has been the basic blueprint for the nuclear force for the past half-century—a trio of venerable

bombers, submarines and intercontinental ballistic missiles (ICBMs) first developed to thwart the Soviet enemy. But this reflexive devotion to the so-called nuclear triad comes at a steep price, just as the Pentagon is reining in its budgets. At the same time, it's not at all clear that the full triad is still necessary to deter today's nuclear threats, from Iran to North Korea to China. This has a growing number of outside analysts asking whether it is time to consider scrapping the half-century-old strategy.

The question is a pressing one. Like the Cold War warriors who developed them, these decades-old weapons systems are aging and will face retirement in the next 20 to 25 years. Their replacements carry a total price tag measured in the hundreds of billions of dollars, putting a squeeze on a leaner-than-expected defense budget just as department officials seek to buy new fleets of fighters, boats and ground vehicles. Billions more are needed to build increasingly effective defenses against terrorism, cyber warfare and other emerging threats. The administration's current nuclear forces review—due in the coming months—is the first decision point in this debate, which will play out in the Armed Services and Appropriations panels in the coming years.

If the military spends its increasingly limited defense dollars fielding a multilayered

CQ ILLUSTRATION BY MICHAEL STANALAND



**TRIAD BACKERS:** Turner (left), seen with House Armed Services Chairman Howard P. "Buck" McKeon, a California Republican, is a strong advocate for maintaining a large arsenal of nuclear weapons.

portfolio of high-end nuclear weapons, there may not be room in the budget for other, potentially more pressing, priorities. Nuclear weapons do little to ward off terrorists, and they do not protect critical and increasingly vulnerable information networks. Iran, North Korea and China are investing in nuclear programs, but the U.S. arsenal — even stripped of one leg of the triad — far surpasses their capabilities combined.

Retired Gen. James E. Cartwright, the former vice chairman of the Joint Chiefs of Staff, suggests that there is some inherent logic behind a three-pronged deterrent. It does, after all, provide the United States with backup options should Plan A fail. But the world is a far different place than it was in the 1950s. Today's military must stave off a multitude of threats not conceived of during the height of the Cold War. Cartwright stresses that the military simply cannot afford to field a trio of weapons against other pressing threats, such as terrorism and cyber and biological warfare. Why, then, must the United States base the nuclear force on the concept of the triad?

"There's going to have to be balance here," says Cartwright, who retired from the military last year and is now an analyst at the Center for Strategic and International Studies.

**THE MISSION**

The size of today's nuclear force, while a far cry from that of the nuclear heyday of the 1960s and 1970s, is still an impressive show of American military might. Giant missile silos dominate the sparse landscape

at Air Force posts in Wyoming, Montana and North Dakota, where the military's 450 Minuteman III ICBMs are housed. The Air Force's roughly 60 heavy, nuclear-capable B-2 and B-52 bombers, deployed from their bases in Missouri, Louisiana and North Dakota, are a foreboding presence in the skies. And the Navy fleet of 14 ballistic missile subs, home-based strategically in Georgia and Washington, are capable of surprise attacks from hostile waters around the world.

Each system has its flaws, but together they created the complete Cold War package. The ICBMs, although vulnerable to attack, provided long-range accuracy and an immediate response capability to target Soviet military forces and infrastructure. Ballistic-missile submarines, meanwhile, were considered the most survivable leg of the triad but lacked accuracy. (Over the years, the missiles fired from the subs have become far more accurate.) The nuclear-capable bombers could fall victim to enemy air defenses but were nonetheless easily and quickly deployed.

Those who support the triad point immediately to nuclear ambitions in Iran and North Korea, whose erratic regimes are cause for concern to the security of the United States and around the world. Somewhat more predictable, but nonetheless perplexing to military planners, China looms large as a rising nuclear power and potential threat to the United States.

"The triad itself is part of the basic construct of deterrence, and deterrence is saying

to our adversaries that we have an ability to respond or retaliate to . . . prevent them from taking overwhelming conventional or nuclear force against the United States," says Ohio Republican Rep. Michael R. Turner, the chairman of the House Armed Services Strategic Forces Subcommittee. "When we weaken our ability to deliver our nuclear weapons . . . you lessen our deterrence."

Turner's thinking isn't necessarily partisan. Indeed, the Obama administration said as much in its most recent Nuclear Posture Review, released a year after Obama's Prague speech. Each leg of the three-pronged deterrent, the administration concluded, offers strategic advantages that warrant keeping it in the force. "Retaining all three triad legs will best maintain strategic stability at reasonable cost, while hedging against potential technical problems or vulnerabilities," according to the April 2010 review.

The chances of the military retaliating against Iran or North Korea with nuclear weapons is small, considering the proximity of those countries to U.S. allies and the other retaliatory options at Washington's disposal. If the U.S. military were to strike back, it would be far more likely to use the superior conventional weaponry in its arsenal before turning to its nuclear force. "They don't lose any sleep at night because we have nuclear weapons," Cartwright says. "Their worry is, we come after them conventionally and occupy them. That's what deters those two countries. It's not our nuclear arsenal."

China, meanwhile, is a constant concern for military planners. But many observers doubt that the increasingly sophisticated military power would aim its nuclear weapons at the United States, whose inventory dwarfs Beijing's. "We are so far superior to the Chinese that the likelihood they would want to engage in nuclear war is negative zero," says Massachusetts Democratic Rep. Edward J. Markey, a leading arms control voice in Congress. Cartwright adds that he is concerned that making China the "evil empire" could become a "self-fulfilling prophecy that emerges as an arms race."

Setting aside those potential adversaries, that brings the military full circle back to Russia, a sometimes unpredictable ally that is upgrading its own sea, land and air nuclear weapons to keep up with the United States. "The triad is still fundamentally about the fact that Russia has nuclear weapons, and the course of Russia's future is uncharted," says Franklin C. Miller, a

former senior Defense Department and White House official.

**THE BOTTOM LINE**

Any responsible discussion of military strategy, particularly in a resource-constrained environment, cannot take place without considering the bottom line. Put simply, is it worth the cost? Replacing the three legs requires an upfront investment in research and development — essentially seed money to fund design teams, set requirements and get programs off the ground. The biggest bills come when the military actually purchases the majority of these pricey new weapons later this decade and through the 2030s. But decisions made now will affect the eventual size, scope and cost of these programs.

Despite budget pressures, Pentagon officials emerged in January from a strategic review of its missions and priorities still committed to the triad, albeit with some small sacrifices. The Navy will delay by two years its new ballistic-missile submarine to defer multibillion-dollar procurement costs that will all but consume the service's shipbuilding accounts. And, in another bid to save money, the Air Force's new bombers may not be equipped for the nuclear mission right away.

Many Republicans on Capitol Hill have criticized those proposed delays, but Defense Secretary Leon E. Panetta has repeatedly made assurances that the three-pronged deterrent remains the foundation of the United States' nuclear weapons strategy. The fiscal 2013 budget request "sustains the nuclear triad of bombers, missiles and submarines to continue to ensure that we have a safe, reliable and effective nuclear deterrent," Panetta told the Senate Armed Services Committee on Feb. 14. The administration is also spending money to modernize the nuclear arsenal as part of a 2010 deal with Senate Minority Whip Jon Kyl, an Arizona Republican, related to ratification of the New START treaty.

Even Democratic lawmakers who want to reduce the size of the nuclear stockpile seem content to keep the triad — at least for now. "I'd maintain the triad at this point but work on the excessive size" of the nuclear force, says Senate Armed Services Chairman Carl Levin, a Michigan Democrat.

The issue, however, isn't black and white, even within arms control circles. Morton H. Halperin, a nuclear expert and veteran of the Johnson, Nixon and Clinton administrations, maintains that setting aside the political battle over whether to keep and modernize

the delivery systems would focus the debate on arms reduction and help pave the way for agreement on fewer warheads. "Having a triad makes it easier to argue that we can go to lower numbers," he said at a January Arms Control Association event.

Others, including those who have worked on nuclear issues for decades, believe that the number of warheads in the arsenal will help determine the future of the triad. To comply with New START, the military is cutting the

arsenal to 1,550 strategic nukes. But as part of a nuclear weapons review required by Congress in the fiscal 2010 defense authorization law, the administration is exploring scenarios that could reduce that number to between 300 and 1,100 warheads.

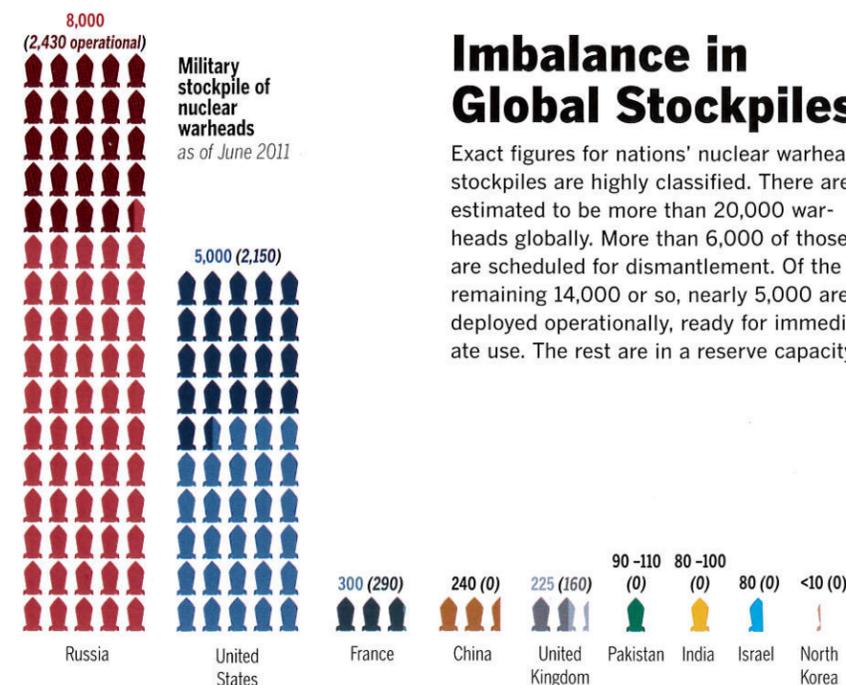
The review should be wrapped up in the coming months, but Republicans quickly blasted reports that the arsenal might be cut by as much as 80 percent. Arizona Republican Trent Franks, a member of the House

**Nuclear Arsenals, By the Numbers**

The United States and Russia agreed to reduce their nuclear arsenals as part of the New START treaty, which was ratified in 2010. The Obama administration is exploring scenarios for deeper cuts in the number of warheads, but Washington still faces a steep price tag in the coming decades for modernizing the delivery systems.

	Estimated U.S. strategic forces, 2010		Possible U.S. strategic forces under New START, 2017		
	Launchers	Warheads	Total launchers	Deployed launchers	Warheads
Minuteman III ICBMs	450	500	420	400	400
Trident submarine missiles	336	1,152	280	240	1,090
B-52 bombers	85*	300	74	42	42
B-2 bombers	20*	200	18	18	18
<b>Total</b>	<b>891</b>	<b>2,152</b>	<b>792</b>	<b>700</b>	<b>1,550</b>

NOTE: Strategic forces do not include reserve or retired warheads. \*Not all nuclear-capable  
SOURCE: Congressional Research Service estimates



NOTE: Totals include non-operational reserve warheads but do not include retired warheads scheduled for dismantlement (an estimated 3,000 additional for Russia and 3,500 for the United States).

SOURCE: Federation of American Scientists

**Imbalance in Global Stockpiles**

Exact figures for nations' nuclear warhead stockpiles are highly classified. There are estimated to be more than 20,000 warheads globally. More than 6,000 of those are scheduled for dismantlement. Of the remaining 14,000 or so, nearly 5,000 are deployed operationally, ready for immediate use. The rest are in a reserve capacity.

# The Costs Of Modernization

THE YEARS ARE STARTING TO CATCH UP with the military's nuclear-capable submarines, bombers and long-range missiles, each of which has retirement in sight. Replacing them requires a costly investment starting now that could ultimately disrupt the budgets of the Navy and Air Force, forcing the Pentagon to make difficult decisions about its spending priorities. But few within the Obama administration or on Capitol Hill are willing to openly discuss the prospects of forgoing that investment — at least not yet.

Efforts to modernize the triad, which are still only in their infancy, come in a politicized environment exacerbated by planned reductions of \$487 billion in the Defense Department's budget over the next decade. Tensions heightened in recent weeks after word leaked that the administration is considering deep cuts to the nuclear arsenal — perhaps slashing the number of strategic warheads from an estimated 2,152 to between 300 and 1,100.

That would bring the U.S. arsenal to as much as 80 percent below the levels mandated under the arms-reduction treaty with

Russia known as New START, prompting backlash from Senate Minority Whip Jon Kyl of Arizona and other Republicans who negotiated a deal with the White House over ratification of the treaty in late 2010 for an additional \$4.1 billion to be spent on modernization over five years.

"I don't think it comes as a surprise to you that there are a good number of people on my side of the aisle that feel that the promises are not being kept," Idaho Republican Sen. Jim Risch told Secretary of State Hillary Rodham Clinton at a hearing last week.

Despite the plans to reduce the arsenal, the air, land and sea delivery systems — the so-called triad — so far remain protected from big cuts. Of the three legs, the most daunting modernization tab the military faces is for developing and buying a replacement for the Navy's *Ohio*-class ballistic-missile submarine. The first of the fleet's 14 *Ohio*-class ships will retire in 2027, 42 years after it entered the water and 12 years later than originally planned.

Navy officials launched the submarine replacement program in 2010, investing nearly \$500 million that year to begin re-



**SURFACING:** The *USS Henry M. Jackson*, an *Ohio*-class ballistic missile submarine, recently moored at Naval Base Kitsap-Bangor in Washington after a strategic deterrent patrol.

search and development. The service originally expected to spend \$29.4 billion from 2011 to 2020 to complete development and begin production, with the aim of fielding the first of 12 new subs by 2029. But Pentagon leaders, faced with a constrained budget, have opted to delay development of the submarine by two years, saving \$600 million in fiscal 2013 and \$4.3 billion over the next five years.

The schedule slip means that there will be a lag between the retirement of the first *Ohio*-class sub and the fielding of the new one — a risk the Defense Department calls "manageable." The extra time will help the Navy keep costs under control, Defense Secretary Leon E. Panetta told the House Armed Services Committee last month. "I can assure you, we're still committed to getting that online," he added.

Navy officials, although supportive of the program, have been candid about their concerns that the costs of the new nuclear submarine could one day consume the service's entire shipbuilding budget, particularly if they soar as they often do on high-tech programs.

Navy Secretary Raymond E. Mabus told House lawmakers on Feb. 16 that service officials have cut costs from about \$7 billion per sub to \$5 billion. The procurement price tag, however, doesn't include the total life-cycle costs of the program (which include money to sustain and maintain the boats through 2075), estimated at \$347 billion. "When that class is being built, it will clearly have a major impact on the rest of our shipbuilding program," Mabus told the panel.

Next up is the nascent program to replace

the Air Force's venerable nuclear-capable bomber fleet. The service currently has about 85 B-52s (with the goal of cutting that to 76 bombers in the coming years) and 20 B-2s in its inventory. The B-52s entered the force in 1961 but have been modernized repeatedly over the years. The B-2, meanwhile, first flew in 1997.

Both bombers could remain in the fleet in significant numbers until about 2035 or later, but Air Force officials are already investing in a new bomber capable of both conventional and nuclear missions. They plan to buy between 80 and 100 of the bombers, at an estimated cost of \$550 million per plane. Lawmakers added \$100 million to the Air Force's \$197 million request for the program for fiscal 2012. The service has requested \$300 million for fiscal 2013 and plans to spend \$6.3 billion on the new bomber in the next five years.

The military's plans for its 1970s-era Minuteman III intercontinental ballistic missile (ICBM) arsenal are less clear. The Air Force invested more than \$7 billion from 2001 to 2010 to extend the service lives of the Minuteman IIIs to about 2030. The Pentagon has not yet decided on a replacement for the Minuteman IIIs but plans to spend \$26 million through fiscal 2014 to study alternatives for a replacement program. Assuming that the military wants a new missile in place by 2030, procurement dollars for a follow-on ICBM would come just as the Navy and Air Force begin big investments in the submarine and bomber.

— MEGAN SCULLY

Armed Services Committee, termed it "reckless lunacy" in a Feb. 15 hearing.

But with significantly fewer weapons, some argue, it may not make sense to maintain the diverse and expensive fleet of delivery systems.

In the highest-profile acknowledgement that the triad may not be here to stay, Adm. Mike Mullen made headlines last fall, just days before retiring from his post as Joint Chiefs of Staff chairman, when he uttered the word "dyad." "At some point in time, that triad becomes very, very expensive, you know, obviously, the smaller your nuclear arsenal is," Mullen said. "So at some point in time, in the future, certainly I think a decision will have to be made in terms of whether we keep the triad or drop it down to a dyad."

Even among current administration officials, there seems to be some acknowledgement that the triad may not be a permanent fixture in the U.S. arsenal. Ellen O. Tauscher, who served as undersecretary of State for arms control and international security affairs until early February, told reporters at a January breakfast that the administration is constantly reviewing nuclear issues, including the future of the ICBMs, bombers and submarines. The ultimate goal is to have a smaller, more robust and more predictable nuclear stockpile, said Tauscher, now a special envoy at State.

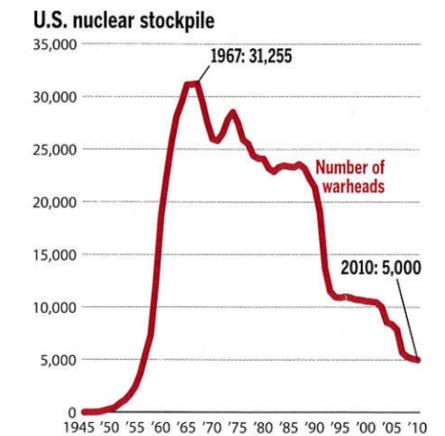
Gen. C. Robert Kehler, who heads U.S. Strategic Command, acknowledged to reporters last fall that the triad isn't a trinity, but he added that maintaining all three legs is the "right thing to do now." The future of the deterrent, he said, will hinge on arms control agreements, budget realities and threats facing the United States. "The answer about whether or not we're going to need a triad, I think, is it depends," he said. "It depends on the strategic situation we find ourselves in."

Like Mullen, Kehler acknowledged that, at some point, the nuclear force could become too small to justify maintaining the triad. Indeed, he said, doing so could actually be counterproductive. But what the breaking point is — and when the military could hit it — remains an open question.

"I think there will be some very tough decisions to make here at certain levels and whether or not you can then sustain a leg of the triad without it becoming hollow, so to speak," he said. "Can you have enough expertise? Can you have enough sustainment horsepower, if you will, behind it to really make it a viable leg? Those are all great ques-

## Fewer but Better

The nation's nuclear arsenal has declined significantly since its Cold War peak, but the weapons have become more accurate and more powerful.



NOTE: Nuclear stockpile includes reserve warheads.  
SOURCE: Bulletin of Atomic Scientists

tions, and those are questions we're going to have to raise."

### ACCIDENTAL STRATEGY

The nation's strategic reliance on the nuclear triad has been unchallenged for years, but it truly is an accidental doctrine.

At the outset of the Cold War in the 1950s, everyone at the Pentagon wanted a piece of the nuclear business. It was where the money and influence was — and it guaranteed relevance in the years after World War II. But the U.S. military never set out to build a three-pronged deterrent. What ultimately became the triad grew more out of competition between the military services and a scramble for defense dollars than out of any military necessity or strategic design.

"From the beginning, the triad was a bastard child. It wasn't planned that way," says former Pentagon official Miller, who pointed to interservice rivalry during the 1950s as a big driver in the creation of the ground, air and sea deterrent. "The Department of Defense decided this was an ugly duckling turned into a swan and really liked it because of its various and different strengths," he explains.

At the beginning, the bombers represented the U.S. military's only option to deliver nuclear weapons. That quickly changed in 1959, when the military deployed its first six Atlas D intercontinental ballistic missiles. By 1960, the Navy had completed the triad by adding the Polaris submarine-launched

## Big-Ticket Triad

All three legs of the nuclear triad — land, air and sea — are due for expensive modernization or replacement in the coming years. The total price tag remains unclear.

### Highlights of the Defense Department's nuclear modernization program

LAND	Estimated cost	Expected deployment
Rebuild the Minuteman III Intercontinental Ballistic Missile (completed)	\$7 billion	Through 2020; possibly 2050
Study the possibility of replacing the Minuteman III with a new ICBM	\$26 million	Not determined
AIR		
Build a new Long Range Penetrating Bomber	\$40-60 billion	Not determined
Replace the Air-Launched Cruise Missile with a long-range missile	\$1.3 billion	If approved, beginning in 2025
SEA		
Replace the <i>Ohio</i> -class ballistic-missile submarine with the new SSBX submarine	\$96-101 billion	2029-80
Rebuild the Trident II D5 missile	Not available	Through 2042

Source: Arms Control Association

ballistic missile to its fleet.

In the early to mid-1960s, the military's aircraft fleet boasted more than 1,300 nuclear-capable bombers. By 1967, the ballistic-missile submarine fleet had grown to its high of 41 ships, while the ICBM inventory hits its peak in 1970, with 1,054 Titan II and Minuteman I, II and III missiles in the arsenal. But the number of delivery platforms for nuclear weapons has declined steadily since the end of the Cold War. The military now has 450 Minuteman III missiles, 14 Ohio-class ballistic missile submarines, 20 B-2 bombers and about 85 B-52s, 44 of which are currently nuclear-capable.

Over the next several decades, the Navy plans to buy 12 new ballistic missile submarines to replace the Ohio class, while the Air Force wants to buy 80 to 100 new bombers. The plans for the replacement ICBM force are not yet known, although the administration has previously signaled that it wants to keep up to 420 of the Minuteman IIIs in its inventory for now.

The submarines, particularly with the improvements in their accuracy, are widely considered the bedrock of the nuclear force. They come with a hefty price tag — now estimated at \$5 billion a ship — but replac-

ing the Ohio-class ships has strong backing within the Navy, where officials consider the replacement a key mission despite concerns that it could eat into other shipbuilding programs.

Within the Air Force, which is charged with both the ICBMs and the bombers, some analysts believe that the luster of the nuclear mission has worn off in the years since the end of the Cold War. Nuclear weapons require money, time and people, areas that are all under stress now. The service has other, top-dollar priorities, including purchasing the F-35 Joint Strike Fighter and a new fleet of aerial refueling tankers. Top Air Force officials have mused publicly that, in a bid to save money, the early iterations of the bomber may be capable of only conventional weapons-dropping missions.

"There are too many other things the Air Force wants to do. That's not new. That's a 15- to 20-year-old phenomenon," Miller says. "The bomber mafia gave way to the fighter mafia."

For its part, however, the Air Force insists that it continues to support the three-pronged deterrent, which the service considers key as the military implements the New START reductions. The service's top

officer, Gen. Norton A. Schwartz — marking a striking difference from both Mullen and Kehler — has signaled that a smaller nuclear force actually makes the triad more important strategically.

"As you go down in terms of nuclear force structure... the triad actually becomes more important," Schwartz said at the Pentagon on Jan. 27. "The diversity, the variety, the attributes associated with each leg of the triad actually reinforce each other to a greater degree."

POLITICAL REALITY

Even if the military services were willing to part with their nuclear missions, Congress has the final say. Few lawmakers pay close attention to nuclear issues these days, but the ones who do have very strong opinions.

Nuclear advocates, such as Turner, are prepared to fight any effort to scale back the triad or make other significant reductions to the nuclear force beyond those already planned. "I think we have to be very cautious here in even how the debate moves forward, because the basic crux of this issue is protecting the United States and a nuclear deterrent," Turner warns.

On the other side of the debate, Markey,

who has introduced legislation that would cut \$100 billion from the nuclear weapons budget over the next 10 years, says the cost to modernize all three legs of the triad is simply unaffordable, given the national debt and other priorities in the defense budget. "I'd rather cut nuclear submarines than Navy SEALs," Markey says. "I'd rather cut nuclear bombers than conventional drones. Our security is better enhanced."

Markey is unlikely to gain much traction because he lacks the firm backing of influential lawmakers such as Levin who believe that it's necessary to trim the nuclear arsenal but fear that eliminating one leg of the triad would go too far. Also, parochial interests cannot be overemphasized. The Cold War may be long over, but the nuclear business is still a job creator on military bases and within defense companies sprinkled around the country.

Indeed, Montana's two senators, Democrats Jon Tester and Max Baucus, immediately went on the defensive late last year after Panetta suggested that one option, should the Defense Department be targeted for additional cuts beyond the reductions already planned over the next decade, would be to eliminate the ICBM force. Panetta esti-

mated the total savings at \$8 billion.

Aside from citing the strategic benefits the ICBMs provide, Tester and Baucus warned that it would be too costly to make it worthwhile to stand down the missiles in their state and elsewhere. "The large costs associated with closing down large installations, such as environmental remediation and other costs associated with dismantling nuclear infrastructure, would likely offset most potential savings," they wrote in a letter to Panetta dated Dec. 7.

The politics at play are not lost on the Obama administration as it weighs whether to stand down more warheads. "How does this new review match the pledge in Prague to put an end to Cold War thinking? That's a high bar, and nobody really has defined what that means," Hans M. Kristensen, director of the Nuclear Information Project at the Federation of American Scientists, said at the January Arms Control Association event.

Given the track records of other post-Cold War presidents and the political resistance a drastic change would prompt, Kristensen and other nuclear analysts say they expect any new proposal on the size and structure of the nuclear force to be modest.

"Nobody goes in and makes giant, huge, fast decisions," Kristensen said. Modest changes to nuclear policy, however, add up over time. The hope of arms control activists, such as Kristensen, is that whatever tweaks the administration ends up making will prompt a shift in strategy rather than simply signal the status quo.

Regardless of the political repercussions, others, including Cartwright, believe there should be a governmentwide look at deterrence and what is needed to protect the United States from the wide range of 21st-century threats. The question, ultimately, comes down to where the United States should spend its newly limited defense dollars. What is most important?

"There's going to have to be balance here in order to deter more proliferated threats against the United States today versus what we had in the '50s," Cartwright says. ■

**FOR FURTHER READING:** *Defense cuts, CQ Weekly, p. 352; New START approval, 2010 Almanac, p. 6-8; Jon Kyl and New START, 2010 CQ Weekly, p. 2800; fiscal 2010 defense authorization bill (PL 111-84), 2009 Almanac, p. 6-3; Obama's non-nuclear ambition, 2009 CQ Weekly, p. 1508.*

Delaware Iowa Colorado Oklahoma Minnesota Virginia Maine Florida Montana Nevada Texas West Virginia Arizona Illinois Hawaii Nebraska South Dakota New Jersey North Carolina Utah Vermont Oregon

New Mexico Idaho South Carolina Connecticut New York

Alaska Wyoming New Hampshire Washington Alabama Pennsylvania Kentucky Arkansas North Dakota Maryland Louisiana Mississippi California Missouri Massachusetts Kansas

Rhode Island Michigan

**"We're here because freight rail is here..."**  
Vestas Wind Turbines, Windsor, Co.

**...and we're here because Vestas is here because freight rail is here...**  
Walker Components, Denver, Co.

**...and we're here because more jobs are here because Vestas is here because freight rail is here."**  
Homestead Bar & Grill, Windsor, Co.

**"Economists call it the ripple effect. I call it the freight rail effect."**  
Sean Conway, County Commissioner Weld County, Co.

Learn more about the freight rail effect at [FreightRailWorks.org](http://FreightRailWorks.org)

**FREIGHT RAIL WORKS**  
FreightRailWorks.org