CARNEGIE ENDOWMENT FOR INTERNATIONAL PEACE

NUCLEAR SECURITY SPENDING: ASSESSING COSTS, EXAMINING PRIORITIES

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JESSICA MATHEWS: Good morning, everybody. I'm Jessica Mathews, president of the Carnegie Endowment. It's my pleasure to welcome you here to the release of this very important and I think pioneering piece of work. It is staggeringly the first ever accounting of our current nuclear and nuclear-related spending, which is a pretty extraordinary fact in and of itself.

But there are two reasons why I think that – this would have been a useful piece of work at any time. What makes it very important, the two über-trends that we are all going to be living – the first is that we're entering a period where Pentagon and Pentagon-related dollars are going to have to shrink. All government dollars, once we get through the stimulus package, are going to be under extraordinary pressure. And with all of the growth that there has been in the Pentagon budget over the last eight years, it's going to be under probably unprecedented pressure for contraction.

The second complete unrelated trend is that we're beginning a period of fundamental debate on the future role of nuclear weapons, a debate that ranges from upgrading to eliminating and everything in between. If we don't know what it costs to maintain the nuclear arsenal and to upgrade it, to defend against nuclear attack, to prevent further proliferation of weapons, of materiel, of technology; if we don't know what it costs to clean up the waste from prior decades and to prepare to deal with the consequences of an attack; if we don't know all of that, it makes it difficult if not impossible to have any kind of intelligent debate on this other set of choices.

How do you decide, for example, between more spending on nonproliferation programs like the comprehensive threat reduction or MPCNA at DOE or counter-proliferation programs like missile defense? They are obviously not equivalent in function, but it's still useful to know, at least within round numbers, how their costs compare. And right now we can't do it. In part – well, there has never been a nuclear budget and a critical recommendation of this work is that we need to have one and that this report lays the basis for creating one.

So I am glad that you're all here. I believe this is a fundamental contribution that all of us will be using for a long time to come. Its principal author, I think all of you probably know, Stephen Schwartz, who is the editor of The Nonproliferation Review, which is published by the James Martin Center for Nonproliferation Studies at the Monterey Institute. He is also the editor and co-author of *Atomic Audit*, an extraordinary piece of work that looked at the historical costs of this endeavor since 1940.

His colleague in this effort, Deepti Choubey, is deputy director of the nonproliferation program here at Carnegie. Her research work has focused, in particular, on the motivations and thinking of the non-nuclear weapons states as well as this work. And she also has the enormous responsibility of directing our thinking and work, preparing for the International Nonproliferation Conference, which I hope everybody here knows is scheduled for April 6th and 7th, 2009, and will be I think a very important event.

So Deepti will begin with some remarks about methodology and then we will hear the substance from Steve and then I will moderate a Q&A session to get into all of your questions.

Deepti, why don't you take over?

DEEPTI CHOUBEY: Okay. Good morning. Thank you, Jessica, for that kind introduction. And thank you all for coming. It's great to see so many of you here. I guess one

upside of the economic downturn is that it seems to increase people's attention on numbers. So I guess I'll thank that for all of you being here.

To ensure your eyes don't glaze over, we're offering a few resources to make our report a bit more accessible. So you should all have a copy of the report. There is also a one-pager that you should all have. And, for once, newspapers cooperated and we actually have an op-ed that was published today in the *Los Angeles Times* and you should all have a copy of that as well.

But one other resource I want to highlight for you is that we actually developed a website to support this report and it's available at carnegieendowment.org/nuclearsecuritybudget. And on that you'll find the electronic copies of the report, the fact sheet, but, more importantly, we actually put up our Excel spreadsheet that contains the data behind this analysis. So we invite you all to take a look and play around with that if it's of interest to you.

So today what I'd like to do is just provide an outline of the briefing. I'll give you some context for the project, share with you our methodology and then I'll hand it over to Stephen, who will provide the more detailed findings and recommendations of the report and then Jessica will moderate our Q&A.

In terms of the context of the project and why we undertook it, this report is our attempt to quantify how much the U.S. spends on nuclear-weapons and weapons-related programs. Specifically, how much does the U.S. spend to maintain its nuclear arsenal; manage and clean up waste leftover from decades of weapons production; defend against nuclear attack, prevent the further spread of nuclear weapons, weapon material, technology expertise; and prepare for the consequences of a nuclear radiological attack? Or, in other words, how much does the United States spend on nuclear security?

As Jessica mentioned, *Atomic Audit* was a precursor for this from a decade ago. And so when it came time for me to think about who should be the principal investigator for this project and sift through a mountain of data and crunch the numbers, Stephen Schwartz was an obvious choice.

Other motivations for the project, though, was taking a look at shifts on the Hill, where we have a new generation of leadership in Congress where they say that they care a lot about the issue, but they'd also like a better understanding of the numbers to prepare them to become what we call policy entrepreneurs. So if we think about nuclear policy really needing new leaders to act on it, how can we best prepare them for that?

But, secondly, I think we're all aware that there's some key debates and decisions that need to be made about the future of U.S. nuclear policy. I think the financial picture is a really key part of that debate. Also there is – we didn't time this and we didn't necessarily predict it when we started this project over a year ago, but the economic climate, I think, is another reason that underscores the importance and salience of this report. And I think the lesson from the current economic meltdown is that if you pay attention to the financial picture, you're forced to ask critical questions about priorities; and that's what we've done.

There are recent reports suggesting that the Obama administration will have a diminished capacity to make good on certain campaign promises. We believe that our analysis reveals an

opportunity to deliver to Americans and the rest of the world more sensible nuclear policy in keeping with today's realities.

In terms of the timeliness of the report, we hope that you'll agree that it is timely, particularly as tomorrow the confirmation hearings of the Secretary of State-designate Hillary Clinton and Secretary of Energy-designate Steven Chu. And so we have a few questions that we think need to be taken up in those hearings tomorrow.

And then, finally, if we are entering a new era in American leadership, our hope is that our analysis prompts policy-makers to ensure that our nuclear policy sends the right signals to the rest of the world about our priorities.

In terms of our methodology and how we conducted the project, in the fall of 2007 we began this process by concept testing whether this project was feasible and desirable. We brought together a group of budget experts both inside and outside of government. And, thankfully, they resoundingly said yes to both of those questions. We were then able to seek the support of funders. And now is the time where I'd like to thank them for their generous support, where this project would not be possible without the support of the Hewlett Foundation, the Open Society Institute, the Plowshares Fund and the Skinner Foundation.

We then formulated an outstanding advisory committee who we deeply thank for their collaborative spirit and insight. Considering their expertise, it is great to have their fingerprints on this project as well. There are also several advisory committee members who we could not publicly acknowledge because of their institutional affiliations, but they should know that we're grateful to them as well.

We're lucky to have a few of the advisory committee members with us today. And I'll acknowledge them now as we may call on them as resources during the Q&A period. So one is Sharon Squassoni, who is here with us from the Carnegie Endowment; Laura Peterson from Taxpayers For Common Sense; Raphael Della Rata from the Partnership for Global Security; Bob Alvarez from the Institute for Policy Studies; and Randy Larsen from the Center for Biosecurity at the University of Pittsburgh Medical Center and formerly of the Homeland Security Institute.

In terms of the data behind this analysis, they are generally budget authority, as appropriated by Congress for FY2008. The data was procured through interviews with government officials and congressional staffers on key committees or staffers to personal offices of members who have a real leadership position on these issues. And we also talked to budget experts, both inside government such as from the Government Accountability Office and outside of government.

Our analysis was also informed by the existing work of budget experts in the field, many of whom are on our advisory committee. We then scrubbed the data with the advisory committee and with the GAO staff, who were generous enough to meet with us twice. And I think, again, that's a real vote of confidence for this project that they're willing to share their time with us.

One of the goals of this project was to develop a new analytic framework to help evolve this discussion away from Cold War-era concepts to terms that are more relevant for today's security environment. As Stephen will further describe, some of the allocations are open to interpretation so, again, we invite you to delve into the data yourself by accessing the website. But before you rush

off to do that, let me hand it over to Stephen, who will walk us through the detailed findings of the report and the recommendations. Thanks.

STEPHEN SCHWARTZ: Great. Well, good morning. Thank you very much, Deepti and Jessica. So as we've discussed already, the United States does not maintain or track a nuclear-weapons budget per se. However, it is possible, using publicly available government documents, to assemble a reasonably accurate – although not comprehensive and I would stress that, not comprehensive – picture of most nuclear weapons and weapons-related spending.

And I must say, having done this exercise 10 to 15 years ago now, the advances in the Internet and the availability of budget documents in PDF made our jobs a whole lot easier – (chuckles) – and allowed us to complete this in the limited time that we had available.

To assess such expenditures, our report allocates them to one of five different categories. First is nuclear forces and operational support. These are costs associated with upgrading, operating and maintaining nuclear-delivery systems, warheads and bombs and associated infrastructure. Then we have deferred environmental and health costs. These are costs associated with managing and cleaning up radioactive and toxic waste resulting from and compensating victims of more than 60 years of nuclear-weapons production and testing activities.

Missile defense, which are costs associated with developing and deploying defenses against short- and long-range ballistic missiles. Nuclear threat reduction: These are costs associated with reducing and preventing nuclear threats at home and abroad by taking steps to secure nuclear weapons and weapons-related materials, primarily plutonium and highly enriched uranium.

Eliminate weapons and weapons-related materials and stem the further proliferation of weapons, materials and the technical knowledge to make them. And, last but not least, nuclear-incident management, which are costs associated with preparing for the use of nuclear or radiological weapons against the United States, including continuity of operations programs, efforts to detect and diffuse terrorist weapons, technology to trace the source of radioactive materials used in such weapons, otherwise known as forensics, and medical and other response programs to deal with the aftermath of attacks.

In some cases, a program may belong to more than one category. In these instances, we made a judgment call and assigned it to the most logical category. Others may disagree with our choices and that's why today, as Deepti mentioned, we are making our data available in an Excel spreadsheet on the Carnegie Web site so that you can conduct your own analysis, if you would like. And we would certainly welcome any and all feedback, critical and otherwise.

So total appropriations for fiscal 2008 were at least $52.4 billion, according to the best available data that we could obtain. This does not include – and I should stress – the cost for air defense, nuclear-weapons related air defense, anti-submarine warfare, classified programs and most nuclear-weapons related intelligence programs. The total costs borne by the Department of Defense to deploy and maintain nuclear weapons are partially estimated and therefore may be too low. Even so, this amount is far larger than most executive- and legislative-branch officials would acknowledge.

When these officials consider nuclear-security costs, they generally do so only from the perspective of their respective department, agency or jurisdiction. This report can only provide

tentative answers, not the answers to the critical question of what nuclear security costs for three primary reasons: first, because some programs related to nuclear weapons and nearly all programs pertaining to intelligence-related matters are classified. Their specific budgets are unavailable to those without the need to know – and that includes those of us working on this project.

Second, a number of programs related to the operation of U.S. nuclear forces also support conventional missions, for example, dual-capable bomber aircraft and ground-based and satellite communication networks. And there is no easy way to disaggregate nuclear from non-nuclear costs, particularly because the Defense Department does not do so when preparing budgets or tracking expenses. And this has just been the way that they've operated historically. The same problem applies to certain programs aimed at preparing for and addressing the consequences of a nuclear or radiological attack because disaster preparedness can and does support a wide variety of incident scenarios.

Third, the missions of some programs – notably air defense and anti-submarine warfare – have evolved over the years and now encompass a variety of efforts, not all of which are directly related to defending against a nuclear attack. Determining how much the DOD spends in these areas is impossible without access to information about specific DOD mission plans and line-item budgets, which are inaccessible to the public and not widely shared even inside the government.

Moreover, even the DOD would likely find it difficult to attribute an appropriate share of the total air defense and anti-submarine warfare spending to the nuclear side of the budget because many expenses in these areas would be incurred whether or not a nuclear mission was involved. Accordingly, these are excluded from consideration in this analysis.

This means that the total –

MS. MATHEWS: Steve, can I just – there are lots of people looking for seats in the back. There are some up front so you are welcome to come join us up front.

MR. SCHWARTZ: Okay, no problem. We certainly want people to be comfortable. (Chuckles.)

This means that the category totals and overall totals presented in this report are most accurately viewed as the minimum annual expenditures for nuclear programs and weapons-related programs – as a floor rather than a ceiling. No one should leave here today thinking that the United States spent $52.4 billion on nuclear security last year. The best we can say at this time is that the United States spent at least $52.4 billion or a minimum of 52.4 billion on nuclear weapons and weapons-related programs. And as we'll see in a few minutes, the reality is that it's probably a significantly higher figure.

By way of comparison, the 2008 nuclear security budget exceeds all anticipated government expenditures on international diplomacy and foreign assistance, that's a little over $39 billion; natural resources and the environment, $33 billion; is nearly double the $27.4 billion budget for general science, space and technology; and it's almost 14 times what the U.S. Department of Energy has allocated for all energy-related research and development. Moreover, the allocation of funds among the five categories reveals troubling realities about current government priorities in the nuclear arena.

Nuclear security spending also accounts for about 10 percent of all national defense spending and – actually, I was going to read that after I got done here, but I'll give that to you know. So nuclear weapons and weapons-related spending accounts for about 67 percent of the Department of Energy budget, although some estimates have it as high as 75 percent; 8.5 percent of the FBI budget; 7.1 percent of the Defense Department budget, excluding the extra costs associated with the wars in Afghanistan and Iraq; and, as I said just a moment ago, if you add in the defense-related costs at DOE, we're looking at about 10 percent of the 050 account and 1.7 percent of the Department of Homeland Security budget.

Now, another way to look at this is to examine the cost by agency. So that's what we've done in this particular chart here and we've broken it down by our five categories. So first up would be nuclear forces and operational support, and we can see that those are very large figures; cost borne entirely by the Defense Department and the Department of Energy. There are actually few other incidental costs and some lesser agencies, which for space reasons we didn't have room for on the chart. And then we have the deferred environmental and health costs and, notwithstanding the phenomenal graphics capabilities available to us today, I couldn't put numbers on all of the bars here, as you'll see in a moment, because you wouldn't be able to read them once they're all up here.

But what's really interesting about this – and I don't want to shine this in Jessica's eye here – but the amount of money that is being spent on deferred environmental and health costs at DOE nearly matches what we're spending on operations and support costs for nuclear weapons, which is not something that most people are probably aware of. Then we have missile-defense costs at the Department of Defense, then we have nuclear threat reduction costs at various agencies and then last but not least we add in the nuclear incident management costs.

Again, these are just the major agencies. If you look in the report, if you want to see the full details, this is in table seven on page 48, and that will also give you the numbers for the purple bar as well. About 55.5 percent of all nuclear expense go toward operating, upgrading and sustaining the U.S. nuclear arsenal, with the DOD responsible for three-quarters of this amount. These costs will increase significantly if the Department of Energy's proposals to rebuild the nuclear-weapons production complex and resume production of nuclear weapons are approved and funded.

It's worth noting here that the average annual spending during the Cold War, 1948 to 1991, by the Atomic Energy Commission and subsequently the DOE from what was formally referred to as nuclear-weapons research development, testing and production activities was about $4.7 billion in today's dollars – and that for most of this time, the Atomic Energy Commission was manufacturing large numbers of nuclear weapons and conducting numerous full-scale tests. And yet, today we see that that figure is well over $6 billion and obviously we're not testing nuclear weapons and we're not manufacturing new ones, either.

It's also worth noting that the overall estimated cost for upgrading, operating and maintaining the nuclear arsenal historically averaged $124 billion to $152 billion a year during the Cold War, again, in today's dollars. And I should note here – we have this little note here about the Interior Department and the Defense Nuclear Facilities Safety Board – that $16 million item is the least cost for Kwajalein Atoll out in the Pacific, which is used for ballistic missile testing and missile defense testing. And the $12 million allocation for the Defense Nuclear Facilities Safety Board is what it costs for that agency to oversee operations at the Department of Energy's weapons complex.

So what is it that we're getting for this $29 billion or so? So just a quick chart to show you historically where we've been with the U.S. nuclear arsenal. Here's the progression of bombers over the years. This is – for those of you who are interested – this is the bomber gap; it favored us quite substantially. And then we've got ICBMs – intercontinental ballistic missiles – and submarine-launch ballistic missiles as well – I'll refer specific number questions to Dr. Robert Norris in the back, from whom we got them, if you have questions about these later, but just give you a sense of what it is that we're supporting with this budget.

And then a quick look at the development of the development of the warheads as well. So I guess the only thing to say about this chart is this chart is showing the total estimated inventory of nuclear weapons; the total number of deployed weapons as of the beginning of this year is listed up at the top there. And the reasons for the discrepancy between 3,374 and what you see on the chart here is that the weapons that have been removed from operational service over the last eight years have by and large not been dismantled; they are in storage awaiting dismantlement. And obviously there are costs associated with having them stay in storage.

Another 15.8 percent of the nuclear security budget was appropriated to address the deferred environmental and health costs of more than six decades of nuclear-weapons production and testing. Seventy-five percent of the costs in this category, $6.2 billion, go toward the DOE's environmental management program, because these costs are largely but not entirely associated with historical activities, they are loosely connected to the costs of sustaining the current arsenal. However, if nuclear-weapons production resumes or if the DOE moves forward with plans to decommission many older production sites as it is already doing, these costs will increase in the future.

And you can get the definitions of all these terms in the report, but NTPR is the Nuclear Test Personnel Review. This is run by the Defense Threat Reduction Agency to identify veterans that may have been exposed to radioactive fallout during nuclear-weapons tests, RECP is the Radiation Exposure Compensation Program, administered by the Justice Department to compensate civilians who were harmed by nuclear testing activities – atmospheric testing activities during the Cold War. And the EEOICP is the Energy Employees' Occupational Illness Compensation Program to compensate people who worked at the AEC and DOW weapons plants.

This is a very interesting program, actually, and if Bob Alvarez is in the room, we may have a question about that later, but it is one the efforts to deal with the back-end costs of the Cold War, if you will. And then Marshall Islands – we're still compensating people in the Marshall Islands for what happened to their atolls during atmospheric nuclear testing activities in the 1940s through the 1960s. It's a relatively small amount of money today, but we are still helping them.

Some 17.5 percent was appropriated for missile-defense programs, 56 percent more than was allocated for all nuclear threat reduction programs. More than 46 percent of the fiscal 2008 missile-defense budget went toward the national missile-defense program. Deploying components of the land-based anti-missile system in Poland and the Czech Republic, as proposed by the Bush administration, would push these costs higher in future years. Please not that this does not include the operation and maintenance costs for the Patriot and SM-3 anti-missile systems that are located in the Army and Navy operation and maintenance budgets, respectively.

And I would just point out on this chart that the yellow category there that says NMD and TMD: The last year the missile-defense agency reconfigured it's budget and allocated everything in its budget to these three – to basically to two major categories: national missile-defense or theater missile-defense. But when we looked at it closely, it turns out that there's a number of programs that support both and they're not disaggregated. And so that's why I said that, you know, at least 4.2 billion went to national missile defense. Some sizable percentage of that $2.3 billion slice of the pie is also for national missile defense but could also be reasonably allocated to theater missile defense as well.

Efforts to stem the spread of nuclear weapons and nuclear technology, eliminate loose nukes and prevent the use of nuclear weapons anywhere are relatively low budgetary priority. Just 9.8 percent of the nuclear security budget was appropriated for such activities in 2008. Of that total, 60 percent went toward preventive and security measures, 20.7 percent focused on eliminating nuclear threats and 19.3 percent was for nonproliferation programs.

In comparison, as we just saw, the DOE's National Nuclear Security Administration received nearly $5 billion for defense programs to sustain the nuclear stockpile during the same period. The DOD allocated an estimated additional $22.5 billion to upgrade, operate and maintain the U.S. strategic nuclear arsenal. Although threat-reduction programs do not require and would not necessarily always benefit from the same level of investment as operational forces, not least because they're generally less capital-intensive and have more limited objectives, this disparity sends an unmistakable message to the rest of the world: that the United States considers preserving and enhancing its nuclear options, more important than preventing nuclear proliferation.

Now, some would argue that the U.S. nuclear arsenal itself prevents proliferation by providing a nuclear umbrella for U.S. allies who might otherwise acquire nuclear weapons. In fact, speaking in this very room over two months ago, Secretary of Defense Robert Gates said, quote, "As long as others have nuclear weapons, we must maintain some level of these weapons ourselves to deter potential adversaries and to reassure our over two dozen allies and partners who rely on our nuclear umbrella for their security, making it unnecessary for them to develop their own." "While some may not see a real nuclear threat to the United States today," Gates said, "we should be mindful that our friends and allies perceive different levels of risk within their respective regions. Here our arsenal plays an irreplaceable role in reducing proliferation."

Considering the concerns raised by government officials and others in recent years, including, most recently, the WMD commission report that was released last month regarding the increasing likelihood that terrorists will use nuclear or radiological weapons on U.S. soil, it is noteworthy that in 2008, only 1.3 percent of the nuclear security budget – less than – slightly less than $700 million – was appropriated to prepare for the consequences of the use of such weapons, including continuity of government programs, training expert teams to detect and diffuse weapons and developing methods to trace the original source of materials used in such weapons. However, some relevant preparedness spending, particularly by the DOD and the Department of Health and Human Services, is not captured in this total because it is for disaster response generally and not nuclear attacks specifically.

In addition, this report assesses only federal spending, not state and local funding for emergency preparedness and response, little, if any of which would be directly tied to nuclear terrorism but which nonetheless could be used to address it. Moreover, civil defense measures

historically have received relatively little funding because officials did not want to undermine public confidence in nuclear deterrence, because of the difficulties in providing protection to the entire population and because military leaders felt strongly and believe consistently in favoring offensive over defensive measures as the best allocation of scarce resources.

So now we move on to our recommendations. Effective oversight of government nuclear security programs is impossible, as Jessica mentioned, without complete, reliable data on their comprehensive, annual and cumulative costs. And yet, such an accounting has never been available to decision makers. We therefore make four key recommendations today for policy-makers to consider that would help rectify this fundamental problem and improve U.S. nuclear security policy. One is to create a comprehensive nuclear accounting system or comprehensive nuclear accounting systems. Congress should require the executive branch to prepare and submit annually, in conjunction with the annual budget request, in both unclassified and classified forms, an accounting of all nuclear-weapons related spending for the previous fiscal year, the current fiscal year and the next fiscal year.

The Defense Department, using its Future Years Defense Program, should project its nuclear-weapons related spending five or six years into the future. A senior White House official, perhaps within the National Security Council or in the congressionally mandated office to coordinate proliferation and counterterrorism efforts, should be responsible for overseeing this annual exercise in conjunction with key officials of the department – or the Office of Management and Budget and senior budget officials of key departments and agencies.

It's worth noting that 10 years ago, the commission to assess the organization of the federal government to combat the proliferation of weapons of mass destruction, headed by John Deutch, former director of Central Intelligence, noted, quote, "There is no system for tracking resource expenditures for combating proliferation. Doing so is essential to an effective interagency effort," unquote. Consequently, they added, quote, "No one in the federal government knows how much money we are spending to combat proliferation. The success of any campaign depends on the resources available to wage it and on the ways in which those resources are brought to bear. Currently, however, no one decides what level of resources should be devoted to proliferation-related efforts. There is no overall plan for how those resources should be allocated and consistent evaluation of the effectiveness of these expenditures," unquote.

The results of these efforts should be used to produce an analysis for the next nuclear posture review, which will be undertaken by the Obama administration, to quantify the costs of the nuclear status quo and the cost and potential savings of all of the alternative options considered by the administration. The cost associated with the DOD nuclear-weapons production complex, under various scenarios, should be included as well. Once the data are in hand, Congress should require the GIO to conduct an independent audit of the results and methodology in order to verify its completeness and accuracy and improve the quality of future reports.

And, finally, accurate and timely financial data can be used by selected agencies, Congress and non-government organizations to perform cost-benefit analysis on all nuclear security programs, including comparing the costs and benefits of proposed enhancements to the U.S. nuclear arsenal and of various threat reduction initiatives. For decades, decisions about the future of the nuclear arsenal have been made based on assumptions, if often unquantifiable, benefits and with little or no reference to their cumulative long-term costs because these costs were poorly understood and never

presented in a comprehensive manner to policy-makers. With the decreasing emphasis on nuclear weapons and in a time of fiscal austerity, the time is right to rectify this oversight.

Recommendation number two is to quantify and explain nuclear security related intelligence expenditures. The congressional armed services defense appropriations and intelligence committees, working with the intelligence community, should devise tools to better explain and quantify nuclear-weapons related intelligence expenditures. They should ascertain, to the greatest extent possible, how much is spent to enhance the effectiveness of the operational nuclear force, how much is spent supporting defensive operations relating to nuclear weapons – such as missile defense, air defense and antisubmarine warfare and how much is spent supporting efforts to prevent and eliminate nuclear threats and prepare and respond to nuclear incidents.

Greater insight and transparency about these matters – at the very least within the policymaking circles in the administration – could enhance understanding of U.S. intelligence capabilities and lead to a better allocation of intelligence assets to address urgent nuclear-related threats.

Recommendation number three – focus on proactive threat-reduction strategies. Great fiscal and programmatic emphasis should be placed on programs that seek to secure and prevent the proliferation of nuclear weapons, weapons materials and technical knowledge and to eliminate threats posed by such weapons, materials and knowledge. Such programs, notably the DOD's cooperative threat reduction program and the DOE's materials protection control and accounting program have a demonstrated record of success, are proactive, are more cost-effective than technology-driven efforts, such as missile defenses and can be implemented quickly and at a relatively modest cost to ensure significant gains today and in the future. These efforts currently receive funding sufficient for their limited scope. But increased funding will be required to implement President-elect Obama's pledge to quote, "lead a global effort to secure all nuclear weapons and material at vulnerable sites within four years." In a time of rising economic and fiscal concerns and increasing proliferation-related dangers, American taxpayers should demand and U.S. government leaders should help ensure that the country is getting the most of its limited nuclear security dollars.

If the Obama administration chooses to continue the Proliferation Security Initiative, it should establish clear metrics to track its accomplishments and submit a detailed accounting of the previous year's expenses for the program with future budget requests. At present, the cost associated with PSI exercises and operations come from the annual operating funds for the vessels and aircraft that participate and the specific cost to oversee the effort at the DOD and the State Department and other federal agencies are unknown but are probably captured, at least in part, under the nuclear threat reduction category in this report. Given the nature and purpose of the Proliferation Security Initiative, it may not be feasible to anticipate all costs in advance. But knowing how much has been spent to achieve the program's benefits is essential for accountability and success.

And finally, we think it's time to ensure equity for atomic veterans. Very little is known about the cost of treating veterans who are exposed to dangerous levels of radiation while participating in atmospheric nuclear testing activities between the mid-1940s and the early 1960s unlike programs created to compensate civilians injured by atmospheric nuclear-weapons tests or workers at the DOE's nuclear-weapons production facilities who were exposed to dangerous levels

of radiation or toxic chemicals while on the job. Congress should require the Department of Veterans Affairs to provide a complete accounting of the number of veterans, past and present, who are requesting and receiving compensation and care for injuries and illnesses attributable to exposure to radiation from U.S. nuclear-weapons test, including the cost of such compensation and care. Aggregated, cumulative and annual figures for those whose claims have been denied should also be published to enable comparisons with the radiation compensation program, as I mentioned earlier, administered by the Justice Department and the Energy Employees Occupational Illness Compensation Program Act, both of which make their information publicly available.

It is frequently said that the cold war is one without a shot being fired. And while it is true that nuclear weapons did not unleash their arsenals – the nuclear powers did not unleash their arsenals in anger, the reality is that nuclear-weapons production and testing activities in the United States and especially the Soviet Union and most likely the others as well, injured and killed many of the very citizens who those weapons were said to be necessary to protect. Veterans, many of whom are now in their 70s and 80s, who were ordered or chose to participate in atmospheric nuclear-weapons tests – what might be considered the front lines of the Cold War – and became sick as a consequence, deserve to know the collective cost of their sacrifice, as do their families and the rest of the country they swore to protect.

Implementing these recommendations – all four of these recommendations – will increase understanding and accountability, which in turn will lead to greater public support for critical nuclear security programs and a more effective allocation of public resources. When combined with a new focus on nuclear policy matters, including the administration's forthcoming nuclear posture review, such efforts will help to ensure that America's political and fiscal priorities are properly aligned.

This report has sought to establish an analytical framework and parameters for more comprehensive accounting of government spending on nuclear security to enable more effective oversight of these efforts. The report was prepared in less than a year with very limited resources and circumscribed access to detailed budgetary information – not an easy undertaking but not excessively difficult. Although necessarily incomplete, our report establishes that a more thorough government-led effort is both practical, necessary and long overdue. We have tried to use clear, non-ideological language to eliminate some of the lesser corners of the nuclear realm and we have raised questions about the future direction of and expenditures for U.S. nuclear-weapons and weapons-related programs. We support President-elect Barack Obama's call to accelerate efforts to lockdown and eliminate nuclear security threats and we believe that our report offers some financial guidance to fund this initiative. We also hope the Obama administration and the 111th Congress will rise to the challenge and conduct an official comprehensive nuclear audit and implement the recommendations we have made today.

Now, before we move on to answering your questions, as Deepti mentioned, there are two important hearings tomorrow for Secretary of State-designate Hillary Clinton and Secretary of Energy-designate Steven Chu and just wanted to raise a couple of issues for the senators that they're hearing tomorrow that they might want to address. I think we can all support the idea of being energy independent but it's difficult to see how Steven Chu – if he's confirmed, as I suspect he will be – will be able to achieve that objective given that at least 67 percent and perhaps as much as three-quarters of his agency's budget is devoted to nuclear-weapons and weapons-related programs. Perhaps it's time to consider, as my colleague Robert Alvarez wrote recently in the Bulletin of the Atomic Scientists – and Bob was also a member of our advisory committee – that the nuclear-

weapons program be turned over entirely to the Department of Defense. Not only would this liberate the Department of Energy to focus on it titular mission but it would also force the Defense Department and the military services to refocus their attention on nuclear weapons – as called for, most recently last week, by the Schlesinger taskforce.

It would also require them for the first time to actually budget for nuclear weapons directly using their own funds instead of relying on the Department of Energy's budget to cover the increasing costs of stockpile stewardship and refurbishment of the nuclear-weapons production complex. Will Secretary of Energy-designate Chu demand that his department produce a comprehensive and accurate estimate of the costs of its complex transformation plan before any further funds are expended on this effort?

And to Secretary of State-designate Hillary Clinton, she has made it clear that she means to expand the mission of the State Department, and Barack Obama has made it clear that he intends to make reducing nuclear threats a top priority. Given that diplomacy will be a crucial part of this effort, how can she succeed – how can this effort succeed – if less than 1 percent of the State Department's overall budget, a mere $242 million, was spent on nuclear threat-reduction activities for fiscal 2008? There are many more questions that we could ask, but now we want to give time for you to ask questions of us, so thank you.

(Applause.)

MS. MATHEWS: Steve, let me start off our discussion by asking you a question about – from the very first slide of your talk. Can you give us some estimate of – at least the order of magnitude of these four categories of cost that you don't include?

MR. SCHWARTZ: Ah, that is –

MS. MATHEWS: That is: air defense, ASW, classified stuff and intel?

MR. SCHWARTZ: I can, indeed, and for those of you who want more detail on it, you can look at the discussion beginning on page 18. Air defense was an interesting question that we spent a great deal of time actually looking at. Of course, the air defense mission today is really just a shadow of what it was during the Cold War, notwithstanding the fact that Russia decided to resume long-range bomber patrols and training missions last year, which certainly perked up our attention, at least in Alaska. But in terms of having a nuclear-specific air defense mission, it's pretty hard to figure that out.

It turns out that the actual total air defense costs today in the United States are probably on the order of about $150 million, and a lot of that is sucked up in training by the National Guard. There was a fairly extensive effort right after 9/11 that lasted about six months, where there were daily – actually, constant – missions over Washington, New York and a few other cities – my town of Chicago as well – and that consumed a couple of billion dollars over that period of time. But today, it's a relatively modest amount of money, and we just didn't feel it was worth the time or the effort, or possible, to figure out how much of that might be nuclear-related.

In terms of anti-submarine warfare, trying to – the Navy operates deep in many ways – (chuckles) – and one of them is not disclosing a lot of budgetary detail about the ASW mission. So

even during the Cold War, trying to figure out exactly what that figure would be was not always an easy thing to do, although we did make a good stab at it and, in time, we caught it. ASW – there's a lot of other things going on in that mission, but the amount of time and effort expended by the Navy to actually track and try to sink Russian ballistic missile submarines is something that, really, only the Navy knows. And they may not even have a particularly good figure on it.

So unfortunately, we were able to – we put some costs associated with the naval nuclear program in the budget, but only those costs associated with operating the reactors for our fleet of ballistic missile submarines, and that's all explained in the report and the details are in table eight of the appendix.

In terms of intelligence, that discussion begins on page 21. We know that the intelligence budget is approaching, I guess now, about $50 billion a year – is that right, Steve? Have I got that right? Okay, it's about $50 billion, because there was this revelation, just at the end of last year. We did an estimate in *Atomic Audit* that looked at what, historically, might have been spent on nuclear weapons-related intelligence and we estimated that, throughout the Cold War period, it was about $500 billion. So we know that today, it's about $50 billion; we know that in 1997 or so, it was about a little – about half of that.

And we tried to figure out – and we talked to some intelligence people and said, you know, we'd like to know how much of this you think is nuclear weapons-related. We don't need to know what the specific programs are – we know that that's sensitive – but we'd like to get a sense of how much of this is dealing with, you know, what used to be the Soviet bear in the old days, but how much of this is dealing with these problems, fundamentally, today? And I've got to tell you, the people that we talked to in all pretty senior positions in the intelligence community said, well, you know, I don't know the answer, but even if I did, I'm not sure that it would be terribly useful to me, you know, as an operator.

So we could surmise that a significant reason for the increase between about $25 billion and $50 billion over the last 10 or so years is the threat of terrorism and a response to 9/11. Some of that would be inflation, and we talked about that as well. But honestly, we don't really know what that total figure is. I think it's fair to say – and we do put that figure in the report, although it's not included in any of the totals – that it's a reasonable estimate is that at least $5 billion in the intelligence budget is going toward nuclear weapon-related things, but exactly how much, we don't know.

We saw in the *New York Times* yesterday that we are now covertly – I guess, now it's overtly – undermining Iran's nuclear-weapons program as part of a $400 million package that President Bush request last year. How much of that, you know, should be allocated? I don't know. We know that we've spent some $100 million trying to secure Pakistan's nuclear arsenal. That's not officially – you know, that was outed in the *New York Times*; that's not an official figure – so, you know, we think it would be useful to know how much of this is for operations, how much is for threat reduction.

We do point out in the book that, often times, the various platforms and programs that the intelligence community uses can do multiple things, often at the same time, and so it may not be practical in all instances to be able to break it down this way, but we think it's worth at least trying.

MS. MATHEWS: Okay, let's open it up to the floor. Do we have microphones? Okay, come on up, right here. There's a mic.

Q: My name's Bill Root. I'm an alumnus of the Bureau of the Budget in the State Department. Twenty-five years ago, I attended a seminar at the State Department on missile defense, and in those days, it was conventional wisdom to argue you shouldn't spend anything on missile defense, or that was the great saving grace for protecting the country from nuclear destruction. My question really is, as one looking at low-hanging fruit, if one wants to cut the nuclear security spending, is missile defense still a prime target? I recall at the 25-year-ago seminar, the technical specialist gave a very sophisticated argument, which I will summarize by saying, it wouldn't work.

The State Department defender of the program was asked if he disagreed with the technical specialist. He said no. Then he was asked, well, why do you propose proceeding with the program? And the answer was, we have to start somewhere. Are we still at that point?

MR. SCHWARTZ: That's a very good question. I believe that missile defense is now the single most expensive program within the DOD – at least, I've heard people refer to it that way – and certainly, if we were to move forward with the administration's – the Bush administration's plans for deploying a system in Europe, the costs are going to go up significantly. This report was not designed to examine those tradeoffs; we're really just laying the groundwork for the kind of discussion that you're talking about, because we didn't, either have the time, or necessarily the expertise, to delve into this.

But I'm sure others will do that. But I think it's fair to say that missile defense, like a number of other programs in the Department of Defense, and throughout the budget as a whole, are going to have to be re-evaluated, in a sense, because the specific costs of nuclear-weapons programs are not generally well-known, apart from the grand figures of, here's what the Department of Energy are spending, or here's what strategic forces overall cost the Department of Defense. Nuclear weapons might, conceivably, escape that first round of cuts, because nobody realizes how expensive they are.

I would hope that our report, by beginning to cast some light on that, will at least open up the possibility that they, too, will be considered, although we're not recommending specific cuts at this time. But it's a very expensive program, and I think if you look at the costs relative to the benefits, it's relatively – and I'm just speaking for myself; not for the members of the panel or for Carnegie – it's relatively easy to conclude that you're going to get a lot more bang for your buck – or un-bang for your buck, as the case may be – by deploying programs like CTR and materials protection, control and accounting to deal with the threats on the ground rather than waiting for somebody to build a missile and fire it at you and then turn on this system and use it for the first time and hope that it actually works pretty well.

I would feel much safer – and I think we'd all be better off financially as a country – if we were to adopt that rule. But there's certainly a role for doing research and development on missile defense, but this program is, you know, pursuing that and then some.

MS. MATHEWS: All right, here and then there.

Q: Miles Pomper from *Arms Control Today*. Two questions: One, when you talked about the research and development money for DOE going up since the Cold War, I assume that's because of spending on stockpile stewardship, but I just want to confirm that and realize that there is sort of a tradeoff there in terms of not having nuclear tests.

MR. SCHWARTZ: It's absolutely stockpile stewardship, yes, yeah.

Q: Okay. And then the – you mentioned the Schlesinger report and the DOD's sort of nuclear problems in keeping track of its arsenal; is any of this budget-related, as far as you can tell, or is this just pulled from your – (inaudible) – operational practices?

MR. SCHWARTZ: Well, to your first point, it is stockpile stewardship. And I continue to find it ironic – because I've been making this point since the atomic clock came out – that it actually costs this country more not to build and test nuclear weapons. Now, there's good reasons for that in theory, but when you begin to look at the numbers on the ground and what we're doing at the labs, it's phenomenal that it's, you know, more than $2 billion a year extra to do these things. It's a good program; it's achieved a lot; it's kept us from testing nuclear weapons, so I don't want to trash it. But I would hope that there's a slightly less-expensive way to achieve these objectives.

In terms of the Schlesinger report, I meant to read the entire report on the plane yesterday, but couldn't. But I did read some of the good coverage of it, and I – you know, the report strikes me – I mean, there's a reason why nuclear weapons are not that interesting to the military any more. The Schlesinger taskforce seems to conclude, absent a whole lot of evidence, that nuclear weapons continue to have great viability, militarily and otherwise. I mean, they talk about the political aspects in Europe and I understand that, but there's a reason why that this mission has kind of atrophied, and I don't think that that's necessarily a bad thing.

I continue to find it interesting that the people who are advocating for nuclear weapons are civilian policy-makers and not people in the military that would be charged with actually using these weapons, apart from the people at STRATCOM and J-5 and a few other places whose, you know, careers are tied up with this. So it sort of – it kind of comes – it came out of another era for me, but certainly, I mean, as I said – and it wasn't, you know, entirely in jest – if you were to put the entire nuclear-weapons mission in the Department of Defense, they would have to focus on it, and they wouldn't be able to do this tradeoff thing anymore, where they basically get the nuclear weapons for free, which is historically how it's been.

The Atomic Energy Commission and the Department of Defense – or Department of Energy, now – are basically a nuclear pharmacy – or were, until they stopped producing weapons in 2002. DOD would say we need 100, you know, or a 1,000 nuclear artillery shells and the AEC-DOD would say, yes, sir, and they'd build them and it all came out of the AEC-DOD budget and DOD didn't have to pay for it. Now, they did have to pay for the delivery systems and the command and control and all of that, and that's very expensive.

But when you have no – when you don't have to pay for the actual warheads themselves, it's very easy to ask for as many as you can get, which is what we did for many years in the early part of the Cold War. So it might just refocus their attention and they might have to make some serious budget tradeoffs. Did you want to add anything on that?

MS. CHOUBEY: You know, I would just agree with Stephen that I think one of the concepts that is not really well-understood is how much the mission has atrophied within DOD and that, in fact, leadership lines aren't there anymore. And I think this happened under Rumsfeld. And, particularly, the rest of the world doesn't understand that; they look at coverage of these issues and think that we're even more focused on nuclear weapons, whereas the reality inside DOD is, I think, something very different.

MS. MATHEWS: Over to the right. Yes, behind you, yeah.

Q: Ward Wilson. I understand that there's – if you argue that nuclear weapons are vital for the survival of the United States, that you could then say, well, it doesn't matter what they cost, because they're vital. And there's a certain secrecy component that, you know, we can't tell you how much it costs, because we need to keep it secret for security. But it's stunning, to me, that a nation would have a major component to its defense and have virtually no public information about what that costs. I mean, there's a certain – "I can't quite believe this" factor. And I wondered if there's something that I'm missing that, is there some kind of rational reason or argument for not having budgetary information on nuclear weapons?

MR. SCHWARTZ: Well, to be – thank you, Ward, that's a great question – to be clear, the numbers are out there; if they weren't out there, we wouldn't have been able to do the report. But they aren't aggregated in any useful way, and as I mentioned before, you know, people working on this in a congressional subcommittee or in, you know, an office of the Department of Energy or somewhere over at DOD or the National Security Council, because of the pressures of their job and their focus on it, they're just going to focus on their one particular thing – their particular program. We almost never have, when there's debates – when there are debates about nuclear weapons in Congress, it's very rarely about the policy; it's always, usually, about, you know, how much money for this or that, because that's what people can grab onto.

And in a separate forum, I've talked – I mean, the last time that there was a Senate hearing to discuss U.S. nuclear policy in any critical way was, like, 20 years ago. So this is, unfortunately, not a new problem. So the numbers are out there; they're just not provided in a useful fashion to anybody who wants to do anything with them, apart from dealing with the annual oversight demands of the federal budget. Part of that is just the outgrowth of the Cold War, when everything was secret, and for many years – I mean, for years, the Joint Committee on Atomic Energy was the one-stop shopping place in Congress for this. In fact, for the first, I think it was seven or eight or 10 years of their existence, there was these 12 or 13 guys who basically controlled all information about the U.S. nuclear arsenal – budgets, weapons, everything.

And in fact, over the first five years or six years of their existence, they refused to be briefed by the Atomic Energy Commission on how many weapons were actually in the nuclear arsenal because they didn't, apparently, trust themselves with that information. And yet, every year, they were allocating what would, today, be billions of dollars to build more weapons, to make more uranium and plutonium without having any sense of what it was, you know, that they were getting into. Or the famous story that I'm sure you know, when President Truman authorized the Crossroads Test in the Bikini Atoll in 1946 and authorized three tests, Able, Baker and Charlie, and only after the fact discovered that he'd authorized the expenditure of more than a third – what was it, two-thirds of the U.S. nuclear arsenal. (Laughter.) And, you know, he just didn't know; nobody told him. He didn't ask.

So you know, fortunately, I mean, there's – it's not quite so bad today – but in terms of being able to have an open, honest debate about this in the public sphere, on Capitol Hill, it's very difficult. And so, you know, it's just a matter of how this thing grew up and the fact that nobody was really, apparently – that's not true, nobody was asking the questions. President Kennedy did ask in 1961, I believe, for basically a nuclear audit. And it went to the OMB and it died somewhere in the interagency process. And other very, you know, still-born efforts have been made over the years, but it really – it's going to take – as with – this is a good point, actually to make – as with the nuclear posture review, it's going to take presidential leadership for this to happen.

President-elect Obama is going to have to say, I need to this to happen, and is going to have to ride hard on it, because otherwise, the bureaucracy is just not going to let it happen. There's, "it's going to be too difficult," or you know, "we don't want those numbers getting out there." You know, I can say right now, if people will continue to provide funding for this, I'm happy to continue writing these reports. You know, I would prefer that they be done more comprehensively by the government because I'm paying for this, too, with my tax dollars, but you know, we're going to stay out here and keep looking at this stuff. And hopefully, somebody will listen this time.

MS. MATHEWS: Okay, I see some in the front, but anybody in the back who wants to – okay.

Q: Hello, I'm Patrick Hickey with GAO, and right now, we're starting to look at some of the issues you've discussed here today. And just a question that comes to mind is that, first, you're saying State devotes about 1 percent of its resources to nuclear threat reduction. Now, I'm just wondering how that compares to, say, 10 years ago, before the ACTA reorganization. And given that fact, presumably, it's not been a priority – had the same status it had 10 years ago.

How do you get off to a roaring start making this a high priority again when, presumably, the resources devoted to it has been somewhat atrophied over the last 10 years? And then a related point on this is, if, at the same time, we're going to try to make this a high priority, yet, you're calling for greater accountability, as many people at State are fond of pointing out to me, you at GAO often call for this, yet you don't tell us that we're going to get the resources to both do our jobs and account for it to the extent you want us to account for it. So it might be a bit heretical for me to say that, but – coming from GAO – but I think there's a good point there. So how do you prioritize, given all that?

MR. SCHWARTZ: Well, thank you. Those are great questions. I'll take the last one first. I think this could be a very interesting time for State because you have Hillary Clinton saying she wants to expand and reinvigorate the department. And you have Robert Gates, who has said in the last year that he thinks that there ought to be a lot more money going to the State Department to lift, you know, some of the responsibilities that DOD has been shouldering over the last decade or so. So I think the two of them together, working with, you know, President-elect Obama could really make a huge difference here.

We're not talking about infusions of, you know, many more billions of dollars. I mean, relatively speaking, it's not that much more money, you know, compared to what you would have to spend to do it some other way. So I would hope that both of them will stick to their pledges and work together and that Congress will, you know, pony up the money for it. But you're right; it's

always, you know, if only we had this, we could do it. So now, we seem to be getting, not quite a perfect storm, but a good convergence of views here, and I hope we can move forward on it.

In terms of your first question, this is exactly why there needs to be an annual accounting by the government – I have no idea what it was 10 years ago. I mean, I can tell you what we did with the book, which was about 10 years ago – released in 1998 – but that was looking at everything historically, so it was taking a much broader sweep than what we're doing now. And, of course, State, like every other agency has reorganized and reorganized and so things have changed. But if we had this on an ongoing basis, you could begin to track this. And you could see it going up or down and you could have metrics that say, okay, well, we spent this much this year; here's what we achieved – and then the next year, you spend a little bit more and you achieve less – well, then you go back and look at well, why was that?

Were we spending on the wrong programs? Did we accomplish all our goals? What was going on there? But we have no way to do that now, because there are no numbers on an ongoing basis to be able to compare things with. So I would – an approximate answer was, yes, it was probably more, but I couldn't tell you how much more because ACTA, even – it was a relatively small agency but it would have consumed, you know, some additional amount of money and if I went into the book – come up afterwards, I can probably kind of tell you what ACTA was spending then, but I don't have a specific answer for you, unfortunately.

MS. MATHEWS: Okay –

MS. CHOUBEY: I –

MS. MATHEWS: Oh, sorry, go ahead.

MS. CHOUBEY: Just an additional note on that – and to Ward's question as well, where there have been these previously still-born efforts to do this kind of accounting, part of the problem was how the question was asked. And the Defense Department's understanding of what was behind the question, I think, was one of the issues. So what we've tried to do is come up with this new framework, that if the government does take this up, that we've given them something to work with and that there's an understanding about what these categories mean, what can go into them – and so they're not starting from scratch. And I think that will be really important for both tracking and creating accountability.

MS. SCHWARTZ: Yeah, and from our perspective, this isn't about – this exercise today, and what we're calling for the government to do – is not about singling out programs for intense criticism or tremendous praise; that will happen regardless. I mean, that's just going to be a natural outgrowth of this. The point is to have effective oversight, which we can't do right now, and should be fundamental, as Ward said, so you know, if there was ever a time to start doing it, it's now. You know, these are not – the United States doesn't have unlimited resources and a decision to spend money on ballistic missile defense in Europe, for example, is a decision not to spend money doing something else in the nuclear security realm or something else in the budget. And, you know, there's a finite amount of money and it's shrinking every day, so we ought to make sure that we're using it in the best possible way.

MS. MATHEWS: Okay, I'm going to start taking two at a time, because there are some – a bunch of questions. We'll take the two right here.

Q: Hi. Mark Goodman. A question about DOE's nuclear-weapons programs: What would your attitude be and how would you suggest we think about programs like complex transformation and the reliable replacement warhead, which are, in part, justified as expenditures in the short run to reduce costs in the long run, and as well, with RRW, reduce the need to maintain a larger stockpile as a hedge against technical risk?

MS. MATHEWS: Go ahead.

Q: Hi, Dave Hofmeister, *Arms Control Association*. We've been – an economist would want to look at the issue of cost-benefit, and of course, you've been getting into the costs, but the benefits – the benefits of the cuts, in this case – and we can't get into all those issues here – but where would you refer a policy person who's writing the NPR or something like that, well, go read this book that will tell you how to compare benefits? Where in the literature do we go?

MR. SCHWARTZ: That's such a good question. To Mark's question, first, well, as complex transformation and the RRW has been specifically argued for as a cost-saving measure, you know, it's fundamental, I would think, that you have the most accurate data to prove that point. Right now, the DOE and NSA don't have that information; GAO has called them on it. I believe even the DOE general inspector may have even called them on it. As I said, GAO has done that. So I personally – and this is not in the book – I don't think that program ought to be moving forward until we do a couple of things.

One is, understand what those costs really are, because I don't think anybody has a good idea. And the other is, figure out what the nuclear arsenal is going to be doing over the next period of years before we sit down and start talking about rebuilding the nuclear-weapons production complex only to wind up, if we do that, with the complex that might be too big or perhaps even too small. It just doesn't make sense to put, you know, the nuclear cart before the horse in that way. That's what Congress has called for and I think that we will not see any significant efforts to move forward on that, you know, on the Hill, until the Nuclear Posture Review comes out and the Strategic Posture Review Commission releases its report later this year, and whatever other things need to be done internally.

But I would also argue, as an added step, that unless you really know – I mean, they're saying that yes, it's going to save us money in the long run – show us; prove it. I mean, it's – the number of times the Department of Energy – and I don't mean to trash DOE, because it sounds like I'm doing that – the number of times the Department of Energy has pledged to do something on a major program – and this would be above and beyond anything that they've ever done, you know, maybe going back to the Manhattan Project – the number of times that they've gone over budget and way behind schedule is just too many to count. And GAO has documented that, so I guess it's maybe not too many, but it's a lot.

So I take those arguments, unfortunately, with a grain of salt. You know, there are good people working there, but I think there's just something fundamentally flawed about the financial administration in that part of the institution that needs to be rectified, and hopefully, an exercise like

this will help. In terms of Dave's question – do you want to take a crack at that while I try to think of a better answer than the one I have – (laughter) – he said, slyly passing on the mike. (Chuckles.)

MS. CHOUBEY: Passing it to me. I'm actually going to hold off on answering that question, so you have more time to think. But the only thing I would say to your question, Mark, is you know, if we're really serious about decreasing costs in the long run, I don't think there needs to be any rush, right now, towards these new programs. And I think there are really key things happening in the political landscape, you know, in terms of our overall policy – in terms of U.S. policy – but also things that are going to happen in the run up to the 2010 NPT review conference and the positions and postures of other states. And I think really good policy means taking that into account to figure out what our policy is, and then seeing how costs would be reflected. And hopefully, that bought you enough time to figure out an answer to the second question. (Chuckles.)

MR. SCHWARTZ: I had a thought, I had a thought. You know, I'm not – if anybody else has a good answer to Dave's question, please feel free to shout it out. I mean, we did discuss some of this in *Atomic Audit*, as you know. So, although I'm very modest, I will certainly recommend our book for portions of that. I think Ward Wilson has done some interesting work recently looking at the assumptions around nuclear deterrence that I think are important. But I think, maybe to step back from your question for a second, I think we need to get out of the Cold War mindset that we're still dealing with here, which I think is very much in evidence in the Schlesinger taskforce report, which kind of just came out of, like, two decades ago, for me.

It's – I think we need to step back and say, you know, what – let's just say, okay, if nuclear weapons worked or they didn't work or whatever, that was then. This is now, okay; we're dealing with different threats today and different realities in the world and different countries. You know, it's not to say that none of that mattered, but don't let it color the decisions that we make today in terms of where the resources go or how strongly we support particular programs. So if you come at it with that frame of mind, I think you might get a more useful answer than simply continuing what we've done merely because we have it. You know, we have a nuclear-weapons complex so we must continue to modernize it because we will always have nuclear weapons until we don't.

Well, I'm sure people made the same argument about the horse and cavalry, you know, and eventually that went away. I mean, there's a reason why things eventually fade out, and I don't think it's something that we necessarily need to be afraid of; in fact, we should probably be embracing it, as more and more people seem to be doing. That's not to say that we're going to unilaterally disarm tomorrow; that wouldn't be practical in any number of ways. But you know, rather than clinging to this because we have it and trying to find a mission for it, let's just start from square one. And there's a number of efforts that have been undertaken in the last year or so, including by Jeffrey Lewis – who is on our advisory committee but is not here today – to try to do that, and I would hope that, in the new administration, they will receive a fair hearing.

MS. MATHEWS: Okay, here to right there, and then, there's another woman behind her.

Q: Loraine Heckenberg. I'm wondering the value – what is the value of comparing the different areas of nuclear security spending? For instance, if I were using the financial data to inform policymaking on how much spending I need to do to maintain my nuclear deterrent capability, what is the value of comparing that to what is – how much do I spend, say, in emergency

management? If they're different issues, how can they – how can that comparison be used to inform those decisions?

MS. MATHEWS: Okay.

Q: I think my question is somewhat similar. In looking at the $29 billion, the op-ed says this is a relatively large sum and that it's an alarming amount, and I'm wondering what that's based upon. If we want to maintain our nuclear deterrent, why is $29 billion too much, knowing that these weapons were made during the Cold War, that they're having to last a lot longer than anticipated, that some of the upgrades that we're making are safety features – I'm wondering, sort of, what evidence or data suggests that $29 billion is too much to maintain our current nuclear deterrent?

MR. SCHWARTZ: All right. Well, to the first part, you know, we've put all these things together in a nuclear security budget because they are related in a way, although you're right that, you know, supporting a nuclear arsenal is not necessarily related to preventing a nuclear attack on the United States. However, the money is all coming out of the federal budget, and a great deal of it is funneling through the Department of Defense and the Department of Energy, as we saw in that bar chart.

So again, you know, a decision to spend money on building a new generation of ballistic missile submarines or reviving and rebuilding the nuclear-weapons production complex is, per force, a decision not to spend that money to do something else. And in an era of limited resources and growing threats, it's important to understand what those tradeoffs are. And we can't do that right now because the numbers aren't easily understandable and available, even to people within the government who are seeing this stuff. Again, everybody's looking at their little piece of the pie – advocating for their particular program, as they should – but somebody on top of that system needs to take a look at the bigger picture, here.

So one might ask, okay, we're dealing with threats today that are different from 10, 20, 30, 40 years ago; does it still make sense to have an admittedly smaller nuclear arsenal to deal with those threats when the threats that we're dealing with are not ones that we can address with the nuclear arsenal, by and large? Nuclear terrorists are not going to be deterred by our nuclear weapons. They weren't deterred on 9/11 and they're probably not going to be deterred today. And furthermore, to respond with nuclear weapons to a nuclear terrorist attack, unless it was conducted by a state, which is a whole different category, doesn't really make a whole lot of sense. So what are those weapons for? Are they reassuring allies, as the Schlesinger taskforce said; are they doing something else? That's a – you know, relatively speaking, the Defense Department, it's not a lot of money for them, but in the overall picture that we're looking at here, it's a substantial percentage, as – and I can bring that chart back up, but it's in the report as well.

So that's the purpose of comparing those things, is to say, here are the different ways that we're dealing with our security, broadly defined – preventing nuclear attacks, cleaning up nuclear waste, operating and upgrading our nuclear arsenal, preparing to deal with, you know, an incident if it occurs. The fact that people – and I'm not a person, by the way, who subscribes to the theory that a nuclear attack is imminent or that it would destroy the United States as a functioning society, at least a terrorist attack, that is – but there are people who advocate that. If that's the case, then it seems to be – you know, and in the last eight years, we've heard a lot about that – it's really quite surprising how little money is being spent to deal with that particular threat.

So, you know, does that mean that the threat really isn't that significant or that our priorities are somehow misaligned and people just don't understand that we're really not – or maybe $700 million is all we need to spend. I find that doubtful, but I don't know. Nobody's really, I think, looked at those questions in detail and compared them to the other programs. In terms of the $29 billion, I wanted to give you a chance to answer that.

MS. CHOUBEY: I think the op-ed, when it's talking about our concerns about the overall number, it was actually about the at least $52.4 billion number. But you know, I think it just ties back to Stephen's answer, about what does this mean for our priorities and that it is troubling for us, particularly in light – to defend that existing number without having new policy review about the future of our U.S. nuclear policy, I think that's, for me, troublesome. And I think we need to think about the direction this country's going in and what our current threats are. And I don't think that number is as defensible as some people would like to argue for.

MR. SCHWARTZ: But you've raised a good point, which is that supporting an aging arsenal is expensive. Building a new arsenal is also expensive; will it be less expensive? I don't know. You know, I raised the figures about what we were spending, historically, on average during the Cold War –124 to $151 billion for everything – and now we're down to 52 (billion dollars). Well, that's progress, that's good. Could we save even more and get even more security? I think that we probably could. Can I make that argument comprehensively today? No, because we haven't finished this work.

So all I'm saying is, let's get all the information out on the table and then have a thoroughly informed national discussion about this and decide where we want to put our nuclear security money because, again, we put it in this pot or this pot or this pot means it's not going in some of the other pots. And if we don't understand what the allocations are, and more importantly, we don't understand what the benefits are, we might end up making the wrong choices. And this is not a good time to make wrong choices, either for security reasons or, more importantly, financially.

MS. MATHEWS: Okay, we have time for two more very crisp questions and answers; we'll take two right here.

Q: Hi, I'm Kathy Robinson with Women's Action for New Directions. And I'm wondering if you've looked at the costs of dismantlement. As we move forward trying to actually get to lower numbers, I think that we'll have to, in the short term, spend some more money on dismantlement and then, obviously, the disposition issues that arrive after that. And I also wanted to just ask your opinion about some of the deferred costs, which we might have some control over in the long term, but I'm not so sure about the short to medium-term. Do you anticipate that some of those costs – the compensation and the cleanup costs – would be going up, or down or staying relatively static over the next five to 10 years?

MS. MATHEWS: Okay, and then across the aisle – the gentleman across the aisle.

Q: Yeah, thank you. My question is related, in one sense, and that's –

MS. MATHEWS: Would you just introduce yourself, sir? Sorry.

Q: Sorry. I'm Zia Mian from Princeton University. My question was that, Steve, does this analysis combined with the work you did on *Atomic Audit* now give you the capacity to cost disarmament for the United States, in terms of where the money would actually have to go down and where it would have to go up and actually map out some scenarios for how different ways of going forward would actually vary, because I am curious, as the previous questioner asked about, how much of the $30 billion that you would save by shutting down operating forces and so on, actually have to go towards cleaning up the mess that we've made, and whether it makes a difference in terms of whether you get rid of the ICBMs first and the submarines first, in terms of the longer-term costs?

MR. SCHWARTZ: Sure, absolutely. No, those are both excellent questions, and I guess I'll – since they're related, I'll take them together. It's – the cost of disarmament, dismantlement, disposition are included in here; some are broken out, some aren't. And I think it's important to point out that in that $29 billion figure for operational support, because the DOD doesn't break out its costs, for example, for dismantling missile silos and cutting apart bombers and taking apart submarines – those costs – some of those costs are included in that $29 billion, but other costs are excluded. So whether it's a wash or not, we don't know, and we detail that in that particular section of the report, so I would refer you to that.

But we would – I'd love to see that broken out in the future; it's just not something they do. DOE – the National Nuclear Security Administration does have a line item for dismantlement – I don't recall it off the top of my head, but it's in that section as well. And it's important to note – I mean, we did want – one idea, when we started on this last year, was that we could do some of these scenarios and try to figure this out. But there wasn't really enough time, and I don't think we had, really, enough data. It's a very different report, but this is certainly a precursor to being able to do that, so I would be very happy if somebody would pick that up and run with it. And you know, to the extent that I can help with that, you know, I'd be happy to try.

But it's important to understand, you know, that nuclear weapons don't just fade away and the costs disappear. I mean, the costs of taking apart, you know, ballistic missile silos, cutting apart submarines, cutting apart bombers, are not insignificant. You know, they're not huge, in terms of what we're talking now, but we're talking tens or hundreds of millions of dollars, depending on how, you know the scale of the program. So if a decision were made, as decisions are being made constantly, now, actually, to reduce the size of the arsenal incrementally, we are spending that money.

So in order to get to a lower number, or to zero, if that is your objective, we will have to spend more money. And then, in terms of the disposition costs, yes, absolutely. If you look at page –

MS. CHOUBEY: (Inaudible, off mic.)

MR. SCHWARTZ: Oh, yeah, Deepti is telling me that the actual discrete figure for dismantlement and disposition as NNSA is about $134, $135 million for fiscal 2008. Now, there are – there's a caveat there that there are some costs associated with the Pantex Plant and the Oak Ridge facility that are not included in that figure. So, you know, again, take it as it is. But in terms of dealing with, sort of, the cleanup of these facilities, let's just take one site – Oak Ridge National Laboratory, one of the founding sites of the Manhattan Project. They have plans right now calling

for tearing down more than 400 aging buildings comprising more than 5 million square feet of space and decontaminating the ground water at the site.

The estimated cost of just that project at just that site is 9.4 to $14.5 billion over 20 years. So we're talking about enormous costs for the DOE, even if they got out of the business tomorrow, to deal with what they have now and decontaminate it and make sure that it doesn't come back to bite us at some point in the future. So that's going to be – that purple bar that we saw on the bar chart next to the blue bar for the DOE – that's going to be as high or higher than we are now for a long time to come, and people should not be – you know, have any illusions about that. In terms of Zia's question about the costs of disarmament, I don't think so, but that's not really the question that we approached this with. But one could certainly start making a stab at it, and I would hope that, again, people will pick this up and run with it.

But I certainly wouldn't feel comfortable, mostly because we didn't get access to program-level data at the Department of Defense. Ten years ago, after a great deal of effort, we were able to get access to the future defense program historical database at DOD. I believe we were the first people, ever, outside of the government to get access to that information.

And that database, or at least part of it, by the way is up at the Brookings Web site for the book, so you can go look at that. It's also listed in the appendix of the book, which you can buy next door. But the – so we didn't have that information, so I don't know what it costs to operate a Minuteman missile system today, or a B-2 bomber or a Trident submarines. I don't know what it costs to deploy nuclear weapons in Europe right now. I can make some educated guesses, but this is not a time for making educated guesses.

MS. MATHEWS: I think, sitting here listening, that this report is a model of the kind of role that NGOs can play, that not only has an audience for scholars and other NGOs and people outside government, but an enormously valuable – but it's of enormous value to people inside government as well. And when you can do that and, with a short report, open doors to years of work and, I think, policy improvement, that's a really terrific contribution. So I want to thank Stephen and Deepti and thank all of you for coming. I do think this is a terrific contribution and one that will really make itself felt over the coming years, so thank you.

(Applause.)

(END)