



Los Alamos Study Group

Nuclear Disarmament • Environmental Protection • Social Justice • Economic Sustainability

The Great Transformation: Nuclear Weapons Policy Considerations for the 116th Congress

With particular focus on plutonium warhead cores (“pits”)

May 6, 2019

Overall Summary

We can provide details about most of the issues mentioned here, with references as required.

1. Pit production

- **About the requirement to make 80+ pits per year (ppy) by 2030**
 - The National Nuclear Security Administration (NNSA) has said – for example, in its *2017 Pit Production Analysis of Alternatives* (AoA), still the single best publicly available study of this topic – that achievement of steady production by 2030 will be very difficult. We believe such a rushed program is likely to stumble or to build in future problems, including safety risks.
 - To meet this early production goal, operation of the Savannah River Plutonium Processing Facility (SRPPF) at 50+ ppy, or possibly at 80+ ppy, by 2030 will be necessary. NNSA currently projects CD4 (start of operations) for SRPPF in the FY2026-2028 timeframe, preceded by CD3 (start of construction) in FY2023 and CD1 (conclusion of conceptual design, selection of alternative) in FY2020. Overall, this is 4-5 years faster than NNSA and its consultants have considered likely.
 - No all-Los Alamos National Laboratory (all-LANL) option to achieve this production rate and schedule is even remotely realistic.
 - Notwithstanding anything the Department of Defense (DoD), NNSA, and their consultants may say (let alone the New Mexico senators), production at LANL at any scale and any schedule is going to remain uncertain, unstable, and/or non-enduring. This reality requires planning for a SRPPF that can take on all pit production -- which would also be the most economical and least risky option, as NNSA and its consultants have said, if pit production were actually necessary.
 - We urge you to distinguish between planning for pit production as a contingency, and actual construction and subsequent operation of a pit production facility.

- The pit production requirement is a political decision, nothing more. Pit production is not “necessary.” *It may not even be possible, and further, the political commitment to produce pits in quantity may, in the final analysis, be a central part of a complex of commitments so contrary to U.S. national security as to not be survivable* (see below).
- **Concerning a possible requirement to make 80+ ppy by 2034 or 2035**
 - Successful overall project completion is more likely given these 4-5 extra years. Provisionally speaking – that is, within the present deterrence paradigm – this is a more realistic requirement.
 - Again, no all-LANL option is realistic. Enduring LANL pit production requires a greenfield new facility, a risky proposition which NNSA has correctly said may well not be in operation by 2035. Contrary to the impression given in recent hearings by some members of Congress, LANL options are slower to mature and riskier than Savannah River Site (SRS) options involving what is now called SRPPF.
 - This schedule requirement – or acceptance of reality – if adopted implies that the W87-1 life extension program (LEP), which would use the early new-made pits, would be either delayed, canceled, or based on pit reuse. It will not be possible to base this LEP solely on LANL production, which will be too slow and too uncertain in both rate and duration.
 - There will be some minimum production rate at Pantex below which production becomes sporadic, expensive, and more dangerous. We do not know what that rate would be for a W87-1 LEP.
 - As a thought experiment regarding LANL production, if we accept NNSA’s previous estimate of Building PF-4 end-of-life (EOL) as 2039, which we believe to be optimistic, and further assume a 10-year standard deviation in assumed normally distributed EOL dates, there is a 21% chance that LANL’s production will permanently cease by 2031, having made less than 200 pits. We believe 100 pits might be a better guess.
 - We believe longer useful life for PF-4 for all missions will be associated with much higher levels of attention than are being paid at present to waste management and facility safety. Focusing on production has been and will be counterproductive.

- Delaying or canceling a W78 replacement warhead, currently called the W87-1 LEP, raises many questions which have not been thoroughly analyzed or debated.
 - The Air Force might or might not find it cost-effective to delay fielding the Ground Based Strategic Deterrent (GBSD), for example. We believe the Minuteman III has been and can continue to be life-extended in a cost-effective manner.
 - The number of ground-based missiles also could be decreased, as discussed below.
 - The W78 warhead might be able to continue deployment in a slowly degrading condition. Upon information and belief, there are no outstanding problems with this warhead. Or it could be LEP'd using the original pit and secondary despite some aging, or it could be retired. Additional W87-0 warheads could be deployed in its place. This might entail additional NNSA costs, although complex-wide savings and workload leveling as a result of W87-1 cancellation are likely to be more than offsetting.
 - DoD's projected operational and maintenance costs would change.
- It is important to repeat that this delay is almost inevitable, so a careful and complete analysis of alternatives is needed. No such AoA has been conducted.
- Near-term (pre-2035) quantity pit production for other (unannounced) warhead programs would not be possible under this revised requirement. Pit reuse might provide options for any such ventures, ill-advised in our view..
- **Concerning operation of SRPPF by 2034-2035 (or even 2040) assuming one Ground-Based Strategic Deterrent (GBSD) warhead (W87) only, without a multiple independent reentry vehicle (MIRV) option**
 - SRPPF is needed under this (and all other) production scenarios but it could be rationally paced, staged, and sized to avoid unnecessary expense. SRPPF, if successfully completed, could in principle provide flexibility and resilience. LANL production, to the extent it could be done at all, will remain risky and fragile.
 - It appears that the Mark 21A reentry vehicle (RV) program, with its many flight tests, would not be needed.

- An all-W87 GBSD could be a *near-term*, all-IHE (insensitive high explosive) GBSD that uses a high-confidence, fully-tested warhead and RV.
- This appears to be the lowest cost, least risk, fastest, and operationally safest option for a full-scale (400/450 silo) GBSD deployment (or for a smaller one), sans upload hedge.
- **Concerning pit production for a hypothetical future smaller deployed and/or hedge arsenal**
 - Long-term deployment of any nuclear arsenal will still require SRPPF or a new greenfield LANL facility. The LANL facility will still be slower to acquire with higher capital cost, greater risk, and ultimately less flexibility, assuming it's possible to build and operate at all.
 - The continuity of pit surveillance and associated materials characterization and research are essential to maintaining the nuclear stockpile. If LANL's PF-4 facility fails to the extent of not being able to conduct these activities, decisions will need to be made immediately about the scale, location, and nature of a follow-on facility at LANL or capability elsewhere, as well as providing for interim workarounds, presumably at Lawrence Livermore National Laboratory's (LLNL's) Building 332, which is no longer a Hazard Category II facility. Those expensive decisions are best delayed as long as possible by conducting all needed maintenance at PF-4 and by limiting PF-4 missions.
- **A glimpse ahead, outside current nuclear narratives: enduring, successful pit production may not be possible.**
 - During the (first?) Cold War, pit production was conducted in a "heroic" mode that sacrificed workers, public safety, and the environment. Environmental cleanup to date, plus worker compensation paid, plus admittedly-underestimated future cleanup liabilities of the nuclear weapons enterprise, now total nearly \$700 B. "Cleanup" is of course often a euphemism, and lost lives cannot be replaced, and suffering undone. The jury is still out on whether the "heroic mode" is the only way pit production, and other plutonium processing missions, can be successfully conducted under real-world production pressures. If so, it may be unsupported by society, and infeasible.
 - LANL is particularly ill-suited for production. Its geographic situation, its institutional character, and the culture of northern New Mexico appear incompatible with high-hazard industrial missions, which have never been done at LANL at scale, or for long. There have never been any large, high-hazard, or high-

precision manufacturing facilities within 100 miles of LANL, a region which encompasses some of the worst poverty, educational failure, and drug addiction in the entire U.S. Attempting such a mission at LANL is likely to fail, with unknown ramifications for pit production, NNSA, and the reputation and credibility of the nuclear weapons enterprise as a whole.

- Unlike during the Cold War, the nation, its people, and specific geographic locales (including most of New Mexico) now face crises, some of which are existential, that have nothing to do with nuclear deterrence. The patriotism that was once the “glue” of the nuclear weapons enterprise, despite the best efforts of NNSA and contractor management, may now be generally directed elsewhere even if nuclear weapons funding can be maintained – which may not be possible either or for long. Overall, it may not be possible to successfully pursue complex, dangerous, expensive missions for any length of time which are not highly valued by society generally.
- Rephrasing, the near-term budgetary and management crises faced by the nuclear weapons enterprise are the tip of a larger iceberg of troubles that is gradually drifting into view. The current program of record, not just in pit production but more broadly in nuclear weapons modernization, is likely to be inexecutable for coercive, magisterial reasons that may only be fully apparent in hindsight. It is not a question of if, but of when and how, nuclear weapons modernization programs, including pit production, go “off the rails.”
- We therefore urge Congress not to enable NNSA in its denial of these realities but rather to assist NNSA in reducing sail as we all enter the storm. It is our duty to the nation and the world.
- **Given the converging existential crises the country faces (outlined below), we all should now recognize that pit production is part of a national security paradigm which must be abandoned for the sake of national survival.**
 - The scale of the U.S. financial and political commitment to its military, and to modernizing its very large nuclear arsenal, are almost certainly incompatible with successful passage through the converging crises we face (see below), which will ripen further and become more obvious to all in the 2020s. There is unlikely to be anything close to a consensus about priorities and the causes of the crisis, but more and more Americans will come to understand that there is a crisis, because it will affect them personally.

- To the extent this occurs, the political consensus supporting nuclear weapons investments – especially what will be perceived as *excessive* investments – are likely to weaken.
- The U.S. possesses roughly two thousand deployed pits and another roughly two thousand in the reserve arsenal. There are another roughly two thousand in retired warheads, and roughly 5,000 usable pits kept as a national security reserve, or roughly 11,000 usable pits in all. Given our converging national and global crises, if we imagine today that in addition to these we need new pits, whether in 10 years or in 20 years, we imply national priorities which will very likely doom us even in the absence of major wars, the risks of which are rising rapidly precisely because of a mistaken militaristic paradigm of national security into which the U.S. has placed so much faith and investment.
- Global warming, for example, threatens the very existence of the United States. A whole-of-government response is needed for national survival. These, we believe, are incontrovertible facts. Responding successfully to this crisis in the context of other crises we face will require a massive redirection of national security investments and attention.
- Looking further ahead to 2060, when we expect the U.S. stockpile of pits to begin to age out, global warming, if not successfully mitigated, will be making large parts of the U.S. largely uninhabitable, including much of New Mexico. Selective abandonment of vulnerable coastal areas, including cities and parts of cities, will be underway in response to historical floods and related bankruptcies. In the Midwest, historic floods are underway right now. Other crises will have matured decades before this, in the 2020s and 2030s, some widely anticipated and others less so. The upshot is that the U.S. and the world has only so long to eliminate nuclear weapons before the priorities they embody and represent seal our fate as a nation and civilization. In short, we must get rid of *our need for pits* long before 2060 or pits will get rid of us, one way or another. The objects themselves – the material itself – is not the problem. Those are just technical issues relating to security. It's the value we place on usable pits that is the truly dangerous problem for us.
- *Thus we see no fully logical case for producing any new pits at any time whatsoever.* We are offering interim recommendations and talking points, which are akin to a discussion among captives being held hostage by generally well-meaning but ignorant people, blind institutional momentum, corporate financial interests, and a security paradigm that was a profound national mistake from its conception in the 1940s.

- In a developing crisis, which we have now, views will change especially rapidly. Yesterday's political verities may not hold true tomorrow. None of us have all the answers. Thoughtful, intelligent new allies may appear in unexpected places. It would be profoundly dysfunctional to alienate potential allies by using elements of the unfolding crisis, such as global warming, as partisan brickbats.
- **Practical pit production recommendations**
 - Cancel the W87-1 life extension project (LEP) and if possible also the Mark 21A RV, retaining the latter only if a) it uniquely provides for future MIRV capability, and b) that capability is politically necessary. De-MIRVing U.S. land-based missiles is worth fighting for.
 - In any case do not fund the W87-1 at all in FY2020 (\$112 million is requested). Studies examining alternatives and their merits should be done (under other budget lines) and debated in the context of (changing) nuclear weapons policies and (changing) national security policies overall.
 - Do not authorize or fund any secret NNSA warhead programs requiring or implying pit production, without open congressional and public debate. There should not be any "black" weapons programs, period. Debate is healthy.
 - Declare pit surveillance, pit requalification (i.e. reuse within type) and *if necessary* pit reuse across type to be the default pit management strategies of the U.S.
 - Recognize LANL's PF-4 as a critical national security asset that should be conserved for plutonium missions, including, as far as pit production is concerned, *training* and *pilot studies only*, amending §3120(a) in the FY19 National Defense Authorization Act (NDAA).
 - Do not authorize or fund the Plutonium Pit Production (P3) project at LANL, which is undefined, unnecessary, and counterproductive, as discussed above.
 - Do not authorize or fund construction, or planning for future construction, of any entirely *new* facility for pit production at *any* site.
 - Rescind the requirement for LANL to produce a *minimum* of 30 ppy by 2026 in favor of a requirement for LANL to produce a *maximum* of 10 ppy in 2026 and a *maximum* of 20 ppy in 2027, in either case only if long-standing, unsafe infrastructure conditions are certified as having been rectified by both the DOE and the

Defense Nuclear Facilities Safety Board (DNFSB). (Restoring LANL's ability to produce at a rate of 10 ppy is funded under the "Plutonium Sustainment Operations" subset of the Plutonium Sustainment budget line. Twenty ppy is the maximum permitted under multiple previous DOE environmental analyses and standing records of decision (RODs).

- Set pit production requirements for SRPPF as a minimum of 50 ppy (i.e. an average of ~84 ppy difficult W87 pits, according to NNSA), single shift, by 2035, with (cost-effective) provisions for contingent expansion and double shifts if needed in an emergency.
- Require and review a project data sheet (PDS) for the SRPPF prior to authorization and appropriation. Especially if no PDS is forthcoming this spring, fund SRPPF conceptual design at \$100 million (M) or less. Require SRPPF to be conducted under DOE project management orders. Postpone long-lead procurements and other federal commitments until the National Environmental Policy Act (NEPA) process for SRPPF is complete.
- Require immediate redaction of the recent Institute for Defense Analysis (IDA) reports on pit production alternatives, in sufficient detail for public review, as a condition of funding any pit production activities at LANL and SRS for FY2020. Do not enable secret government.
- Require NNSA to begin a supplemental environmental impact statement (SEIS) review of SRPPF under NEPA beginning in FY2019 or FY2020. Or, if pit production is to be conducted at LANL above the previously analyzed and formally decided maximum of 20 ppy despite the facts and arguments adduced above, begin a national supplemental *programmatic* environmental impact statement (SPEIS) review of pit production at *both* sites (and others that could be impacted), as required by law and a binding legal settlement.
- Do not authorize or fund construction projects or programs requiring Hazard Category (HC) III status for the Radiological Laboratory, Utility, and Office Building (RLUOB) at LANL unless NNSA and DNFSB mutually certify that RLUOB meets HC III requirements. This is necessary not just for safety at RLUOB but also to get across the message that nuclear safety regulations cannot be ignored whenever convenient.
- In addition to these temporizing policy recommendations, all of which lie within the current deterrence paradigm, congressional action, on an emergency basis, is necessary to change that paradigm, as discussed below.

2. **Moving now to nuclear weapons policy overall, we offer these suggestions, which lie mostly within the current “deterrence” paradigm.**
- ***Avoid investing in meaningless, often partisan, postures and declarations, such as:***
 - Efforts to prevent unilateral presidential use of nuclear weapons (i.e. without congressional authorization), which would have no practical or binding force;
 - “No first use” (NFU) and related declarations, which can be reversed instantly in foreign eyes by this or future executive officials; and
 - Declaring that “a nuclear war cannot be won and must never be fought,” which would have more immediate meaning coming from the Executive Branch than from Congress, which can only meaningfully “say” this by using its true powers to cancel programs.
 - ***Seek non-partisan policy solutions, which are particularly important at this time given the high level of rancor and polarization in Congress on issues bearing on nuclear weapons.***
 - ***Avoid hoping for future arms control measures under a different administration while continuing specious and dangerous “Russiagate” narratives, and while failing to act positively to end “Russophobia” in general.***
 - ***Do support***, meanwhile, any efforts by President Trump to restore communications and better relations with Russia.
 - ***Undertake bold congressional initiatives to restore communications and decent relations with Russia.***
 - **Quickly establish a (bipartisan if possible) commission on increasing mutual understanding with Russia, and use it.**
 - **Many diplomatic initiatives and unilateral steps are possible.** The former can be undertaken by members of Congress singly or in groups. Groundwork for the latter can be laid by Congress in many ways. Improving U.S. national security requires rolling back the present neo-McCarthyite atmosphere.
 - **It cannot be emphasized enough that there is no sustainable budget plan for the U.S. military overall, or for the nuclear weapons programs of DoD and NNSA as part of it. All parties are in denial about this.**

- DoD and NNSA are going to have to choose which programs will succeed and which will be allowed to fail or be drastically curtailed, with much higher unit costs. This is precisely what the reality of our converging crises means, in budgetary and management terms: *the sum total of programs of record is inexecutable*. The 050 budget account has been eating America up for decades. We now face very different, non-military, threats, which cannot be avoided any longer.
- For this reason alone, small reforms may be an unwise expense of political capital. An example would be the “Option 1” reforms of the recent Arms Control Association report (“U.S. Nuclear Excess: Understanding the Costs, Risks, and Alternatives,” April 2019). The 30-year savings from this alternative, which attempts to eliminate the Trump Administration additions to the U.S. nuclear posture, amount to an estimated \$29 B over 30 years, roughly 2% of currently-estimated nuclear weapons expenses over this period. This is much less than the uncertainty in any of these estimates and far from enough to solve the looming budget problems in the 050 account, let alone enough to reset U.S. security policy onto a track compatible with national survival.
- **In terms of policies affecting NNSA, ending the W87-1 LEP and any successor new-design GBSD warhead is perhaps the very highest specific warhead priority we are offering. In addition to its narrow merits, this issue opens up management and political space on pit production, LEP schedules, NNSA budgets, land-based missile numbers and investments, MIRV and hedge arsenal issues, and laboratory budgets.**
 - Retire the W78 warhead.
 - Only if necessary, replace the W78 using spare W87-0s in the 2020s (ending the upload hedge for ICBMs), or better,
 - Sequester about 200 more missiles (those carrying the W78), or alternatively sequester one wing of MMIIIs at each base (150 missiles), or else close one base (150 missiles), or else
 - Downsize GBSD accordingly. Or better,
 - Eliminate GBSD altogether. Having GBSD does not assure that U.S. cities and infrastructure would not be primary nuclear targets in some scenarios, from some adversaries. Only a few high-altitude nuclear explosions would be necessary to take out most of the U.S. electrical grid and with it water and fuel supplies, nuclear reactors, and spent fuel pools. Only mutual nuclear disarmament can eliminate these dangers.

- We believe Minuteman III missiles can be life-extended as necessary for a long time to come by replacing components, if performance need not be improved. And why would it need to be?
- Alternatively, hold a decisive portion of GBSB funding hostage pending negotiation of a new arms control agreement with Russia that mutually cuts nuclear arsenals substantially.
- ***Spread out the current front-loaded LEP (and associated DoD) workloads by cutting funding and delaying those LEPs.***
 - Delay W80-4 and LRSO into the years formerly occupied by W87-1 – or better, cancel W80-4 and LRSO altogether.
 - Meanwhile, expose and decry the workload crush and proposed budget spike.
 - (See proposed NNSA budget cap, below.)
- ***Now that they are all built, prevent W76-2 deployment. Congress is seized of this issue already.***
- ***Delay, spread out, and/or downsize the B-21 program, and provide the transparency it lacks.***
 - Better yet, end the B-21 program, which is not needed for deterrence. If GBSB is not built, this would leave the US with a deterrence monad. Why does the U.S. need a conventional long-range bomber anyway?
- ***Delay the first Columbia-class submarine by two years and accept downsizing the SSBN fleet by two submarines.***
 - It is possible – even likely – this delay will happen anyway because of budget and technology maturation issues.
 - This raises the question of defense spending overall. Congress, in its wisdom, should cut overall defense spending dramatically. It is not only better policy, but the shameful subservience of Congress to the military needs to end – if the U.S. is to survive.
- ***Halt funding for any submarine launched cruise missile (SLCM) and associated warhead.***
 - This proposed weapon arises from a particularly virulent form of nuclear “confrontationalism,” which the U.S. needs like a hole in the head. Cutting programs like this is how Congress says it does not want nuclear war.
- ***Block funds for any Intermediate Nuclear Forces (INF) Treaty non-compliant warhead, or missile development or testing.***
 - Congress – even one house of Congress – has all the necessary tools at its disposal to prevent a new arms race.

- **Sequester all gravity bombs in U.S. continental storage, starting with those in Turkey.**
 - *End* training of non-U.S. pilots for nuclear missions.
 - Going further, *end* dual-capable aircraft (DCA) certification and the nuclear role of these aircraft.
- **Retire the B83 gravity bomb.**
 - Simply provide no funds for its maintenance. The specific target set for this bomb is at best unnecessary and redundant – at worst, especially horrendous and stupid. It is likely being kept solely as a bargaining chip for negotiating *within* the U.S. government.
- **The stealthy Long Range Stand Off (LRSO) cruise missile and its associated W80-4 warhead comprise a unique threat to the stability of deterrence with Russia and China. They should be halted or at the very least delayed pending the fact-finding initiatives discussed above.**
 - Many members of Congress perceive the dangers posed by these highly-threatening weapons. Now is not the time to relent in that opposition.
- **Institute prompt, serious institutional reforms at DOE and NNSA. There are many ways to approach this. Here is some top reforms.**
 - Cap NNSA's annual budget growth in Weapons Activities (WA) at 2% *at most* for FY2020 and across the FYNSP. This means funding FY2020 WA at \$11.322 billion (B) or less, \$1.087 B below request (or lower). Require a subsequent budget submission this spring reflecting this.
 - If a Continuing Resolution (CR) is enacted, do not allow an anomaly for NNSA. If Budget Control Act (BCA) funding levels are triggered, and NNSA funding for FY2020 actually falls, gladly embrace this opportunity for reform.
 - It is not necessary for Congress to pass authorization and funding bills promptly. Real reforms are worth fighting for using the tools at hand.
 - Require PDSs for all line-item construction proposals in this remedial budget submission.
 - Cut the heavily redundant, oversized physics labs and Nevada National Security Site (NNSA) in FY2020 and after. Cut back the proposed massive investments at the U1a complex. We believe only about half of the overall stockpile stewardship largesse is even remotely required to maintain U.S. nuclear weapons. A

- signaled annual cut across the FYNSP combined with key reforms and specific funding direction will limit the gravy train.
- Dissolve NNSA back into DOE as the DOE Inspector General suggested, saving considerable funds.
 - Rescind what we believe are a few billions of dollars in accumulated NNSA zero-year appropriations.
 - Increase warhead dismantlement pace and funding.
 - Conduct Pantex Site-Wide Environmental Impact Statement (SWEIS) process, with (or including) an EIS for the Material Staging Facility (MSF). (See also study of pit sterilization and disposal, below.) Do not initiate glovebox operations at Pantex, a greenfield site as far as plutonium processing is concerned.
 - Increase the pace of transferring unused NNSA infrastructure to Environmental Management (EM) and dramatically increase funding for decommissioning and disposal of these roughly 2,000 structures.
 - Close and dispose of LANL's unsafe Chemistry and Metallurgy Research (CMR) building by an early date certain. Closure is a decade overdue and alternatives are already available.
 - Eliminate or downsize various public relations and other corporate and federal overheads such as the Regional Coalition of LANL Communities (RCLC), the often-huge community-, governmental, and media-relations offices, and tribal payments.
 - Limit contractor change-of-station assignments in Washington; increase NNSA staffing by about 10% per year across the FYNSP.
 - Institute contractor salary caps.
 - *Request* from the Government Accountability Office (GAO) and DOE Inspector General:
 - From both: a comprehensive list of management recommendations
 - From GAO: a comprehensive history of NNSA project cost and schedule overruns & scope changes
 - (We stop short of calling for federalizing the NNSA complex, which might well be a good idea.)
 - ***Provide DNFSB with a clear worker safety mandate and adequate funding, proscribe staff cuts; clarify in law that providing to DNFSB full access to DOE facilities and contractor staff is required.***

- **Study pit sterilization and disposal as an alternative to “dilute and dispose.”**
- **Conduct hearings that include:**
 - Scenarios of how nuclear war might unfold, including pre-delegation, Perimetr, cybersecurity failure scenarios
 - “Nuclear autumn” and “nuclear winter”
 - Nuclear weapons effects and nuclear war scenarios, including the effects of electromagnetic pulse on critical infrastructure including nuclear power stations and collocated spent fuel pools
 - Deep cuts to the U.S. arsenal (Although one hearing was held the topic was not exhausted. James Cartwright, Andrew Weber, and Chris Preble from Cato, would be effective witnesses.)
 - Scenarios of deep budget cuts to the U.S. military – which nuclear weapons systems would be cut, if budgets were limited? The right answer is not what we always hear: “None.”
 - Global warming as the #1 national security danger to the U.S.

3. There is an urgent need to reassess U.S. national security priorities.

- On October 7, 2018 the [Intergovernmental Panel on Climate Change](#) (IPCC) issued an important special report, "Global Warming of 1.5° C: Summary for Policymakers" ([full report](#)). For a day or so (or perhaps just a [few hours](#)) it made headlines around the world, like this one in the Washington Post: "[The world has just over a decade to get climate change under control, U.N. scientists say.](#)" By roughly 2030, world greenhouse gas (GHG) emissions must be cut roughly in half to avoid what amount to existential, holocaustic outcomes. This requires unprecedented economic and political transformation – which is not happening. Long before the current president took office, the US has provided climate “anti-leadership,” which in this administration has reached new self-destructive depths.

That said, the IPCC is not just scientific but also intergovernmental. It [waters down the climate science](#) in many ways, saying (for example) there are "safe" trajectories for global warming that "temporarily" exceed 1.5° C, claiming atmospheric CO₂ concentrations can be drawn down later. There is almost no mention of positive feedbacks, which [threaten](#) to push the Earth into a self-reinforcing “hothouse” condition inimical to all higher life forms. There is nothing "safe" or stable about today's warming of roughly 1.2° C. Current CO₂ concentrations eventually equilibrate with

warming of 3-4° C and they are destroying much of the life in the sea right now.

Proceeding along our present course entails increasing risks of exceeding tipping points beyond which climate recovery will be practically impossible, leading to a full-on major extinction event involving most higher life forms, most likely including our own. Temporal proximity to these tipping points is unknown and unknowable with any precision but most expert opinion gives humanity a remaining window of between 10 and 20 years in which to bring halt further global warming without passing the first cascading tipping points.

Already, sea-level rises that will inundate large US population centers and critical coastal infrastructure are “baked in.” Rebuilding cities, ports, and other infrastructure will cost at least hundreds of billions – more likely, trillions.

The likelihood is high of extreme weather events directly or indirectly causing heavy mortality and large economic impact, far beyond the events seen to date when seen on a multi-decade timescale. Obviously, human and economic impacts will be amplified by inappropriate land use patterns.

The central historical and ecological reality of our time is that we -- all of us -- are on course for unmitigated catastrophe in the short run. Climate catastrophe is not a future event. It is a current process.

Meanwhile we are [‘cutting down the tree of life’](#). Species extinctions, population declines, and habitat destruction are proceeding at very high rates worldwide, for various anthropogenic reasons, not just climate change. Even more ominously, focusing on extinction masks dramatic declines in species populations, with pervasive ecological consequences as well as population instability.

For humanity and nature to survive, we cannot indefinitely continue producing and using fossil fuels (FFs) at anywhere near present scale. In the words of Potsdam Institute founding director Hans Schellengrueber, the FF industry must undergo an “induced implosion.” Our economy and society are completely unprepared for this.

To repeat, we likely have between 10 and 20 years to halt climate collapse before runaway global warming takes hold, making other national security considerations largely moot. The US has the world’s largest and richest economy and is still the world’s largest source of greenhouse gases. The US exerts more influence than any other state on international institutions and relations. The US has a great responsibility for the fate of the living earth and our species, as is widely understood. Failing to lead will undercut U.S. “soft power” – in other words, it would help make enemies.

In national security terms, if the US hopes to continue as an organized society and polity throughout this century, we need to lead the world in decreasing greenhouse gas emissions by about half by 2030. This is the implication of the facts at hand, not any kind of personal opinion.

It is the duty of national security professionals to make this leadership happen. That is the *raison d'être* of our professions.

The legitimacy of government to our own citizens derives first and foremost from its guardianship of society's security.

For this and several other compelling reasons, a radical transformation of federal priorities, national security in particular, is needed in the short run. Trillions of dollars in new, *different* investments are required if the US is to persist, either as an organized society or as a polity. Radical transformation in some form is not optional and will soon be forced upon the nation.

Absent successful mitigation and adequate preparation, circumstances and events beyond control will transform our economy, society, and natural world in ways difficult to predict or understand. This process has already begun.

The choice is not whether to radically transform, but rather whether that transformation will be timely, pro-active and positive or belated, reactive, and futile. An enormous wave of historic and ecological change is rising. We must either swim to calmer waters beyond and relative safety, or remain passive and be thrown against the rocks.

Good policy options decrease year by year, making massive governmental failure ever more likely.

- **Climate change is far from the only crisis at hand.** We face a host of synergistic crises, having "kicked the can down the road" not just as regards global warming but as regards:
 - **The near-term unsustainability of many of our financial arrangements**, in this country and in others, including our so-called "allies";
 - **Vast and growing US economic and political inequality**;
 - **The world's dwindling resource base** – especially but hardly limited to affordable liquid fuels;
 - **The world's fragile, scarce water and food supplies**, with all this implies for mass migrations, instability, and war; and
 - **A weakening US global empire**, which is now making more enemies than friends.

And there are more crises facing us than just these.

Leaving out the details, *these converging crises, not just climate change alone, comprise the great storm of our time.*

In an [emergency](#), we stop doing less important things. The sooner we wake up, the more life-saving options we have.

In any case, there is no escape. It is high time to begin preparing our country for the [deep adaptations](#) now required.

- **The above factors and others lead to an urgent need to reassess US national security priorities.**
- **The national security committees of Congress should immediately declare anthropogenic climate collapse to be the #1 national security priority of the US.**
 - US military spending is out of control, consumes an enormous portion of US discretionary spending, threatens U.S. national security, and must be decreased.
 - The US should be aiming for international cooperation, not competition and antagonism. Cooperation is needed to address (for example):
 - climate, especially in the Arctic, where planet-killing quantities of carbon dioxide and methane are – barely – trapped in delicate environmental equilibrium;
 - security issues of course, including nuclear weapons;
 - habitats and threatened species;
 - famines and mass migrations from all causes; and
 - access to birth control, education for women, and related women’s right and demographic issues.
- **There is an urgent need to move monies from national security (the 050 budget line) to renewable energy, energy efficiency, sustainable industry, and sustainable transportation via with a suite of intelligent policies aimed at global climate leadership, economic and social resilience, new job opportunities in places where, and for people for whom, there are few.**
 - If we do not we will be spending even greater sums in disaster relief, rebuilding cities and infrastructure, and crisis management, not to mention the cost of lost economic activity.

- This is not the place to discuss specific policies, which must be discussed and vetted politically, but we do have to make clear that devoting a majority of Congress' discretionary funds to the military solves none of the problems America faces, and creates many more.
- **Systematically addressing these challenges is virtually the sole genuine unifying national purpose available.**
 - The key idea as we see it is to unite essential national security investments in a new key with essential social investments in ways that speak to the immediate needs of communities and voters, with maximum democratic ownership and local control (subsidiarity), while not expanding net federal fiscal obligations.
 - Whatever the details and the name, the overall need could not be more urgent.
 - This is not at all a partisan matter.
- **There is an urgent need for a less confrontational approach to Russia, China, Iran, Syria, Venezuela, Ukraine's breakaway regions, and for an end to the US war in Afghanistan and other US military adventures.**
 - The US needs to get on the right side of history, protecting the sovereignty of legitimate states and leaders (e.g. Iran, Syria, Venezuela, and Russia) instead of attempting to overthrow them. The days of regime change without fear of failure and blowback are over. The U.S. empire needs to cut its losses and focus on the survival of its own population and polity as well as those of others', and on preserving living nature.
 - This is not at all a cry for nationalistic autarky, but it is quite the opposite of militarism.

Thank you for your attention.