December 16, 2021

The President
The White House
1600 Pennsylvania Avenue NW
Washington, DC 20500

Dear President Biden,

We write as scientists and engineers who are gravely concerned about the risks posed by nuclear weapons.

We know you share our concerns. The on-going Nuclear Posture Review (NPR) is an opportunity for you to reduce the risk of nuclear war by reducing the US nuclear arsenal and its role in US security and changing the policies governing its use.

This is a pivotal moment. The United States must dampen the renewed nuclear arms race with Russia and China. It also needs to demonstrate that it is fulfilling its obligation under the Nuclear Non-proliferation Treaty (NPT) to take steps towards disarmament.

We urge you to incorporate the following steps into your NPR:

1. Declare that the United States will not use nuclear weapons first.

   In 2017, you stated “...it's hard to envision a plausible scenario in which the first use of nuclear weapons by the United States would be necessary or make sense.” During your presidential campaign, you stated that “the sole purpose of the US nuclear arsenal should be deterring—and if necessary, retaliating against—a nuclear attack.”

   We urge you to declare that the United States will not use nuclear weapons first under any circumstances, and would consider using nuclear weapons only in response to a nuclear attack on itself or its allies. Making this “no-first-use” pledge is essential to reducing the role of nuclear weapons. By making clear that the United States will never start a nuclear war, it reduces the likelihood that a conflict or crisis will escalate to nuclear war. In addition, it demonstrates the US commitment to the NPT by making clear that the sole purpose of US nuclear weapons is to deter the use of nuclear weapons by others, which is an essential prerequisite to nuclear disarmament.

2. Modify the president's authority to order the use of nuclear weapons.

   As president and commander in chief, you have sole authority to order the use of US nuclear weapons. Although we have confidence in your judgment, history indicates that giving this awesome responsibility to a single person is unwise.

   We urge you to modify the process for ordering the use of nuclear weapons to require that one or more officials concur with a presidential order before it is carried out. This would be an
important safeguard against a possible future president who is unstable or who orders a reckless attack.

This process need not delay decision-making. The Federal Emergency Management Agency tracks the officials in the presidential line of succession (and could track any other designated officials), and the military could communicate with them as quickly as with the president.

3. Reduce the number of deployed strategic nuclear weapons to 1,000.

We urge you to commit to reducing the arsenal to fewer than 1,000 deployed missile warheads and bombers in your NPR. These reductions will increase US national security. They will slow the spiraling nuclear arms race with Russia and China and help fulfill the NPT obligation to take steps toward disarmament.

Under the 2010 US-Russian New START agreement, both countries can deploy up to 1,550 strategic (long-range) weapons. In 2013, following a Pentagon assessment of threats and capabilities, President Obama announced that the United States could maintain its security while reducing its arsenal by a third, to about 1,000 weapons, even if Russia did not follow suit.

The US deployed arsenal is already well under New START limits. As of July 2021, it contained 46 bombers, 400 warheads on silo-based intercontinental-range ballistic missiles (ICBMs), and 911 warheads on submarine-launched ballistic missiles (SLBMs), for a total of 1,357.

4. Cancel the program to replace existing ICBMs and instead extend their lifetimes.

The current Minuteman III (MMIII) ICBMs will reach the end of their nominal lifetime beginning in 2030. As the Air Force itself acknowledges, there are no technical barriers to extending the MMIII lifetime for at least another 20 years. Missiles routinely go through life-extension programs; the Navy is extending the lifetime of the Trident D5 SLBMs to 95 years.

Yet, beginning in 2029, the United States intends to replace the MMIII missiles with new Ground Based Strategic Deterrent (GBSD) missiles. The Air Force plans to build roughly 650 GBSD missiles and to keep 400 deployed, at a cost of some $100 billion. This program represents an enormous commitment to maintaining the current US nuclear arsenal for many decades to come.

Under a future arms agreement, the United States would likely decide to deploy fewer ICBMs, or perhaps eliminate them in favor of SLBMs. A 20-year delay in replacing the MMIII would give the United States greater clarity about the future of the ICBM force.
We also urge you to consider eliminating silo-based ICBMs. To compensate for their inherent vulnerability to a Russian nuclear attack, the Air Force maintains ICBMs on alert, ready for launch in minutes if the United States detects an incoming Russian attack. This would force a US president to make the most important of all decisions, about whether to launch a nuclear retaliatory attack, in a few minutes. It also creates the risk of a mistaken launch in response to a false warning. ICBMs provide no military capability that is not provided by SLBMs at sea, and there would be no pressure to use SLBMs quickly in response to warning of an incoming attack because they are invulnerable.

Sincerely,

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Scientists and Engineers Letter to President Biden on the Nuclear Posture Review
Scientists and Engineers Letter to President Biden on the Nuclear Posture Review

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<tr>
<td>Lise Grace, MA/MS</td>
<td>Environmental Science</td>
<td>National Park Service</td>
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<td>Joseph Graves Jr., PhD</td>
<td>Biology</td>
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<td>Judith Green, PhD</td>
<td>Life Science</td>
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<td>Joshua Greene, PhD</td>
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<tr>
<td>Brian A. Gregg, PhD</td>
<td>Public Health</td>
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<tr>
<td>Name</td>
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<td>Johanna Heureaux-Torres, PhD</td>
<td>Engineering</td>
<td>University of Michigan, Ann Arbor</td>
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<td>Martin Hilbert, PhD</td>
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<td>Michael L. Hinshaw, MA/MS</td>
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<td>Don Hnatowich, PhD</td>
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<td>UMass Medical School, retired</td>
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<td>Rob Hoeffler, MA/MS</td>
<td>Medicine/Medical Research</td>
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<td>Emily Hoffman, PhD</td>
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<td>Nancy Johns, MA/MS</td>
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<td>Karen Jacques, PhD</td>
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<td>David E. Jaffe, PhD</td>
<td>National Laboratory</td>
<td>Bernadette B. Jones, MA/MS</td>
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<td>Virginia A. Jones, PhD</td>
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<td>Henry S. Kahn, MD</td>
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Scientists and Engineers Letter to President Biden on the Nuclear Posture Review
Angela Kantola, MA/MS
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Retired

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Independent Consultant

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Retired

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Judith Kneller, MA/MS
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Founders Education

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Allen Institute

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Michigan State University

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West Virginia University

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University of Washington

Brett Kraabel, PhD
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Physical Sciences Communication

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Marshfield Clinic Research Institute

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Lukasz Kurgan, PhD
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Virginia Commonwealth University

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San Jose State University

Doug La Follette, PhD
Chemistry
State of Wisconsin

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Driss Larafi, PhD
Social Sciences
Ibn Tofail University

Richard LaVal, PhD
Biology
Monteverde Bat Jungle

Vinnedge M. Lawrence, PhD
Biology
Purdue University
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<tr>
<th>Name</th>
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<tr>
<td>Jonathan McDowell, PhD</td>
<td>Physical Science</td>
<td>Center for Astrophysics, Harvard and Smithsonian</td>
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<td>Erik M. Mueller, PhD</td>
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<td>National Transportation Safety Board</td>
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<td>Identity Medical Group</td>
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<td>Pacific Northwest National Laboratory, retired</td>
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<td>Dan Murray, MA/MS</td>
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<td>Richard Nadler, MA/MS</td>
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<td>NY Board of Education</td>
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</table>
Scientists and Engineers Letter to President Biden on the Nuclear Posture Review

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ZEngineering

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