

June 2022

SQUANDERED: 2021 GLOBAL NUCLEAR WEAPONS SPENDING

International Campaign to Abolish Nuclear Weapons | REPORT



Squandered: 2021 Global Nuclear Weapons Spending

**International Campaign
to Abolish Nuclear Weapons**
REPORT

icanw.org

Cover image:
Launch of Minuteman III
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Executive Summary

In 2021, the year before the Russian invasion of Ukraine, nine nuclear-armed states spent \$82.4 billion on their nuclear weapons, more than \$156,000 per minute, an inflation-adjusted increase of \$6.5 billion from 2020.

WHY?

The exchange of money and influence, from countries to companies to lobbyists and think tanks, sustains and maintains a global arsenal of catastrophically destructive weapons. Each person and organisation in this cycle is complicit in threatening life as we know it and wasting resources desperately needed to address real threats to human health and safety.

The \$82.4 billion spent on nuclear weapons was split between governmental departments and private companies. Companies in France, the United Kingdom and the United States were awarded \$30 billion in new contracts (some spanning decades into the future), twice as much as they received in 2020.

Those companies then funded think tanks that research and write about nuclear weapons policies. At least twelve major think tanks that research and write about nuclear weapons in India, France, the United Kingdom, and the United States collectively received between \$5.5 million and \$10 million from companies that produce nuclear weapons. The CEOs and board members of companies that produce nuclear weapons sit on some of their advisory boards, serve as trustees and are listed as “partners” on their websites.

And to make sure the enormous budgets are approved to pay for these contracts, those same companies hire lobbyists. In 2021, nuclear weapons producers spent \$117 million in lobbying on defence. For every \$1 spent lobbying, an average of \$256 in nuclear weapon contract money came back in new nuclear weapons contracts.

Nuclear-armed states spent an obscene amount of money on illegal weapons of mass destruction in 2021, while the majority of the world’s countries support a global nuclear weapons ban. This spending failed to deter a war in Europe and squandered valuable resources that could be better used to address current security challenges, or cope with the outcome of a still raging global pandemic. This corrupt cycle of wasteful spending must be put to an end.

KEY FIGURES

Country Spending

 The United States	\$44.2 billion 🕒 \$84,094 / minute
 China	\$11.7 billion 🕒 \$22,325/ minute
 Russia	\$8.6 billion 🕒 \$16,301 / minute
 The United Kingdom	\$6.8 billion 🕒 \$12,873 / minute
 France	\$5.9 billion 🕒 \$11,245/ minute
 India	\$2.3 billion 🕒 \$4,315/ minute
 Israel	\$1.2 billion 🕒 \$2,315 / minute
 Pakistan	\$1.1 billion 🕒 \$2,151/ minute
 North Korea	\$642 million 🕒 \$1,221 /minute
 2021 Total	\$82.4 billion 🕒 \$156,841 per minute
2020 Total	\$76 billion* 🕒 \$144,554 per minute

*2020 figures adjusted for inflation.

Company	2021 income from nuclear weapons related contracts (USD Millions)	2021 Lobby spending
Aerojet Rocketdyne	\$4	\$2,490,000
Airbus	?	\$5,179,763
BAE Systems	\$129	\$4,418,443
Bechtel	\$1,400	\$1,230,000
Boeing	\$384	\$13,413,286
Constructions Industrielles de la Méditerranée (CNIM)	?	\$11,700
Charles Stark Draper Laboratory	\$134	No lobby costs reported.
General Dynamics	\$1,700	\$14,160,944
Honeywell International	\$6,200	\$7,052,000
Huntington Ingalls Industries	\$804	\$6,720,000
Jacobs Engineering	\$306	\$940,000
L3 Harris Technologies	\$174	\$4,255,000
Leidos	\$671	\$3,140,000
Leonardo	?	\$1,300,629
Lockheed Martin	\$1,900	\$16,859,822

Company	2021 income from nuclear weapons related contracts (USD Millions)	2021 Lobby spending
Northrop Grumman	\$5,000	\$11,653,000
Peraton	\$24	\$350,000
Raytheon Technologies Corporation	\$409	\$17,760,000
Safran	?	\$787,657
Textron	\$13	\$5,362,706

Total new nuclear weapon related contracts awarded in 2021, at least \$30.2 billion.

Total new nuclear weapon related contracts awarded in 2020, at least \$14.8 billion.

Think tank income

Atlantic Council	\$590,000 - \$1,284,992
Brookings Institution	\$575,000 - \$1,149,997
Carnegie Endowment for International Peace	\$25,000 - \$99,999
Center for New American Security	\$1,260,000 - \$2,274,988
Center for Strategic and International Studies	\$1,245,000 - \$2,134,991
Fondation pour la recherche stratégique (FRS)	amount not specified
French Institute of International Relations	amount not specified
Hudson Institute	\$240,000 - \$300,000
International Institute of Strategic Studies	\$757,909 - \$997,245
Observer Research Foundation	\$156,109
Royal United Services Institute	\$602,476 - \$1,416,763
Stimson Center	\$25,000

Total \$ 5.5 - 10 million

Introduction

In 2022, iodine tablets sold out in pharmacies across Europe. Google searches for nuclear bunkers skyrocketed. Governments published “Frequently Asked Questions” about nuclear weapons attacks. Russia’s invasion of Ukraine and explicit threats to use nuclear weapons in 2022 sparked fear and anxiety across the continent and around the world.

This is the war in Europe nuclear deterrence advocates said nuclear weapons were supposed to prevent. Naked aggression against a country involved in a strategic partnership with NATO from nuclear-armed Russia should have been impossible in an international order supposedly “stabilised” by nuclear deterrence. Instead, nuclear weapons are enabling it to break norms and violate international law, including international humanitarian law and international human rights law, in spite of overwhelming international condemnation.

We were told that the billions invested in thousands of weapons of mass destruction with the power to destroy the world many times over was the price to pay for peace in Europe. Instead, those billions went to line the pockets of the powerful who profit from the production of weapons of mass destruction.

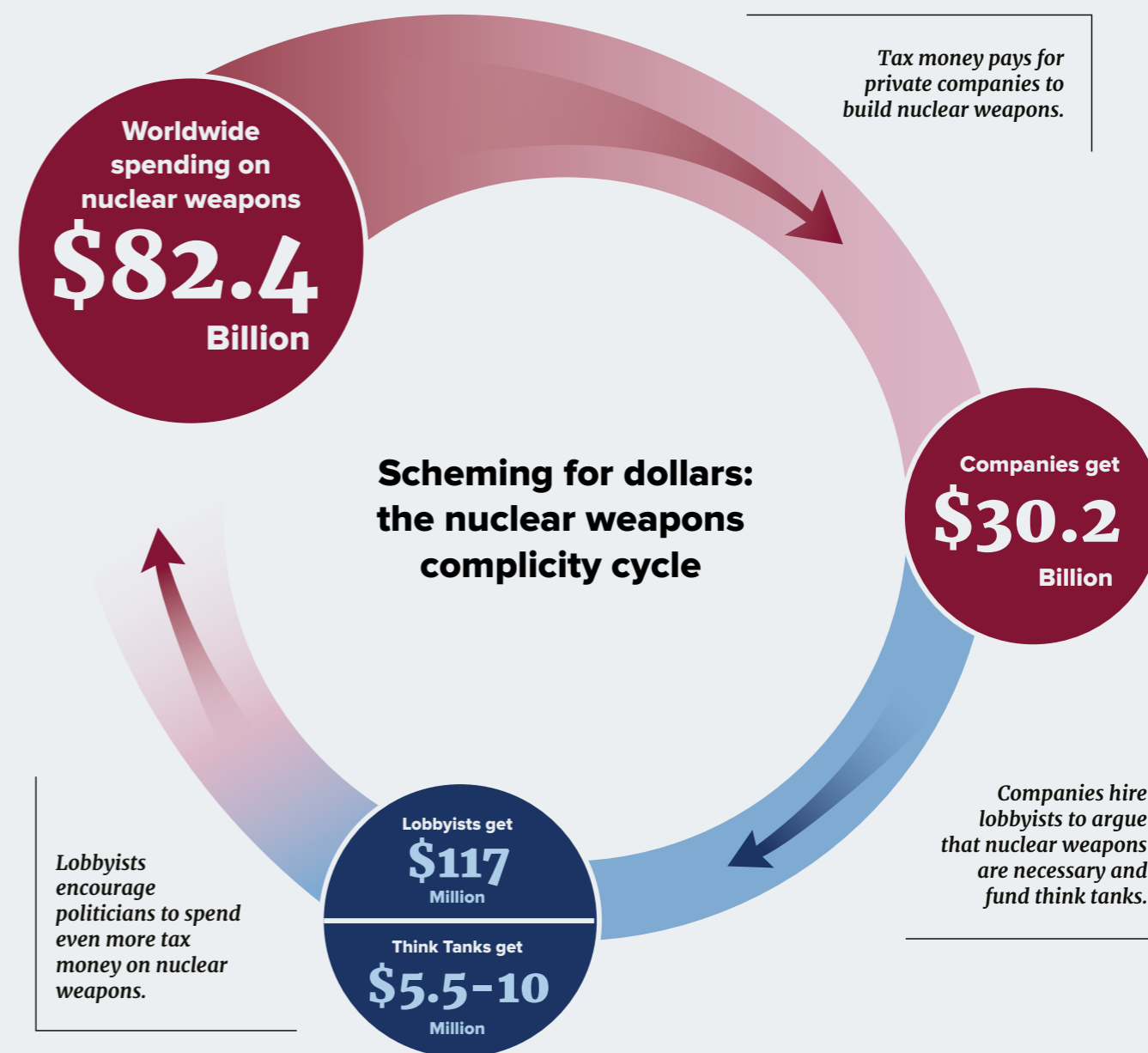
The events of early 2022 prove that nuclear weapons do not guarantee security anywhere, at any time. Those with ties to the nuclear weapons industry may argue that more nuclear weapons in the region would have prevented a war. But there is no evidence to support this hypothetical claim. What we know is what we’ve seen: investments in nuclear weapons systems have not brought peace. They have only fanned the flames of conflict and increased the risk of global annihilation.

In 2021, months before Russian troops began amassing on the Ukrainian border, the nine nuclear-armed states spent \$82.4 billion on nuclear weapons. They increased their spending on nuclear weapons by a whopping, inflation-adjusted \$6.5 billion from 2020. The nuclear weapons industry received \$30 billion in new nuclear weapons contracts in 2021. They spent \$117 million lobbying governments. They spent another \$5.5 to \$10 million on think tanks researching and writing about nuclear weapons.

This cycle of spending around nuclear weapons didn’t deter a war in Ukraine. So what is it good for? Most countries around the world have chosen not to gamble their future on inhumane and illegal weapons. The 61 states parties and 86 signatories to the Treaty on the Prohibition of Nuclear Weapons (TPNW) are holding the line against nuclear use and threat of nuclear use by joining the only international treaty to ban these activities. States and civil society will come together in June 2022 in Vienna to uphold the norms against nuclear weapons and in favour of international peace and security. As a handful of countries and companies continue to pour money into nuclear weapons, the international community is working to stigmatise and eliminate them through international norms and law.

International security challenges, from a global pandemic to a war in Europe, are unimpeded by ever-growing nuclear weapons spending. It’s time to face facts and stop the flow of cash to the most destructive weapons ever created. It’s time to join the ban.

NUCLEAR WEAPONS SPENDING CYCLE | 2021



This report unveils the dirty secret of the nuclear weapons industry: the billions wasted on illegal weapons of mass destruction during a global pandemic and the vested interests that keep coming back for more.

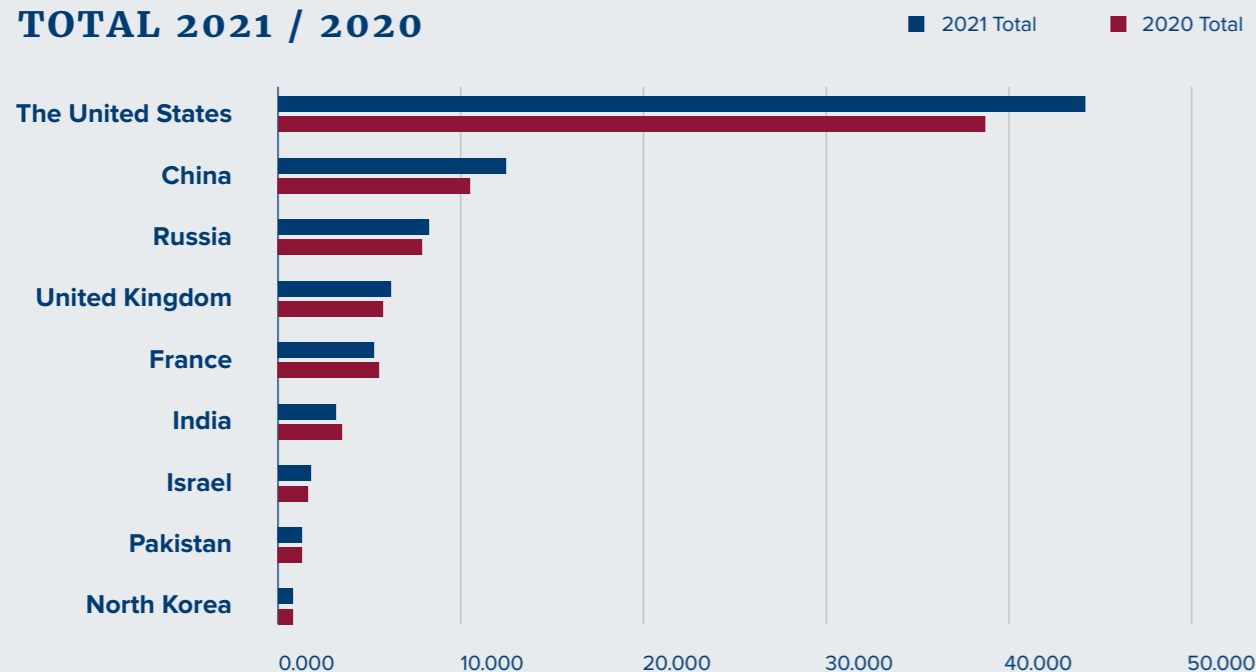
Countries

INTRODUCTION

The International Campaign to Abolish Nuclear Weapons estimates that the nine nuclear-armed countries spent \$82.4 billion on their almost 13,000 nuclear weapons in 2021, equalling \$156,841 every minute of 2021 on nuclear weapons, and a \$6.5 billion increase from 2020. Instead of throwing away billions on weapons of mass destruction that are useless to prevent war, all nuclear-armed states must join the TPNW and eliminate their stockpiles immediately.

 The United States	\$44.2 billion ⌚ \$84,094 / minute	 Israel	\$1.2 billion ⌚ \$2,315 / minute
 China	\$11.7 billion ⌚ \$22,325 / minute	 Pakistan	\$1.1 billion ⌚ \$2,151 / minute
 Russia	\$8.6 billion ⌚ \$16,301 / minute	 North Korea	\$642 million ⌚ \$1,221 / minute
 The United Kingdom	\$6.8 billion ⌚ \$12,873 / minute	2021 Total ⌚ \$156,841 / minute	
 France	\$5.9 billion ⌚ \$11,245 / minute	2020 Total ⌚ \$144,554 / minute	
 India	\$2.3 billion ⌚ \$4,315 / minute	2020 figures adjusted for inflation.	

TOTAL 2021 / 2020



China \$11.7 billion

China has 350 nuclear weapons and can launch them from land-based missiles, aircraft, and submarines.¹

There is no reliable public information about Chinese nuclear spending. Therefore, ICAN used a percentage of total military spending to calculate China's nuclear expenditure. ICAN estimated China spends four per cent of its total military spending on nuclear weapons based on similar estimates in a 2020 Reaching Critical Will report and in a 2011 Global Zero estimate.^{2, 3} The Stockholm International Peace Research Institute estimated that in 2021 China spent \$293.4 billion in current 2021 dollars on military expenditures.⁴ Four per cent of \$293.4 billion is \$11.7 billion, our estimate for Chinese nuclear spending in 2021.

China spent \$22,325 every minute on nuclear weapons in 2021. Based on this methodology, and adjusted for inflation, in 2020 China spent \$10.6 billion on nuclear weapons.



China spent \$22,325 every minute on nuclear weapons in 2021.



France \$5.9 billion

France has under 300 nuclear weapons, according to French President Macron.⁵ The Federation of American Scientists estimates that it has 290 nuclear weapons and can launch them from aircraft and submarines.⁶

The 2020 French defence bill allocated €5 billion for nuclear deterrence in 2021.⁷ This line item includes annual costs for nuclear warheads, modernisation and renewal of nuclear-capable cruise missiles, submarine-launched missiles and submarines. Costs can be seen in more detail in the 2021 budget justification document.⁸

Notably not included in the deterrence budget are costs associated with the Rafale aircraft, which can be used to launch nuclear weapons. Given that these costs are not publicly available, our estimate assumes that the deterrence budget covers the bulk of French nuclear spending and does not include these additional costs.

€5 billion converted to USD is about \$5.9 billion. France spent roughly 10 percent of its total military budget on nuclear weapons in 2021.⁹

France spent \$11,245 on nuclear weapons every minute in 2021. Based on this methodology, and adjusted for inflation, in 2020 France spent \$6 billion on nuclear weapons.

According to a military programming law voted on in 2018, the total amount that France will spend on its nuclear deterrence from 2021-2025 is €27.85 billion.¹⁰



France spent \$11,245 on nuclear weapons every minute in 2021.



India spent \$4,315 on nuclear weapons every minute in 2021.



India \$2.3 billion

India is estimated to have 160 nuclear weapons, and can launch nuclear weapons from land-based missiles, aircraft, and submarines.¹¹

While little is known about Indian nuclear weapon spending, an October 2016 Stimson Center report looked at parliamentary oversight documents and created a methodology to calculate annual spending on nuclear weapons.¹²

The report notes that a 2016 Indian parliamentary report stated that India spent 46% of the Defence Research and Development Organisation (DRDO)'s budget on its nuclear-capable delivery systems. Given that about half of the U.S. nuclear budget goes to nuclear delivery systems, the Stimson Center report assumed that India's total nuclear spending would be about twice what it spent on nuclear-capable delivery systems.

ICAN's research thus followed the Stimson Center's methodology by taking 46% of the 2021-2022 DRDO budget (18,227 crore Indian rupees) to get 8,384.6 crore Indian rupees and doubling it to reach 16,769.2 crore Indian rupees.¹³ A crore is 10 million, so 16,769.2 crore is 167.7 billion Indian rupees. Converted into USD, this total is \$2.3 billion, our estimate for Indian nuclear spending in 2021.

This is roughly three per cent of the \$76.6 billion India spent on its military in 2021.

India spent \$4,315 on nuclear weapons every minute in 2021.

Based on this methodology, and adjusted for inflation, India spent \$2.5 billion in 2020 on nuclear weapons.



Indian Agni - III Missile

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Israel spent \$2,316 every minute on nuclear weapons in 2021.



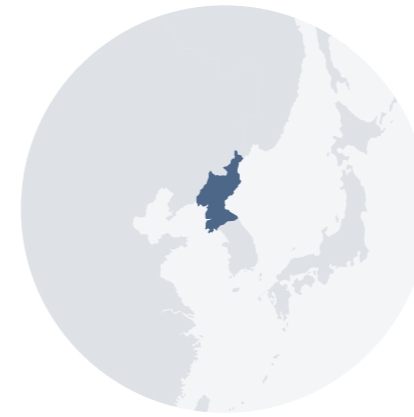
Israel \$1.2 billion

Israel is estimated to have 90 nuclear weapons and is believed to be able to launch them from land-based missiles, submarines, and aircraft.¹⁴

There is no reliable public information about Israeli nuclear spending, given that it publicly denies possessing nuclear weapons. Therefore, ICAN used an average percentage of what nuclear-armed countries spend on nuclear weapons out of total military spending. The Stockholm International Peace Research Institute estimated that in 2021, Israel spent \$24.3 billion on its military.¹⁵ Five per cent of \$24.3 billion is \$1.2 billion, our estimate for Israeli nuclear spending in 2021.

Israel spent \$2,316 every minute on nuclear weapons in 2021.

Based on this methodology, and adjusted for inflation, Israel spent \$1.2 billion in 2020 on nuclear weapons.



North Korea spent \$1,221 every minute on nuclear weapons in 2021.



North Korea \$642 million

North Korea is estimated to have 20 assembled nuclear weapons.¹⁶ It is developing nuclear-capable missiles which can be launched from the ground and from submarines.

There is very little public information about North Korean nuclear spending or its military spending overall. South Korea annually estimates North Korean gross national income and it placed North Korea's 2020 GNI at 35 trillion North Korean won.¹⁷ North Korean military spending is very uncertain but in 2009 a South Korean think tank estimated North Korea spent \$8.7 billion on its military, which represented about one-third (35%) of GNI at that time.¹⁸

Assuming that North Korea continues to spend 35% of its GNI on its military, North Korea would have spent about 12.2 trillion Korean won on its military in 2020. Global Zero estimated that in 2011 North Korea spent about 6% of its military budget on its nuclear programme.¹⁹ Assuming that North Korea still spends 6% of its annual military spending on nuclear weapons, North Korea would have spent about 734 billion Korean won on its nuclear program in 2020. 734 billion North Korean won is \$642 million, which is our estimate for 2021 North Korean nuclear spending.

This means North Korea spent \$1,221 every minute on nuclear weapons in 2021. Based on this methodology, and adjusted for inflation, North Korea spent about \$0.7 billion on nuclear weapons in 2020.



Pakistan \$1.1 billion

Pakistan is estimated to have 165 nuclear weapons that it can launch from land-based missiles and aircraft and it is developing the ability to launch them from submarines.²⁰

Analysts in the past decade have estimated that Pakistan spends about ten per cent of its total military spending on its nuclear arsenal, confirmed in a 2016 parliamentary report revealing that Pakistan spent 9.8 per cent of its official military budget on nuclear weapons that year.^{21,22}

Ten per cent of Pakistan's 2021 military spending (\$11.3 billion) is \$1.1 billion, our estimate for Pakistani nuclear spending in 2021.²³

Pakistan spent \$2,151 every minute on nuclear weapons in 2021.

Based on this methodology, and adjusted for inflation, Pakistan spent \$1 billion in 2020 on nuclear weapons.



Pakistan spent \$2,151 every minute on nuclear weapons in 2021.



Russia \$8.6 billion

Russia has 5,977 nuclear weapons which it can launch from land-based missiles, submarines, and aeroplanes.²⁴

A 2018 SIPRI report found that Russian nuclear weapons system spending cost about 13% of total defence expenditures in recent years (2010 and 2016).²⁵ SIPRI estimated Russian military spending at \$65.9 billion in 2021, 13% of which is \$8.6 billion, our estimate for Russian nuclear spending in 2021.²⁶

Russian nuclear weapons spending is expected to increase in the coming years. The nuclear weapons complex line item of the Russian budget only represents a fraction of the total Russian nuclear weapons spending estimate by SIPRI, but this part of nuclear weapons spending will increase to 49 billion roubles in 2022 and 2023 and then to 56 billion roubles in 2024.²⁷

Russia spent \$16,301 every minute on nuclear weapons in 2021.

Based on this methodology, and adjusted for inflation, in 2020 Russia spent \$8.4 billion on nuclear weapons.



Russia spent \$16,301 every minute on nuclear weapons in 2021.



The United Kingdom \$6.8 billion

The United Kingdom has 225 nuclear weapons which it can launch from submarines.²⁸ It cooperates closely with the United States to produce its Trident II D-5 nuclear-capable missiles.

The United Kingdom does not release official detailed costs for its nuclear weapons programme, although analysts have produced estimates based on what data is available. A 2016 Campaign for Nuclear Disarmament report calculated that the overall cost to replace the UK nuclear submarine programme will be £205 billion.²⁹ A Nuclear Information Service report calculated the average cost per year of the overall program would be £3.4 billion.³⁰ A 2021 National Audit Office report admitted that official projections of nuclear weapons spending costs have been too low, acknowledging that in the last year, ten-year projected costs grew by £16 billion.³¹

In a 2018 National Audit Office report, the cost of the defence nuclear enterprise from 2020-2021 were projected as £4.85 billion, which includes £2.101 billion for submarines, £1.225 billion for the missiles and warheads, £755 million for propulsion systems and another £769 million in support programs and other costs.^{32,33} The £2.1 billion in reported submarine costs include the nuclear-capable Dreadnought-class submarines, the Astute-class, the Marine Underwater Future Capability (MUFC)-class submarines and "other submarines." Since ICAN does not include non-nuclear-capable delivery system costs in this report's estimates, the £2.101 billion reported for submarines was revised to only include the costs for the nuclear-capable Dreadnought-class.³⁴ The annual cost for the Dreadnought programme was reported as £1.85 billion in the 2021 annual Ministry of Defence Major Project Portfolio data.³⁵ We've also added in the contingencies reported for the Dreadnought programme and for the general "nuclear deterrent," amounting to £0.32 billion.³⁶

With this revision, the total estimated cost of the UK nuclear program for 2020-21 comes to £4.9 billion, or \$6.8 billion.

\$6.8 billion is about 10 per cent of 2021 UK defence spending, estimated at \$68 billion.³⁷

The United Kingdom spent \$12,873 every minute on nuclear weapons in 2021.

Based on this methodology, and accounting for inflation, the United Kingdom spent about \$6.5 billion in 2020 on nuclear weapons.



The United Kingdom spent \$12,873 every minute on nuclear weapons in 2021.



The United States spent \$84,094 every minute of 2021 on nuclear weapons.



The United States \$44.2 billion

The United States has 5,428 nuclear weapons which it can launch from land-based missiles, submarines, and aeroplanes.³⁸

The Department of Energy's National Nuclear Security Administration (NNSA) and the Department of Defense divide responsibilities for the nation's nuclear weapons. The NNSA is responsible for the research, development, production, testing and dismantlement of the nuclear warheads, while the Department of Defense manages the development of warhead delivery systems, such as missiles, aircraft, and submarines. The Department of Defense also manages the deployment of nuclear weapons once they are fully produced.

This figure combines U.S. Department of Defense and NNSA funding for nuclear weapons in 2021.³⁹ NNSA spent \$15.3 billion in 2021 on weapons activities.⁴⁰ For 2021, the Department of Defense requested \$28.9 billion for "Nuclear Modernization," including the "Ground-Based Strategic Deterrent, B-21 Bomber, Long Range Stand Off Weapon, Columbia class submarine, missile warning" and "\$7 billion for Nuclear Command, Control, and Communications."⁴¹ While the Defense Department doesn't provide more detail on all the programs covered under this category, given the similarity to the Congressional Budget Office total estimate for Department of Defense spending on nuclear weapons systems for 2021, including nuclear delivery systems and nuclear command and control, we can assume it is fairly comprehensive.⁴²

Adding \$15.3 billion to \$28.9 billion results in a total of \$44.2 billion spent on nuclear weapons in the United States in 2021. This is roughly 6 per cent of total U.S. military spending in 2021.⁴³

The United States spent \$84,094 every minute of 2021 on nuclear weapons.

In 2020, the United States spent \$39.2 billion on nuclear weapons, adjusted for inflation.



Minuteman III ICBM operational test launch. Source: US Airforce; Photo by Brittany E. N. Murphy ©Public Domain; (The appearance of US Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.)

Companies

INTRODUCTION

There is at least \$151.2 billion in outstanding contracts related to the development, maintenance, manufacturing, production and deployment of nuclear weapons. The companies holding these contracts spend additional millions lobbying governments, funding think tank research, and contributing to campaigns in order to keep contracts coming in.

The nuclear weapons industry took home at least \$19.2 billion for nuclear weapons related work in 2021. They spent \$117 million lobbying governments. Companies that build nuclear weapons load their boardroom with influencers as well, bringing in former defence ministers, former nuclear weapons commanders, and individuals who also sit on the boards of think tanks and universities. But the end result was not an end to wars, it did not deter threats with nuclear weapons, the end results were paychecks and corporate dividends for a few people.

NEW CONTRACTS IN 2021

15 new nuclear weapon related contracts valued at more than \$30 billion were awarded in 2021, compared to \$14.8 billion in new nuclear weapon contract awards in 2020. Most contracts were related to the Trident or Minuteman III systems. Most are multi-year contracts, lasting an average of five years. However, there were three contracts related to the Minuteman III system, which are expected to continue through 2040. Northrop Grumman's three new contracts were the highest, valued at more than \$23 billion and extending through 2040.

LOBBYING IN 2021

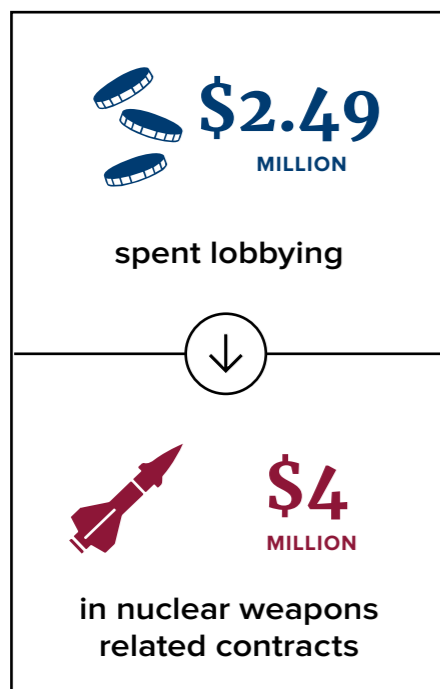
In 2021, we found that nuclear-weapon-producing companies spent more than \$117 million million lobbying government officials. Lobbying was frequently reported around budgetary issues, including defence spending authorizations. Due to differences in national transparency requirements and data availability, the full scope of company involvement, lobby expenditures and CEO take-home pay may be even more.

BOARD CONNECTIONS

The individuals responsible for the governance of the nuclear weapon industry are also connected to a number of universities and think tanks. The Council on Foreign Relations counts at least seven nuclear weapons industry board members among its members. The Aspen Institute and Center for a New American Security also have multiple individuals who are paid board members from companies producing nuclear weapons within their ranks. The Center for Strategic and International Studies not only receives funding from the nuclear weapons industry, their trustees include the fifth-generation leader of Bechtel, one of the companies connected to decades of U.S. nuclear weapons testing.

NUCLEAR WEAPON RELATED CONTRACTS AND LOBBYING IN 2021

- Nuclear weapon related contracts and lobbying in 2021 **Aerojet Rocketdyne** earned at least \$4 million in 2021 for nuclear weapons related work, and spent \$2,490,000 lobbying.
- It is not clear what **Airbus** earns annually for its role in consortium contracts related to nuclear weapons production, but in 2021 \$5,179,763 was spent lobbying.
- **BAE Systems** earned around \$129 million for work on the U.S. nuclear arsenal in 2021, but it is unclear what percentage of that was paid by the UK, or what other contracts the UK might be engaged in that are not reported. It is also unclear exactly how much BAE earned for its work on the French nuclear arsenal. However, the company did spend \$4,418,443 lobbying in 2021.
- **Bechtel** earns an estimated \$1.4 billion per year in nuclear weapon related contracts, and in 2021 spent \$1,230,000 lobbying.
- **Boeing** earned about \$384 million for nuclear weapon related contracts in 2021 and spent \$13,413,286 lobbying.
- **CNIM** received an unknown percentage of the €60 million allocated for the seal launched component of the French nuclear arsenal in 2021 and spent \$11,700 lobbying.
- **Draper** earned an estimated \$133.6 million for nuclear weapon related work in 2021. There were no lobby costs reported.
- **General Dynamics** earned an estimated \$1.7 billion in nuclear weapon related contracts in 2021 and spent \$14,160,944 lobbying.
- **Honeywell International** brought in an estimated \$6.2 billion in 2021 from nuclear weapon related contracts and spent \$7,052,000 lobbying.
- **Huntington Ingalls Industries** earned 804.4 million in nuclear weapon related contracts and spent \$6,720,000 on lobbying in 2021.
- **Jacobs Engineering** earned an estimated \$306 million from nuclear weapon related contracts in 2021 and spent \$940,000 lobbying.
- **L3 Harris Technologies** earned an estimated \$174 million for work on the Trident system in 2021, and spent \$4,255,000 lobbying.
- **Leidos** earned an estimated \$671 million from nuclear weapons related contracts and spent \$3,140,000 lobbying.
- **Leonardo** earned an unknown amount for its nuclear weapons related work in 2021, and spent \$1,300,629 lobbying.
- **Lockheed Martin** received around \$1.9 billion for nuclear weapons related work and spent \$16,859,822 lobbying in 2021.
- **Northrop Grumman** earned around \$5 billion in nuclear weapons related work and spent \$11,653,000 lobbying in 2021.
- **Peraton** earned an estimated \$24.3 million for nuclear weapons work in 2021, and spent \$350,000 lobbying.
- **Raytheon Technologies** earned at least \$409 million in 2021 from nuclear weapon related contracts and spent \$17,760,000 lobbying.
- **Safran**, like Leonardo, does not disclose the specific income related to nuclear weapons it earns per year, however, it did spend \$787,657 lobbying.
- **Textron** earns about \$12.6 million per year in nuclear weapon related contracts and spent \$5,362,706 lobbying in 2021.



Aerojet Rocketdyne

Lockheed Martin was involved in negotiations for several years to acquire Aerojet Rocketdyne. The U.S. Federal Trade Commission filed a complaint to stop the merger, and Lockheed Martin terminated the merger process in February 2022.⁴⁴

There is trouble brewing in the Aerojet Rocketdyne world, as Executive Chairman Warren Lichtenstein refuses to sign certain documents necessary to call the 2022 Annual Shareholders Meeting. Issues over board membership, nominations and questions about the board's independence from the company Steel Partners have led to a series of filings with the U.S. Securities and Exchange Commission.⁴⁵

As there has been no annual meeting or agreement to prepare one in the company, there is no information published as to the CEO Eileen Drake's 2021 salary.

General Kevin P. Chilton (Ret), one of the Aerojet Rocketdyne Board members also serves on the Board for two U.S. nuclear weapon laboratories- the Sandia National Laboratory and the Lawrence Livermore National Laboratory. He was responsible for the U.S. ICBM force during his time in the Air Force as well. He is also connected to the Lobby firm, Chilton & Associates LLC.⁴⁶

Aerojet Rocketdyne Holdings, Inc is the name of the parent company, it also borrows money under the names Gencorp Inc and Aerojet.

NUCLEAR WEAPONS WORK

Aerojet Rocketdyne Holdings Inc is the parent company of Aerojet Rocketdyne, which manufactures the boost propulsion system for all U.S. and UK nuclear armed missiles, including the Trident and Minuteman III systems.⁴⁷ Aerojet Rocketdyne is also producing the solid rocket motor and post-boost propulsion system for the new U.S. Ground Based Strategic Deterrent system.⁴⁸



\$1.61

Earned in nuclear weapon contracts for every dollar Aerojet Rocketdyne spent lobbying.



???

There is no information published as to the CEO Eileen Drake's 2021 salary.

CONTRACTS

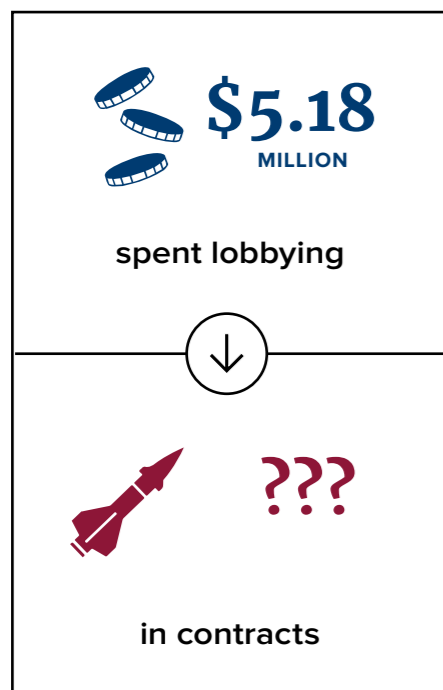
In 2021, Aerojet Rocketdyne was awarded contracts valued at more than \$865 million. None of these new awards were related to nuclear weapons work. The company has several outstanding contracts, including for work related to the GBSD which comprise part of its backlog. Most of the contract information is not published, but the company does receive at least \$4 million per year for work on the Minuteman III system.⁴⁹

LOBBYING

In 2021, Aerojet Rocketdyne reported spending \$1,620,000 on their own lobbying efforts. An additional \$870,000 was spent hiring external lobbyists. Defense Consulting Group, LLC; Ervin Graves Strategy Group, LLC; Fife Strategies, LLC, JLV strategies LLC, and; The Nickles Group LLC were all hired as lobbyists by Aerojet Rocketdyne in 2021.⁵⁰



US nuclear weapons test at Eniwetok in 1956. Published under CC BY-NC 2.0 license; Credit: US Government.



\$2,894,347

Earned by Guillaume Faury, Chief Executive Officer Airbus.

Airbus

Airbus is significantly involved in two joint ventures which are contracted to produce key components for the French nuclear arsenal, it owns 37.5% of MBDA⁵¹ and half of ArianeGroup.⁵²

Airbus CEO, Mr Guillaume Faury, earned €2,754,000 in direct cash compensation for 2021, an increase of nearly €350,000 from 2020.⁵³

Airbus board member Victor Chu is connected to international institutions including the World Economic Forum and the Royal Institute of International Affairs.⁵⁴ Another board member, Ralph D. Crosby Jr, was previously an officer in the U.S. Army, where his last military assignment was as military staff assistant to the Vice President of the United States.⁵⁵

Airbus also receives significant financing from the French Bank, BNP Paribas, and Airbus board member Stephan Gemkow is a senior advisor to the banking group.⁵⁶

NUCLEAR WEAPONS

ArianeGroup is the prime contractor for the French M51 nuclear missiles. These are missiles with intercontinental capabilities, multiple warheads, carried on nuclear powered ballistic missile submarines. There are two variations of the missile, with a third in development since 2014.⁵⁷

ArianeGroup describes its role in M51 production as “upstream research, design, development and production of the missiles, the land-based operating infrastructure and the command and control system on board the submarines”.⁵⁸ The prime contractor for the ASMPA missile, which carries the next generation nuclear missile (TNA (tête nucléaire aéroportée)) is MBDA.⁵⁹

CONTRACTS

The 2021 French defence budget allocated around €315 million in 2021 to ensure technical credibility of the M51 and ASMPA nuclear weapon systems. This figure however, does not include testing or simulations, deployment costs, or other nuclear weapons related operations. The French defence budget does not disclose the percentage of funds which are contracted to MBDA and ArianeGroup, but does identify them as primary contractors for nuclear weapons related work.⁶⁰

According to the French 2021 defence budget, delivery of the M51.1 version is complete, and 2021 funding is for development and production of the new version, the M51.3.⁶¹ The French defence budget commits €112.9 million for the ASMPA air launched nuclear missile in 2021, but does not disclose how much of that will go to MBDA.⁶²

LOBBYING

In total, Airbus was connected to more than \$5 million in lobby expenditures in France and the United States combined. In France, three Airbus divisions reported lobbying in 2021 with a combined total spending of around €1,260,441.⁶³

MBDA, of which Airbus is 37.5% owner, also spent €250,000 lobbying in France in 2021.⁶⁴ ArianeGroup did not register any lobbying activity.

In the U.S. Airbus reported more than \$2 million in lobby expenditures on their own behalf, and another \$1.68 million through hired lobbyists. BGR Government Affairs, Cassidy & Associates, Inc., Federal Solutions, LLC, FGH Holdings, LLC (Formerly known as The Glover Park Group LLC), Fierce Government Relations, Hogan Lovells US LLP, Invariant LLC, Peck Madigan Jones, and Tiber Creek Group were hired by Airbus to lobby on their behalf in the U.S.⁶⁵



A MBDA France missile. Source: ILA-boy, Public domain, via Wikimedia Commons.



BAE Systems

BAE Systems is involved in the French, UK and U.S. nuclear arsenals.

Dr. Charles Woodburn CEO of BAE Systems PLC earned \$4,835,108 in 2021, an increase of almost 5% over the \$7,512,977 earned in 2020.⁶⁶

Sir Roger Carr, Board Member, Chairman of BAE Systems PLC took home the same compensation in 2021 as he did in 2020, \$869,232.⁶⁷ He has also served as vice chairman of the BBC Trust, as well as on the board of the Bank of England. Chris Grigg, CBE is also the Chair of the UK Infrastructure Bank. Dame Elizabeth Corley currently chairs the board of the Impact Investment Institute, having previously chaired the industry Taskforce on Social Impact Investing for the UK government, and is also on the board of Morgan Stanley.⁶⁸

NUCLEAR WEAPONS

BAE Systems is significantly involved in the French nuclear arsenal through its 37.5% ownership of MBDA.⁶⁹ MBDA is the prime contractor for the ASMPA missile, which carries the next generation nuclear missile (TNA (tête nucléaire aéroportée)).⁷⁰

BAE is also involved in system engineering, training, technical support and development of the U.S. Minuteman III system.⁷¹ BAE Systems also provides supply support and information technology services for the Trident II (D5) Strategic Weapon System (SWS) in use by both the U.S. and UK.

BAE Systems is also a key manufacturer contributing to the United Kingdom's new Dreadnought system.⁷² However, the submarine contracts are not explicitly included in this review.

CONTRACTS

The 2021 French defence budget allocated around €315 million in 2021 to ensure technical credibility of the M51 nuclear weapon systems, to which BAE Systems contributes as part of MBDA. This figure however, does not include testing or simulations, deployment costs, or other nuclear weapons related operations. The French defence budget does not disclose the percentage of funds which are contracted to MBDA, but does identify them as primary contractors for nuclear weapons related work.⁷³

The French defence budget commits €112.9 million for the ASMPA air launched nuclear missile in 2021, but does not disclose how much of that will go to MBDA.⁷⁴

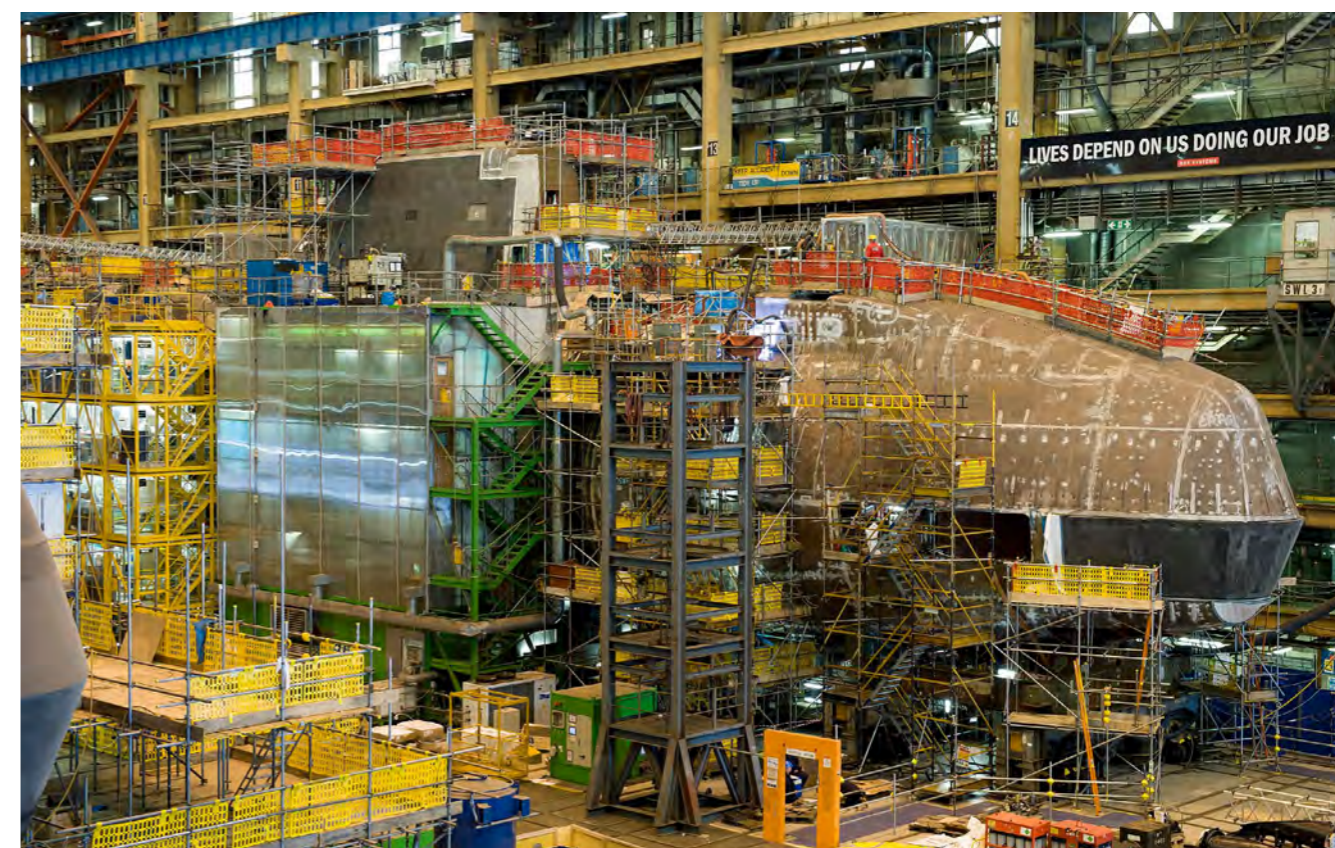
BAE is contracted by the U.S. government for its work on the U.S. and UK Trident II D5 strategic weapon systems under several contracts valued at up to \$516 million over the life of the contracts, or an estimated \$129 million for 2021.⁷⁵ One of these contracts, with a potential value of \$478 million was awarded in October 2021.⁷⁶ BAE also has an outstanding contract for work on the Minuteman III system for the U.S. The Minuteman contract has a total potential value of more than \$1.7 billion over 9 years, or \$269.4 million per year.⁷⁷

LOBBYING

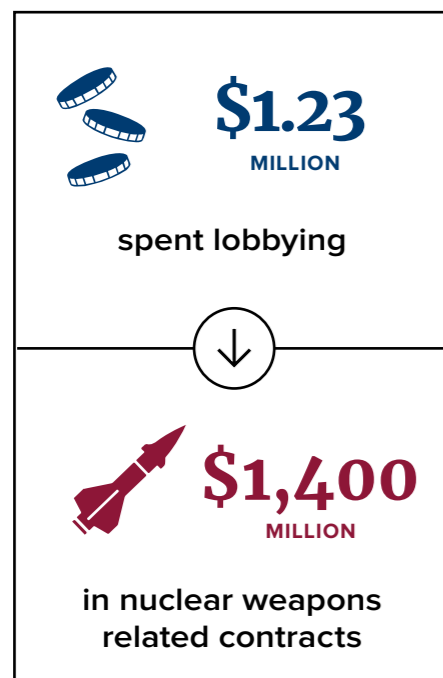
BAE Systems reported spending \$3.4 million on their own lobbying efforts in 2021, and hired external lobbyists to spend an additional \$900,000.⁷⁸

MBDA, of which BAE Systems holds 37.5% ownership, also spent €250,000 lobbying in France in 2021.⁷⁹

In the U.S. BAE Systems contracted the following firms for lobbying activities in 2021: Bedrock Strategies, LLC; Brownstein Hyatt Farber Schreck, LLP; Cassidy & Associates, Inc.; Covington & Burling LLP; Etherton and Associates, Inc.; Holly Strategies Incorporated, and; Prasm.⁸⁰



Astute Class submarine under construction. Copyright: UK Crown Copyright, public sector information licensed under the Open Government Licence v3.0.



Bechtel

Bechtel is a family company that is not publicly traded on any stock exchange. Brendan Bechtel, the board chairman and CEO is the 5th generation of the family to lead the company. Brendan Bechtel is a trustee of the Center for Strategic and International Studies, and also a member of the Council on Foreign Relations.⁸¹ Michael Bailey is general counsel of Bechtel Group, Inc and serves on the board of directors of Coalition for Integrity (formerly Transparency International- USA).⁸² John “Jack” Futcher, the former President and COO and current non-executive director also serves on the board of the Nuclear Energy Institute.⁸³

NUCLEAR WEAPONS

Bechtel is part of Lawrence Livermore National Security LLC, the consortium managing and operating the Lawrence Livermore National Laboratory for the U.S.⁸⁴ It is also part of the Consolidated Nuclear Security, LLC consortium operating the Pantex and Y-12 nuclear weapons facilities.⁸⁵

CONTRACTS

In June, the U.S. extended the contract for management and operation of the NNSA’s Pantex Plant (Pantex) in Amarillo, Texas, and the Y-12 National Security Complex (Y-12) in Oak Ridge, Tennessee for at least six months, until a new contract was established. The contract is with Consolidated Nuclear Security, LLC (CNS), which is composed of Bechtel National Inc.; Leidos, Inc. (Leidos); ATK Launch Systems Inc.; and SOC LLC.⁸⁶ The current contract has an annual value of \$3,052,849,796, but the ownership breakdown for CNS is unclear. An equal division would mean that Bechtel earned about \$763 million per year for this work.⁸⁷

The Lawrence Livermore National Security LLC, has a \$60 billion, 20 year contract for management and operations at LLNL, initially awarded in 2007.⁸⁸ The consortium comprises Bechtel, the University of California, BWX Technologies and Amentum Services Inc, the ownership division is not known, but if equally divided it is estimated that Bechtel receives approximately \$631 million per year.⁸⁹

LOBBYING

Bechtel hired external lobbyists for \$300,000 in 2021, and spent \$930,000 on their own lobbying efforts.⁹⁰ Bechtel hired two firms to lobby in 2021: Miller & Chevalier Chartered and Owen Evans Ingols.⁹¹



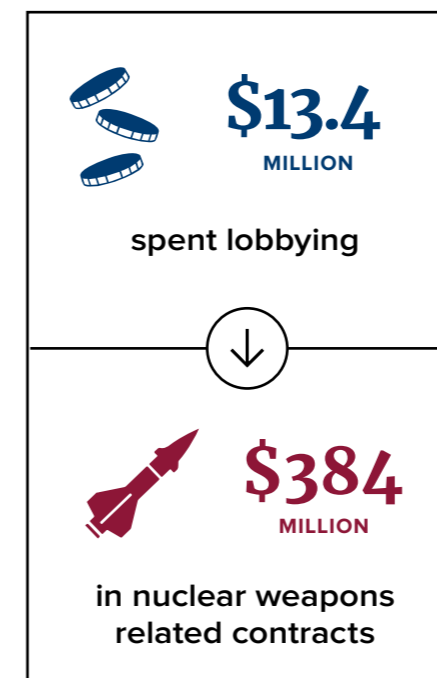
\$1,138.21

Earned in nuclear weapon contracts for every dollar Bechtel spent lobbying.



???

Brendan Bechtel, Chairman & CEO earned an undisclosed amount.



Boeing

Boeing is involved in several U.S. nuclear weapon programmes, primarily to produce key components for nuclear-armed missiles.

John M. Richardson, a Board Member of Boeing is a former Deputy Administrator in the National Nuclear Security Administration, the agency responsible for stockpiling U.S. nuclear weapons.⁹²

David L. Calhoun, President and CEO took home \$21,093,605 in 2021, about \$20,000 more than in 2020.⁹³

NUCLEAR WEAPONS

Boeing is producing the guided tail kit for the U.S. B61-12 gravity bomb. In 2021, the first production unit was produced after nine years of research and development. Full production of the new bombs is expected to begin in 2022 and continue through 2026.⁹⁴ Boeing is also involved in the production of Minuteman III ICBMs for the United States, the Trident II (D5) missiles for both the United States and United Kingdom, the Long Range Standoff weapon, and air launched cruise missiles.

CONTRACTS

Boeing earned approximately \$384 million from new and outstanding nuclear weapons related contracts in 2021. Two new contracts included a \$1.6 billion, 18 year contract for Minuteman III work⁹⁵, and a \$79 million five year contract for the B61-12 gravity bomb.⁹⁶

Boeing has a nine year, \$754 million contract awarded in 2015 for the Minuteman III system.⁹⁷ The company has two outstanding contracts related to work on the Trident systems for the US and UK. The three year contract awarded in 2018 has a total value of \$68 million⁹⁸, and the two year contract awarded in 2020 is valued at \$58 million.⁹⁹ Boeing is also still remanufacturing the air launched cruise missile warhead arming device, under an eight year \$43 million contract, set to expire in 2022.¹⁰⁰ There is also still an outstanding four year \$154 million contract for work on the B61-12 bomb.¹⁰¹ For the Long Range Standoff weapon, Boeing is currently halfway through a four year \$59 million contract.¹⁰²



\$28.63

Earned in nuclear weapon contracts for every dollar Boeing spent lobbying.



\$21,093,605

Earned by David L. Calhoun, President and Chief Executive Officer.

LOBBYING

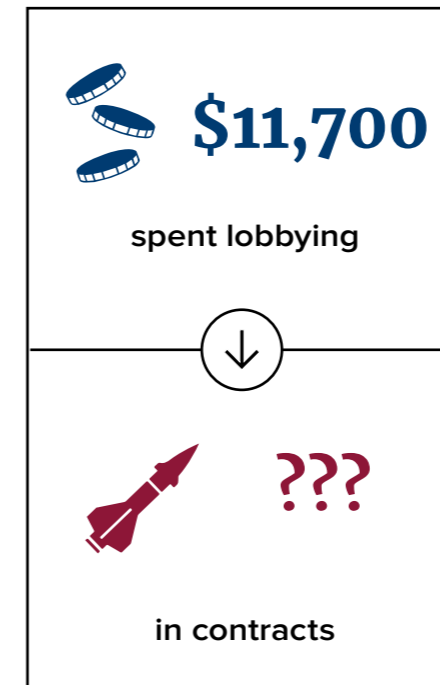
In the U.S. Boeing spent \$9.59 million on its own lobby efforts, and hired additional lobbyists for \$3.8 million more.¹⁰³ In France Boeing spent less than €10,000 lobbying in 2021.¹⁰⁴ Boeing hired the following lobby firms in the U.S. in 2021: Atlantic Strategies Group; Baker & McKenzie, LLP; Ballard Partners; CGCN Group, LLC (formerly known as Clark Geduldig Cranford & Nielsen, LLC); Cornerstone Government Affairs, Inc.; Empire Consulting Group; Ernst & Young LLP (Washington Council Ernst & Young); Etherton

and Associates, Inc.; Gephardt Group Government Affairs; J.Sullivan Advocacy; K&L Gates, LLP; Lamont Consulting Services, LLC; Lugar Hellmann Group; Mehlman Castagnetti Rosen & Thomas, Inc.; Monument Advocacy; Norm Dicks and Associates LLC; Roberti Global (fka Roberti White, LLC); S-3 Group; Shank Public Policy, LLC; Stapleton & Associates, LLC; The Lugar Group (FKA Lugar Hellmann Group); The Simmons & Russell Group, LLC, and; West Front Strategies LLC.



A Mark 28 thermo-nuclear bomb is unloaded from a U.S. Air Force Boeing B-52H Stratofortress aircraft during exercise. Source: TSgt. Boyd Belcher, USAF, Public domain, via Wikimedia Commons.

Constructions Industrielles de la Méditerranée (CNIM)



CNIM produces key components for the submarine-launched nuclear missiles in the French arsenal.¹⁰⁵

NUCLEAR WEAPONS

CNIM is the main subcontractor responsible for French submarine launched nuclear armed ballistic missiles. It does this work under contract to Naval Group.¹⁰⁶ CNIM is the only supplier of missile launcher systems integrated into nuclear submarines.¹⁰⁷ CNIM, and its subsidiary Bertin Technologies, are also involved in the Laser Megajoule project, a simulation used by France in place of full-scale explosive nuclear testing.¹⁰⁸

CONTRACTS

According to the French defence budget for 2021, there was an additional commitment of over €60 million for the ocean-going component of the nuclear arsenal in 2021, however it is unclear what percentage of that is contracted to CNIM.¹⁰⁹

LOBBYING

In 2021, CNIM spent an estimated €10,846 in lobbying the French government using two firms, Nemaussys and Groupe Industrie Materiel Defense Terres.¹¹⁰



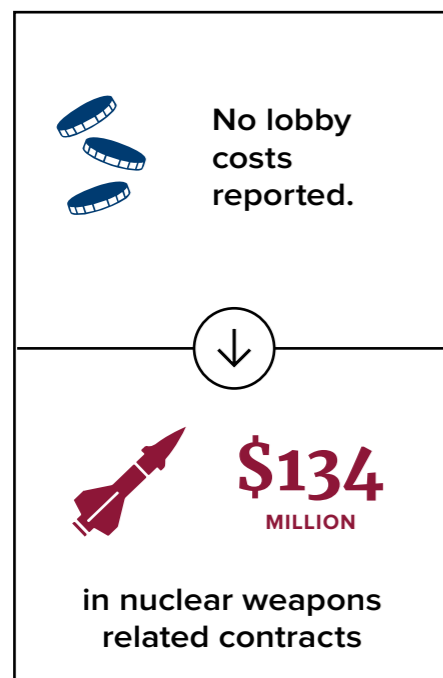
\$???

Earned in nuclear weapon contracts for every dollar CNIM spent lobbying.



???

Louis-Roch Burgard, Chief Executive Officer earned an undisclosed amount.



Draper (Charles Stark Draper Laboratory)

Draper works on guidance, navigation & control systems; radiation-hardened electronics; precision sensors and cyber resilience to support the U.S. nuclear arsenal.¹¹¹

Draper board member, Dr. Barbara Stevens is a former CIA staff person that is also currently connected to the think tank the Foundation for Defense of Democracies and serves on the board of advisors for the Center on Cyber and Technology Innovation.¹¹² David Aronoff, another board member, is also on the board of the Global Cyber institute, as well as a trustee at the University of Vermont.¹¹³

Draper board member Vice Admiral Terry J. Benedict is also the Director of the Strategic Systems Programs, the body of the U.S. Navy responsible for its nuclear weaponry, particularly the Trident system.¹¹⁴

Other board members have ties to the defence and nuclear weapons industry more directly. For example, Wanda Sigur worked for Lockheed Martin,¹¹⁵ as did Joanne M. Maguire.¹¹⁶

NUCLEAR WEAPONS

Draper is a non-profit research and development organisation, they are included here for their significant involvement in research and design for US and UK Trident II (D5) missiles. According to the US Department of Defense “CSDL possesses the unique knowledge of the total Trident Guidance system including its design and use on the Trident II weapon system.”¹¹⁷

CONTRACTS

Draper earned an estimated \$133.6 million for nuclear weapon related work in 2021. That includes an outstanding two year contract valued at \$89 million for the development of strategic guidance, navigation, and control solutions for the second life extension of the Trident II Strategic Weapon System.¹¹⁸ Draper was also awarded a new contract for production of Trident II (D5) Strategic Weapon System MK6 Guidance Equivalent Units. The new year contract has a total estimated value of \$445.5 million, and continues through at least 2026.¹¹⁹

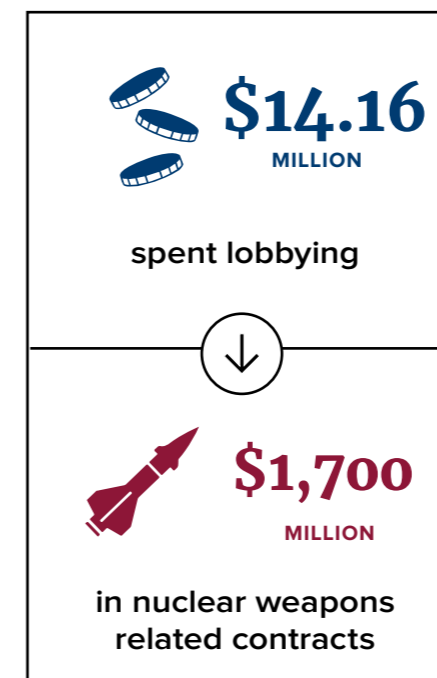
LOBBYING

Draper did not report any lobbying in the U.S., nor did any lobbyists list Draper as their client.



???

David R. Shedd, Chairman of the Board earned an undisclosed amount.



General Dynamics

Phebe N. Novakovic, Chairman and CEO of General Dynamics Corp. earned over \$23 million in 2021, an increase of nearly 18% from her 2020 compensation.¹²⁰

General Dynamics board members earn around \$300,000 per year in this role.¹²¹ Several board members have connections to the U.S. government, think tanks or are former military. These include James N. Mattis, who served as Donald Trump’s Secretary of Defence.¹²² James S. Crown lead director on the company’s board of directors, is also Chair of the Board of Trustees of the Aspen Institute¹²³, alongside Robert Steel who is Aspen’s Chairman Emeritus.¹²⁴

Another General Dynamics board member, Rudy DeLeon, after concluding his U.S. government career as deputy secretary of defence, now serves on the board of the think tank Center for American Progress and currently sits on the U.S. defence policy board.¹²⁵

Admiral Cecil Haney (Ret.), also on the GD board, used to be responsible for the U.S. nuclear arsenal in his role as Commander of USSTRATCOM. He is also currently on the board of the think tank the Center for New American Security and also serves on the John Hopkins University Applied Physics Board of Managers.¹²⁶

NUCLEAR WEAPONS

General Dynamics is responsible for integrating Trident nuclear weapons in the new U.S. Columbia-class program and the United Kingdom Dreadnought-class submarines. General Dynamics receives contracts through the U.S. contract system, but sometimes for work on UK weapons-like the \$64 million, six year contract for work on Trident.¹²⁷

CONTRACTS

General Dynamics has at least three outstanding contracts, with a total value over \$20.5 billion with the U.S. for work on the new Columbia-class submarines, including specifically designed capabilities to launch Trident missiles, bringing in about \$1.5 billion for the year.¹²⁸ The company has another \$533 million in outstanding contracts for additional Trident components, with an estimated annual earning of \$112 million.¹²⁹



\$120.05

Earned in nuclear weapon contracts for every dollar General Dynamics spent lobbying.



\$23,553,861

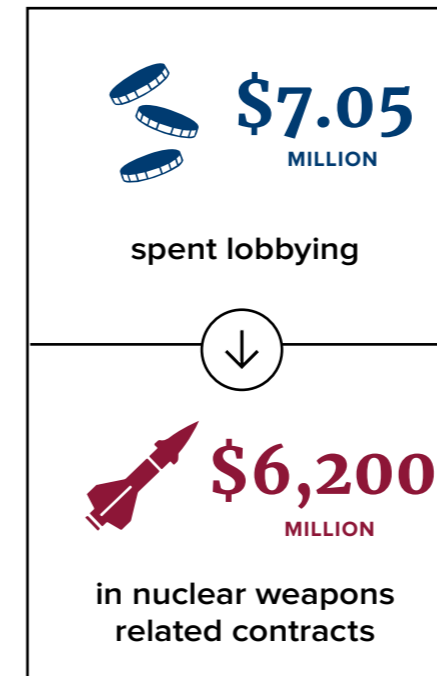
Earned by Phebe N. Novakovic, Chairman and CEO.

LOBBYING

General Dynamics spent nearly \$11 million on their own lobby activities in 2021. It hired: ACG Advocacy; Alignment Government Strategies; American Continental Group; American Defense International, Inc.; Baker Donelson Bearman Caldwell & Berkowitz /The Daschle Group; C. Baker Consulting, Incorporated; Cornerstone Government Affairs, Inc.; CT Group; CT Group (FKA CTF Global LLC); Ervin Graves Strategy Group, LLC (f/k/a Ervin Hill Strategy); FifeStrategies, LLC; Hannegan Landau Poersch & Rosenbaum Advocacy, LLC; Harbinger Strategies, LLC; Innovative Federal Strategies, LLC; Meltsner Strategies, LLC; Nelson, Mullins, Riley & Scarborough; PRASAM; Subject Matter (fka Elmendorf Ryan), and; Van Scoyoc Associates others for an additional \$3.1 million.¹³⁰



F-16 with a B61 Thermonuclear bomb. Published under CC BY-NC 2.0 license. Source: Kelly Michals via Flickr.



Honeywell International

Honeywell's Board Chairman and CEO, Darius E. Adamczyk, is also a member of the Council on Foreign Relations.¹³¹ He earned \$20,566,195 in 2021, a 12% increase of nearly \$2.5 million from his 2020 compensation.¹³²

NUCLEAR WEAPONS

Honeywell wholly owned subsidiary, Honeywell Federal Manufacturing & Technologies, operates the Kansas City National Security Campus (KCNSC). The facility is responsible for manufacturing and procuring non-nuclear components for nuclear weapons, including electronic, mechanical, and engineered material components.¹³³

Honeywell is part of the Mission Support & Test Service, LLC (MSTS) consortium that manages and operates the U.S. Nevada National Security Site. These tests are designed to "provide data relevant to improving our predictive capability and for certification of the current and future stockpile".¹³⁴ The consortium is also contracted for producing nuclear weapon "components (primary, secondary, non-nuclear)" as well as "strategic materials capabilities and productions".¹³⁵ MSTS consists of Honeywell International Inc., Jacobs Engineering Group Inc, and Huntington Ingalls International subsidiary Hill Nuclear, Inc. The consortium was awarded a 10 year contract in 2017, with a potential total value of \$9.2 billion.¹³⁶

CONTRACTS

Honeywell is connected to contacts valued at more than \$82.4 billion through its joint ventures, with an annual estimated income of around \$2.5 billion per year for the company.

In 2015 Honeywell was awarded the contract for the Kansas City National Security Campus. The 10 year contract has a potential value of \$12,504,051,222, or \$1.2 billion per year.¹³⁷ In 2017 Honeywell was part of the consortium awarded the contract for the U.S. Nevada National Security Site, with a contract valued at over \$900 million per year.¹³⁸



\$879.18

Earned in nuclear weapon contracts for every dollar Honeywell spent lobbying.



\$20,566,195

Earned by Darius Adamczyk, Chairman and CEO.

Honeywell is also part of the joint venture with an outstanding \$17 billion, 14 year contract awarded in 2008, for managing and operating the Savannah River Site and Savannah River National Laboratory which produces nuclear components for nuclear weapons, earning Honeywell an estimated \$404 million per year.¹³⁹

LOBBYING

Honeywell hired lobby firms in the U.S. for more than \$1.8 million in 2021, and reported spending at least \$5 million on their own lobbying efforts. Honeywell hired the following lobbying firms in 2021: Akin Gump Strauss Hauer & Feld; Capitol Tax Partners, LLP; Elevate Government Affairs, LLC; Guidepost Strategies, LLC; Peck Madigan Jones; The Duberstein Group Inc.; The Hobbs Group, LLC, and; Tiber Creek Group.¹⁴⁰



ICBM simulated key turn of the Minuteman III. Source: US Airforce; Photo by Christopher Ruano; ©Public Domain; (The appearance of US Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.)

Huntington Ingalls Industries

The Chairman of HII's board of directors, Kirkland H. Donald is also serving on the Submarine Advisory Committee for the government of Australia.¹⁴¹ He received \$480,530 in compensation for his work on the HII Board in 2021.¹⁴² HII President and CEO, Mike Petters, earned 16% more than in 2020, taking home \$7.7 million in 2021.¹⁴³ He also sits on the board of advisors for the Center for a New American Security.¹⁴⁴

Tracy McKibben, another board member, is also a member of the Council on Foreign Relations.¹⁴⁵ Tracy earned \$244,841 for his role on the HII board in 2021.¹⁴⁶

NUCLEAR WEAPONS

Huntington Ingalls Industries is connected to three joint ventures, involved in management and operations at U.S. nuclear weapons facilities: Los Alamos National Laboratories (via Triad National Security); the Nevada Nuclear Security Site (via Mission Support and Test Services), and; the Savannah River Site and Savannah River National Laboratory (via Savannah River Nuclear Solutions, LLC). At Los Alamos, the company provides personnel, systems, tools and corporate reachback in the areas of pit production, plutonium manufacturing, production scale-up and nuclear operations and manufacturing.¹⁴⁷

At the Nevada site, it maintains capabilities for the U.S. to conduct full-scale nuclear explosive testing.¹⁴⁸

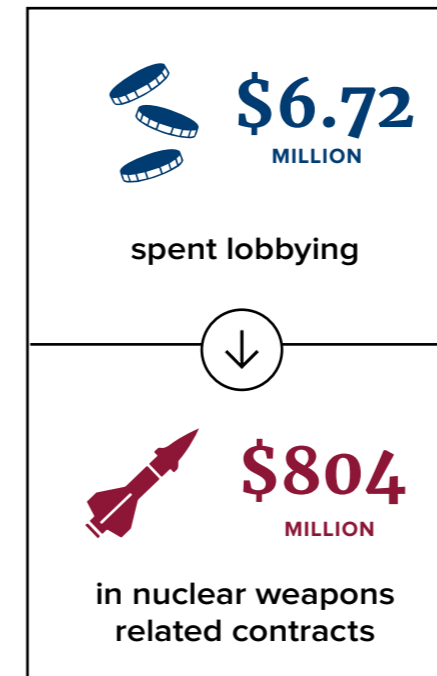
The Savannah River facilities produce nuclear components for nuclear weapons.¹⁴⁹

CONTRACTS

Huntington Ingalls Industries is subcontracted to Triad National Security, LLC, and received \$1.4 million for contracted work at Los Alamos in 2021.¹⁵⁰

Mission Support and Test Services, LLC has a 10 year, \$9 billion contract for management and operations at the Nevada National Security Site, netting Huntington Ingalls Industries an estimated \$300 million per year.¹⁵¹

HII is also part of the joint venture with an outstanding \$17 billion, 14 year contract awarded in 2008, for managing and operating the Savannah River Site and Savannah River National Laboratory which produces nuclear components for nuclear weapons, earning HII an estimated \$404 million per year.¹⁵²



\$119.70

Earned in nuclear weapon contracts for every dollar Huntington Ingalls Industries spent lobbying.



\$7,714,067

Earned by Mike Petters, President and Chief Executive Officer.

LOBBYING

Huntington Ingalls Industries hired external lobbyists for over \$2 million and spent \$4.7 million on their own lobbying efforts in 2021.¹⁵³ HII hired these lobby firms in 2021: BGR Government Affairs; Bryant Songy Snell LLC; Crossroads Strategies, LLC; Dahlberg Strategic; Federal City Strategies; Gephardt Group Government Affairs; Mr. Patrick Tucker; Squire Patton Boggs; Taft Stettinius & Hollister LLP dba Taft Advisors LLC fka (Taft, Stettinius & Hollister, LLP); The GROUP DC, LLC; The Harris Firm, and; The Livingston Group, L.L.C.¹⁵⁴



USS Delaware (SSN 791) arrives in Wilmington, Del. Source: U.S. Navy photo by Chief Petty Officer Joshua Karsten. Attribution 2.0 Generic (CC BY 2.0)

Jacobs Engineering

Steven J. Demetriou CEO, Chairman of Jacobs Engineering Group Inc. earned just over \$16 million in 2021, nearly a 9% increase from 2020.¹⁵⁵

Board member Vincent (Vince) K. Brooks is also a member of the Council on Foreign Relations, as well as a visiting Senior Fellow at Harvard Kennedy School's Belfer Center for Science and International Affairs.¹⁵⁶ Vince earned \$295,619 for his role on the Jacobs board of directors in 2021.¹⁵⁷

NUCLEAR WEAPONS

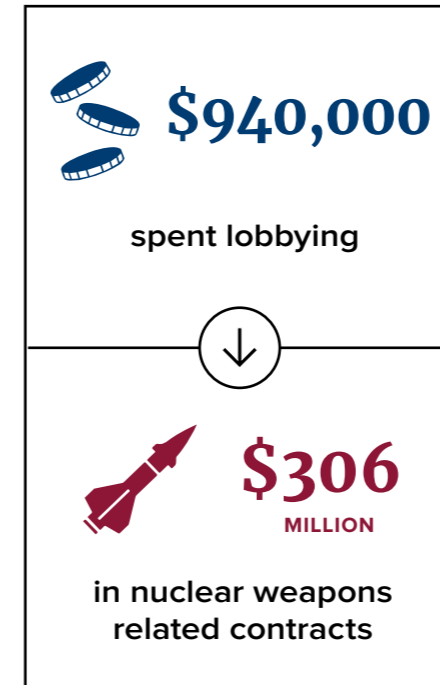
Jacobs is part of the joint venture Mission Support and Test Services, LLC a limited liability company consisting of Honeywell International Inc., Jacobs Engineering Group Inc., and Stoller Newport News Nuclear, Inc. (part of Huntington Ingalls Industries) which is contracted for management and operations at the U.S. Nevada National Security Site.¹⁵⁸ MSTs maintains capabilities for the U.S. to conduct full-scale nuclear explosive testing.¹⁵⁹

CONTRACTS

Mission Support and Test Services, LLC has a 10 year, \$9 billion contract for management and operations at the Nevada National Security Site, netting Jacobs Engineering an estimated \$300 million per year.¹⁶⁰

LOBBYING

Jacobs Engineering spent \$250,000 hiring external lobbyists, and \$690,000 on their own lobbying in 2021.¹⁶¹ Jacobs Engineering hired three firms to lobby on its behalf in 2021: Brownstein Hyatt Farber Schreck, LLP; Liebman & Associates, Inc and PRASAM.¹⁶²



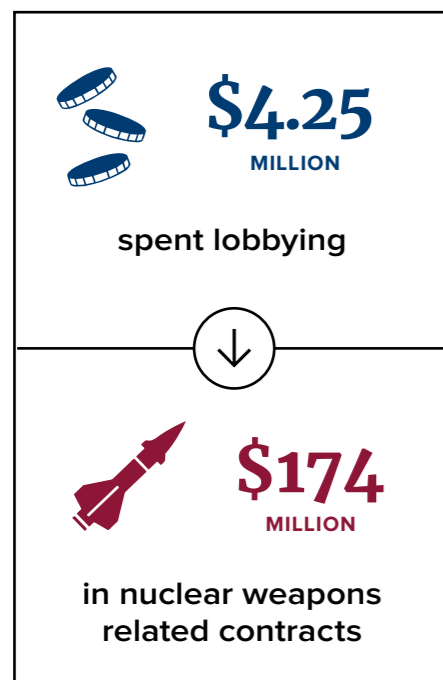
\$325.53

Earned in nuclear weapon contracts for every dollar Jacobs Engineering Industries spent lobbying.



\$16,275,230

Earned by Steve Demetriou, Chair of the Board & Chief Executive Officer.



L3 Harris Technologies

Executive leadership at L3 Harris Technologies is split between the Executive Chair, Bill Brown, and the Vice Chair and CEO, Chris Kubasik. In 2021, they both took home around \$15 million, however, for Kubasik this was almost \$2 million less than in 2020.¹⁶³

Robert B. Millard, one of the L3 Harris board members, is also a member of the Council on Foreign Relations and Chairman Emeritus of the Massachusetts Institute of Technology Corporation.¹⁶⁴ He also earned \$339,807 for his role on the L3 board of directors in 2021.¹⁶⁵

NUCLEAR WEAPONS

L3 Harris Technologies will design the training systems for the new intercontinental ballistic missile system for the U.S., the Ground Based Strategic Deterrent.¹⁶⁶

L3 Harris subsidiary Interstate Electronics Corporation produces flight test instrumentation support and services related to the Trident II (D5) nuclear missile.

CONTRACTS

L3 Harris subsidiary Interstate Electronics Corporation was awarded a new five year contract in 2021 for flight test instrumentation for the Trident II system, with an estimated value of \$53 million per year.¹⁶⁷ In 2021, the previous \$121 million per year contract was extended through October 2022.¹⁶⁸

LOBBYING

L3 Harris, and the Harris corporation spent \$335,000 hiring external lobbyists in 2021, and \$3.9 million on their own lobby efforts.¹⁶⁹ L3 Harris engaged the following firms to assist with lobbying efforts in 2021: Ivy Green Consulting; McAllister & Quinn, LLC; RM2 Consultants, Inc.; The DLM Group and; The Gaboton Group, LLC.¹⁷⁰



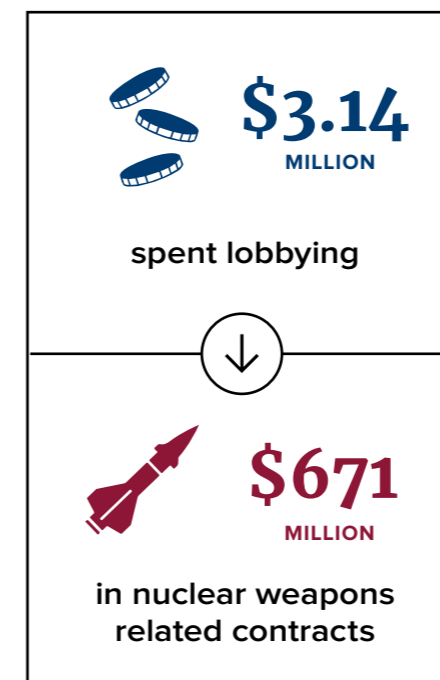
\$40.89

Earned in nuclear weapon contracts for every dollar L3 Harris spent lobbying.



\$15,697,749

Earned by William M. "Bill" Brown, Chair and Chief Executive Officer and Chris Kubasik, the Vice Chair and CEO.



Leidos

Roger Krone, Chairman and CEO of Leidos, Inc. earned \$12.8 million in 2021, half a million more than in 2020.¹⁷¹ The Board of Directors of Leidos has connections with government agencies and spending decision making. For example, Gregory Dahlberg served as Minority Staff Director of the House Appropriations Defense Subcommittee with jurisdiction over funding for all Department of Defense and intelligence agency programs.¹⁷² Dr. Miriam E. John used to work at Sandia National Laboratories (part of the U.S. nuclear weapons complex) and is a member of the Department of Defense's Defense Science Board and Threat Reduction Advisory Committee.¹⁷³ Board members earn an average of about \$300,000 per year on the Leidos board.¹⁷⁴ Newly elected board member Patrick M. Shanahan is a former Deputy Secretary of Defense and was involved in drafting the 2018 Nuclear Posture Review and 2019 Missile Defense Review for the U.S.¹⁷⁵

NUCLEAR WEAPONS

Leidos is part of the Consolidated Nuclear Security, LLC joint venture that manages and operates the Pantex Plant and the Y-12 National Security Complex where U.S. nuclear weapons are assembled.¹⁷⁶

CONTRACTS

In June 2021, the U.S. extended the contract for management and operation of the NNSA's Pantex Plant (Pantex) in Amarillo, Texas, and the Y-12 National Security Complex (Y-12) in Oak Ridge, Tennessee for at least six months, until a new contract was established. The contract is with Consolidated Nuclear Security, LLC (CNS), which is composed of Bechtel National Inc.; Leidos, Inc. (Leidos); ATK Launch Systems Inc.; and SOC LLC.¹⁷⁷ The current contract has an annual value of \$3,052,849,796.¹⁷⁸

LOBBYING

Leidos spent \$820,000 on external lobbyists in 2021, and \$2,320,000 on their own lobbying efforts.¹⁷⁹ In 2021, Leidos hired: Alpine Group Partners, LLC.; American Defense International, Inc.; Capitol Resources, LLC; Innovative Federal Strategies, LLC; Jefferson Business Consulting, LLC, and; Troutman Pepper Strategies (FKA Troutman Sanders Public Affairs Group, LLC) to lobby on its behalf.¹⁸⁰



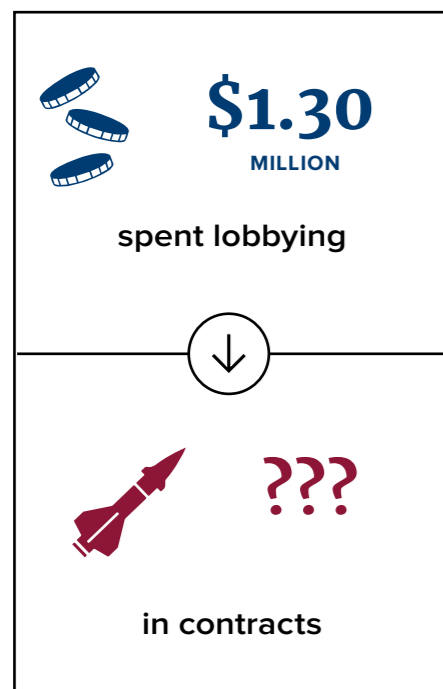
\$213.69

Earned in nuclear weapon contracts for every dollar Leidos spent lobbying.



\$12,876,007

Earned by Roger Krone, Chairman and Chief Executive Officer.



Leonardo

Leonardo's CEO Alessandro Profumo took home \$1.9 million in 2021.¹⁸¹ Leonardo Board member Carmine America, held the position of Advisor to the Minister of Foreign Affairs for International Security and Defence issues and is a member of the Councillors Program of the Atlantic Council of Washington DC.¹⁸²

NUCLEAR WEAPONS

Leonardo is significantly involved in the French nuclear arsenal through its 25% ownership of MBDA.¹⁸³ MBDA is the prime contractor for the ASMPA missile, which carries the next generation nuclear missile (TNA (tête nucléaire aéroportée)).¹⁸⁴

CONTRACTS

The 2021 French defence budget allocated around €315 million in 2021 to ensure technical credibility of the M51 nuclear weapon systems, to which Leonardo contributes as part of MBDA. This figure however, does not include testing or simulations, deployment costs, or other nuclear weapons related operations. The French defence budget does not disclose the percentage of funds which are contracted to MBDA, but does identify them as primary contractors for nuclear weapons related work.¹⁸⁵

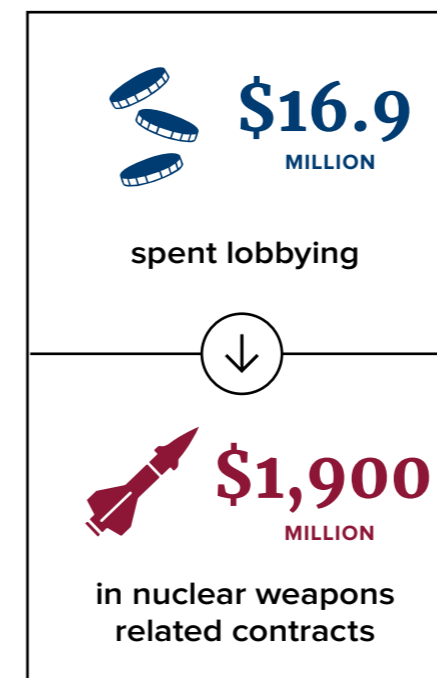
LOBBYING

Leonardo spent \$780,000 lobbying on their own behalf and hired lobbyists for \$455,000 in the U.S. in 2021.¹⁸⁶ MBDA, of which Leonardo holds 25% ownership, also spent €250,000 lobbying in France in 2021.¹⁸⁷ Leonardo hired Ballard Partners; FifeStrategies, LLC; O'Brien, Gentry & Scott, LLC; PRASAM, and; Stapleton & Associates, LLC. for lobby work in the U.S. in 2021.¹⁸⁸



\$1,958,073

Earned by Alessandro Profumo, Chief Executive Officer.



Lockheed Martin

Lockheed Martin's executive suite earned less in 2021 than in 2020. James D. Taiclet, the CEO took an almost 30% cut, taking home \$18 million as opposed to the \$23 million he took home during the first year of the pandemic.¹⁸⁹ Several Lockheed Martin Board members have connections with government and the U.S. military, including Retired U.S. Marine Corps General Joseph F. Dunford, Jr., who served as the 19th Chairman of the Joint Chiefs of Staff from 2015 until his retirement in September 2019. Similarly, James O. Ellis, Jr., was a former commander of U.S. STRATCOM - responsible for using U.S. nuclear weapons and Jeh C. Johnson is former General Counsel of the U.S. Department of Defense.¹⁹⁰ Thomas J. Falk is also on the board of directors of the Bipartisan Policy Center, and CEO James D. Taiclet is also a member of the Council on Foreign Relations.¹⁹¹

NUCLEAR WEAPONS

Lockheed Martin is a key contractor for components related to the U.S. ICBM Minuteman III system, including as the main producer of Minuteman III reentry systems¹⁹², and producer of the Airborne Launch Control System Replacement.¹⁹³ Lockheed Martin is also responsible for the construction of the Trident II (D5) nuclear missiles for both the UK and the U.S.¹⁹⁴ The U.S. Navy is also planning to use the Lockheed Martin C-130J-30 Hercules aircraft for nuclear weapons command and communications, specifically in a Take Charge And Move Out (TACAMO) role.¹⁹⁵

CONTRACTS

Lockheed Martin is currently involved in 16 contracts related to nuclear weapons work, with an estimated annual value of \$1.9 billion. In 2021 Lockheed Martin was awarded four new multi-year contracts, all of which were related to work on the Trident II system, with a total potential value of \$1.5 billion over their lifetimes. There are four outstanding contracts related to work on the Minuteman III ICBM system. A five year, \$94 million contract awarded in 2017¹⁹⁶; a five year \$2.9 billion contract awarded in 2018¹⁹⁷; a nine year contract awarded in 2019 valued at \$468 million¹⁹⁸, and; a three year \$240 million contract also awarded in 2019.¹⁹⁹ While these underwent modifications in 2021 (including increases in potential total value), there were no new contracts awarded for the Minuteman III system. Trident related contracts were a different story. Trident



\$112.69

Earned in nuclear weapon contracts for every dollar Lockheed Martin spent lobbying.



\$18,111,211

Earned by James D. Taiclet, Chairman, President & CEO.

contracts are uniquely formed, as sometimes the contract is made between the U.S. government and Lockheed Martin, but with a stipulation that none of the funds will come from the U.S. and instead will come directly from the UK. It is unclear what the UK provides to the U.S. to conduct these various contract negotiations on its behalf, and to what extent those actions could be construed as facilitating sales of nuclear weapons technology.

Lockheed Martin is currently connected to 12 Trident related contracts, with a total potential value of \$6.4 billion. Some contracts are expected to continue through at least 2028. Four of these were new contracts issued in 2021: a five year contract valued at \$129 million²⁰⁰; a six year contract valued at \$231 million²⁰¹; a five year contract valued at \$1.1 billion²⁰², and; a six month contract valued at \$22.8 million.

LOBBYING

Lockheed Martin spent \$16.9 million lobbying in 2021. Of that, \$2.6 million was spent hiring external lobbyists, and \$14.3 million was spent lobbying on its own behalf.²⁰³ Lockheed Martin hired the following firms to lobby on its behalf in the U.S. in 2021: Baker Donelson Bearman Caldwell & Berkowitz /The Daschle Group; Ballard Spahr LLP; Brachman, Marshall; Capitol Counsel LLC; Carmen Group Incorporated; Etherton and Associates, Inc.; Flagship Government Relations, Inc.; Hannegan Landau Poersch & Rosenbaum Advocacy, LLC; Holly Strategies Incorporated; Meeks, Butera & Israel PLLC; Mr. Mark Rey; Mr. Marshall Brachman; Plurus Strategies, LLC; Public Strategies Washington, Inc.; The McKeon Group, Inc.; The Group DC, LLC; Van Scoyoc Associates, and; Venable LLP.²⁰⁴



Squadron weapons load team. Source: US Airforce; ©Public Domain; (The appearance of US Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.)

Northrop Grumman

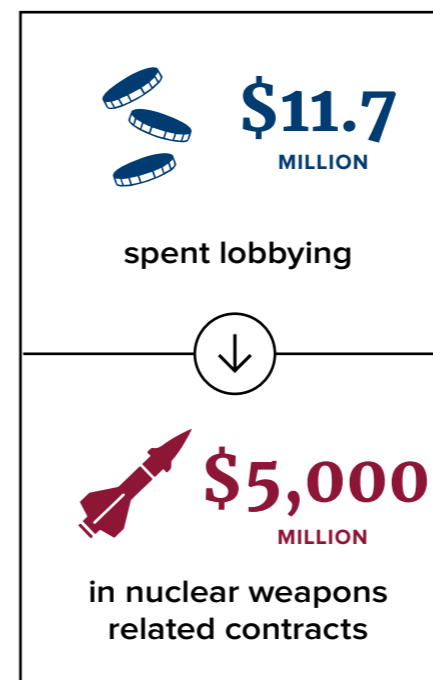
Northrop's President and CEO, Kathy J. Warden earned \$19,876,767 in 2021, almost a million less than in 2020.²⁰⁵ Board member David Abney is a member of the World Affairs Council of Atlanta, a non-profit group in Atlanta that convenes discussion on a range of international issues.²⁰⁶ Ann Marie Fudge, another board member, is a senior trustee of the Brookings Institution.²⁰⁷ Admiral (ret) Gary Roughead serves on the Board of Managers of the Johns Hopkins University Applied Physics Laboratory²⁰⁸, an institution with direct connections to nuclear weapon production. Gen. Mark A. Welsh III (U.S. Air Force retired) is the dean of the Bush School of Government and Public Service at Texas A&M University.²⁰⁹ Texas A&M is part of the joint venture that manages the Los Alamos nuclear weapons laboratory for the U.S.²¹⁰

As an illustration of the rather small circles these nuclear industry board members travel in, it is worth noting that two of the directors, Thomas Schoewe and Madeleine A. Kleiner, both serve on the board of the Ladies Professional Golf Association.²¹¹

NUCLEAR WEAPONS

Northrop Grumman's biggest nuclear weapons project is the Ground Based Strategic Deterrent, the new intercontinental ballistic nuclear weapons system the U.S. is building.²¹² Northrop Grumman produces propulsion systems for the Trident II (D5) missiles as well as holding several outstanding contracts related to the Minuteman III nuclear weapons system, including through the companies it's previously acquired including Orbital ATK and ATK Launch systems.²¹³ Northrop Grumman is building the fixed wing on the U.S. B61-12 gravity bomb.²¹⁴

Northrop Grumman is also contractually involved in several nuclear weapons laboratories and production facilities. The Northrop Grumman subsidiary ATK Launch Systems is part of the Consolidated Nuclear Security, LLC joint venture that manages and operates the Pantex Plant and the Y-12 National Security Complex where U.S. nuclear weapons are assembled.²¹⁵ The company also supports operations at the Sandia National Laboratory, which is directly involved in the nuclear weapon modernisation programmes of at least the W88 Alt 37 warhead and the W76-1 warhead (both used for arming the submarine launched Trident II (D5) missiles), the new W80-4 warheads for the Long Range Standoff missiles, and the new B61-12 gravity bomb.²¹⁶



\$429.07

Earned in nuclear weapon contracts for every dollar Northrop Grumman spent lobbying.



\$19,876,767

Earned by Kathy J. Warden, Chairman, Chief Executive Officer and President.

CONTRACTS

Overall, Northrop Grumman earns an estimated \$5 billion per year to produce key components of nuclear weapons for the U.S. and UK through its involvement in at least 13 different contracts.

In June 2021, the U.S. extended the contract for management and operation of the NNSA’s Pantex Plant (Pantex) in Amarillo, Texas, and the Y-12 National Security Complex (Y-12) in Oak Ridge, Tennessee for at least six months, until a new contract was established. The contract is with Consolidated Nuclear Security, LLC (CNS), which is composed of Bechtel National Inc.; Leidos, Inc. (Leidos); ATK Launch Systems Inc.; and SOC LLC.²¹⁷ ATK Launch Systems is a subsidiary of Northrop Grumman.²¹⁸ The current contract has an annual value of \$3,052,849,796, it is not clear what percentage of that is allocated to Northrop.²¹⁹

Northrop Grumman was awarded three new contracts in 2021 for work on the Minuteman III system, with an anticipated total value of more than \$23 billion, and an annual payment to the company of around \$2.9 billion.²²⁰

The company also has outstanding contracts related to the Minuteman system, with an estimated annual value of \$255 million.²²¹

There were no other new awards to the company in 2021, but Northrop is still involved in outstanding contracts related to the Ground Based Strategic Deterrent (an annual value of about \$1.6 billion)²²², Trident work earns the company (with some costs paid by the UK government) about \$192 million a year²²³ and, \$15 million a year for work on the B61 bomb²²⁴

LOBBYING

Northrop Grumman hired lobbyists in the U.S. for more than \$1.3 million in 2021. They also spent more than \$10.3 million on their own lobbying efforts.²²⁵ Northrop Grumman hired the following lobby firms: 535 Group, LLC; Covington & Burling LLP; Ervin Graves Strategy Group, LLC (f/k/a Ervin Hill Strategy); Etherton and Associates, Inc.; FTI Government Affairs; GDR Strategies; Innovative Federal Strategies, LLC; Kadesh & Associates, LLC; Reston Strategy Group, LLC; The Duberstein Group Inc., and; Van Scoyoc Associates.²²⁶

Peraton Inc.

Peraton Inc is a private company, not publicly traded, therefore it is not required to disclose its CEO Stu Shea’s salary. It does not publish its board of directors, but instead lists an advisory board composed of five former U.S. military or intelligence individuals.²²⁷

NUCLEAR WEAPONS

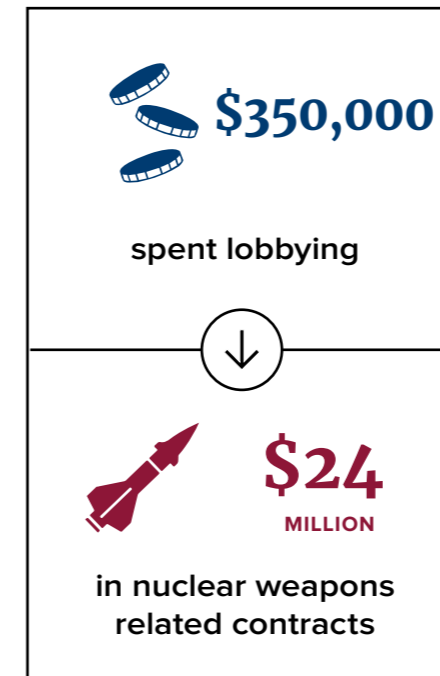
Peraton is providing Nuclear Safety Cross-Check Analysis (NSCCA) and Nuclear Safety Analysis and Technical Evaluation (NSATE) support for the Minuteman III system.²²⁸ It is also working on the re-entry system for the Trident II missiles.²²⁹

CONTRACTS

Peraton was awarded one new contract and has an outstanding contract for nuclear weapons related work in 2021, earning an estimated \$24.3 million for the year. The new contract was for 18 years with a total estimated value of \$360 million for Minuteman III work.²³⁰ The other Trident related contract was awarded in 2020 with a total lifetime estimated cost of \$17 million.²³¹

LOBBYING

Peraton didn’t register any of their own lobbying expenses in 2021, but did hire ACG ADvocacy, Crossroads Strategies, LLC, Ferox Strategies, and Van Scoyoc Associates for \$350,000 to lobby on their behalf.²³²



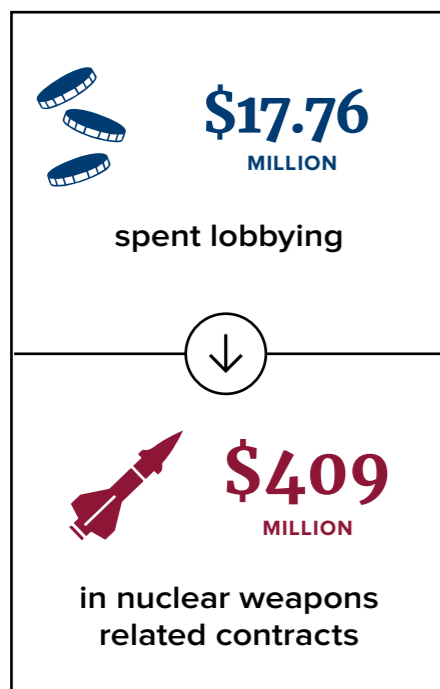
\$68.57

Earned in nuclear weapon contracts for every dollar Peraton Inc. spent lobbying.



???

Stu Shea, CEO, earned an undisclosed amount.



Raytheon Technologies Corporation

Raytheon's CEO, Gregory J. Hayes earned \$3 million more in 2021 than he did in 2020, taking home \$21.8 million.²³³ Raytheon board member Tracy Atkinson was previously a Vice President at State Street Corporation, one of the largest investors in Raytheon Technologies.²³⁴

Raytheon board member Meghan O'Sullivan is on the board of directors of the Council on Foreign Relations, and a member of the Aspen Strategy Group. She has other connections in the foreign policy field, serving as the Jeane Kirkpatrick Professor of the Practice of International Affairs and the director of the Geopolitics of Energy Project at the Harvard University Kennedy School.²³⁵

Fredric G. Reynolds is a member of the Raytheon Technologies Board of Directors who is also a former executive vice president and chief financial officer of CBS Corporation and was president and chief executive officer of Viacom Television Stations Group.²³⁶

Admiral (ret.) James Winnefled Jr has direct experience with nuclear weapons operations, having served as commander of NORAD, the North American Aerospace Defense Command.²³⁷

Robert O. Work, another board member, also has former government and think tank ties. He was a U.S. Deputy Secretary of Defense and is the Distinguished Senior Fellow for Defense and National Security at the Center for a New American Security and is a member of the International Institute for Strategic Studies (IISS).²³⁸

NUCLEAR WEAPONS

Raytheon Technologies is building the replacement system for the AGM-86 air-launched cruise missile (ALCM) which had previously been built by Boeing for the B-52H Stratofortress bomber.²³⁹

Raytheon subsidiary Collins Aerospace is building the secondary launch platform for the new U.S. Ground Based Strategic Deterrent which is also supposed to integrate with the existing Minuteman III system.²⁴⁰

Raytheon also does the logistic support, installation, and sustainment of Minuteman MEECN (Minimum Essential Emergency Communication Network) programme and the Minuteman MEECN programme upgrade.²⁴¹

CONTRACTS

Raytheon earns at least \$409 million per year from nuclear weapon related contracts. These include a new five year, \$2 billion contract issued in 2021 for the Long Range Standoff weapon, and an outstanding 8-year, \$73 million contract issued in 2013.²⁴² Raytheon's subsidiary is also involved in the Ground Based Strategic Deterrent, but the amount is unclear.²⁴³

LOBBYING

Raytheon spent \$2.4 million on external lobbyists in 2021, and \$15.3 million on their own lobbying efforts.²⁴⁴ Raytheon hired Akin Gump Strauss Hauer & Feld; American Defense International, Inc.; Atlantic Strategies Group; BGR Government Affairs; C. Baker Consulting, Incorporated; Crossroads Strategies, LLC; DLA Piper LLP (US); Etherton and Associates, Inc.; Holland & Knight LLP; Innovative Federal Strategies, LLC; Invariant LLC; J.A. Green and Company (formerly LLC); Republic Consulting, LLC; S-3 Group; Thorn Run Partners, and; Vantageknight, INC. to lobby on their behalf in 2021.²⁴⁵



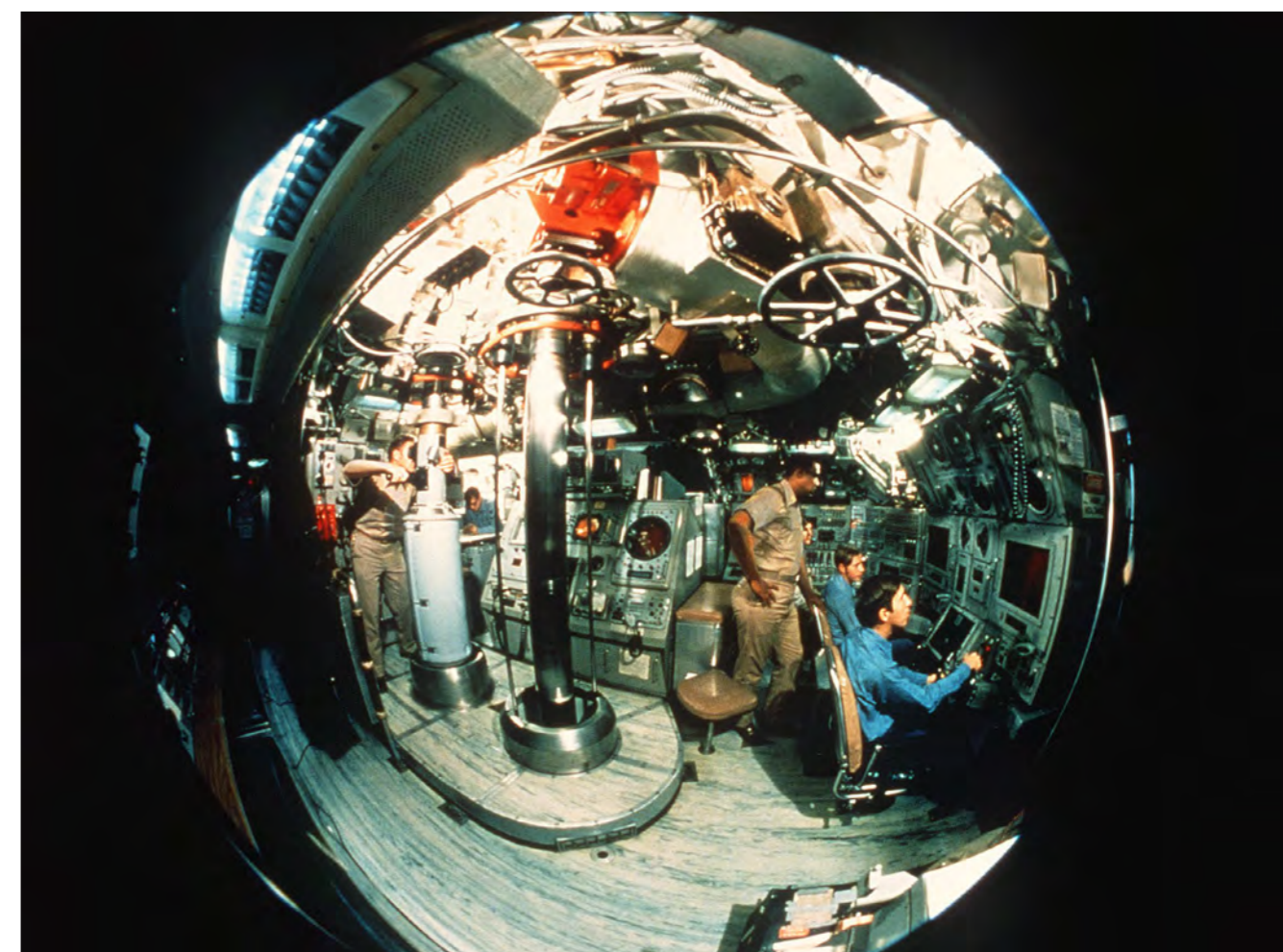
\$23.03

Earned in nuclear weapon contracts for every dollar Raytheon spent lobbying.

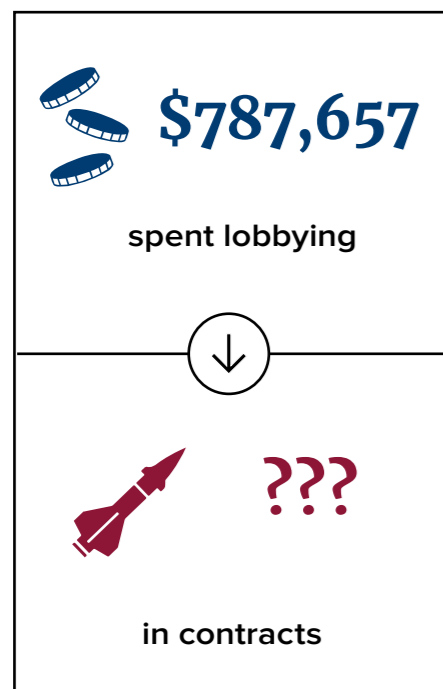


\$21,842,000

Earned by Gregory J. Hayes, Chief Executive Officer.



A wide-angle view of the control center on the nuclear-powered fleet ballistic missile submarine USS GEORGIA (SSBN-729) as seen through a fish-eye lens. Source: US Department of Defense via archives.gov; unrestricted use.



Safran

Safran owns 50% of ArianeGroup, which has contracts for French nuclear weapon production.²⁴⁶ Safran CEO, Oliver Andriès formerly held a position in the French Ministry of Finance in which he oversaw major state-owned aerospace and defence companies.²⁴⁷ He earned just over €1 million in 2021 (€1,002,222), about one third less than his predecessor Philippe Petitcolin earned in 2020.²⁴⁸ The Chair of the Safran board of directors, Ross McInnes is a Trustee of the International Financial Reporting Standards Foundation (IFRS Foundation) which seeks to establish global accounting and sustainability disclosure standards. He also has numerous ties with the French government including as a former special representative for the Foreign Ministry.²⁴⁹

Jean-Lou Chameau, another board member, is also the President Emeritus of the California Institute of Technology (Caltech).²⁵⁰ Whereas, Vincent Imbert, another board member, started his career at the French Directorate General of Weapons Procurement (DGA) eventually becoming Inspector General of the Weaponry Division of the French Armed Forces.²⁵¹

NUCLEAR WEAPONS

ArianeGroup is the prime contractor for the French M51 nuclear missiles. These are missiles with intercontinental capabilities, multiple warheads, carried on nuclear powered ballistic missile submarines. There are two variations of the missile, with a third in development since 2014.²⁵² ArianeGroup describes its role in M51 production as “upstream research, design, development and production of the missiles, the land-based operating infrastructure and the command and control system on board the submarines”.²⁵³ Safran’s subsidiary Safran Ceramics is involved in the design, development, manufacture and sale of solid propulsion systems and related equipment for all types of rockets and tactical and cruise missiles for air, sea and ground forces through a joint venture with MBDA called Roxel. Roxel is also involved in ASMP/ ASMP-A missile production, providing boosters and additional devices.²⁵⁴



???

Earned in nuclear weapon contracts for every dollar Safran spent lobbying.



\$1,042,460

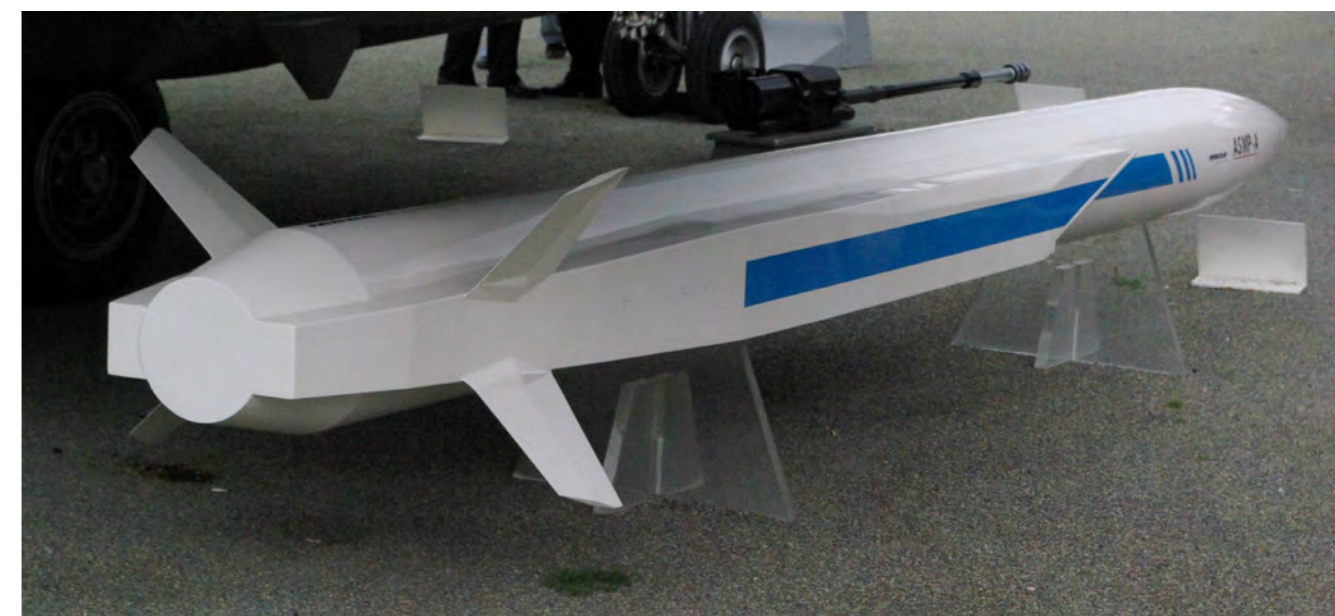
Earned by Oliver Andriès, CEO.

CONTRACTS

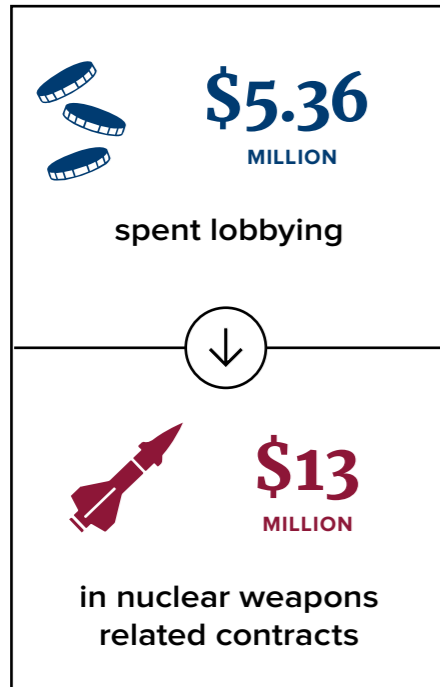
The 2021 French defence budget allocated around €315 million in 2021 to ensure technical credibility of the M51 and ASMPA nuclear weapon systems. This figure however, does not include testing or simulations, deployment costs, or other nuclear weapons related operations. The French defence budget does not disclose the percentage of funds which are contracted to MBDA and ArianeGroup, but does identify them as primary contractors for nuclear weapons related work.²⁵⁵ According to the French 2021 defence budget, delivery of the M51.1 version is complete, and 2021 funding is for development and production of the new version, the M51.3, it does not disclose how much of that goes to ArianeGroup.²⁵⁶ The French defence budget commits €112.9 million for the ASMPA air launched nuclear missile in 2021, but does not disclose how much of that will go to MBDA or subsidiaries.²⁵⁷

LOBBYING

Safran registered lobby activity in both the US and France, and spent an estimated \$787,657 between the two. In the U.S., they spent \$400,000 on their own lobby efforts and hired Baker, Donelson, Bearman, Caldwell & Berkowitz (The Daschle Group) for \$120,000.²⁵⁸ In France, Safran was one of the many clients of GICAN, Groupe Industrie Materiel Defense Terres, Le Cercle De L’Arbalete, France Industrie and France Invest. When divided among all their clients, Safran’s estimated contribution to their lobbying expenditures was around \$7,000. Safran also spent an additional \$260,285 on their own lobbying efforts in the country.²⁵⁹



ASMP-A mock-up at the Paris Air Show, 2007. Source: User: Thomas Boucajay, CC BY 3.0 <<https://creativecommons.org/licenses/by/3.0>>, via Wikimedia Commons.



Textron

Textron CEO Scott C. Donnelly earned \$18.5 million in 2021, an increase of more than \$800,000 from 2020.²⁶⁰ Board member Deborah Lee James is the retired 23rd Secretary of the United States Air Force.²⁶¹ Another board member, Maria T. Zuber is the Vice President for Research and the E.A. Griswold Professor of Geophysics at the Massachusetts Institute of Technology and also serves as co-chair of the President’s Council of Advisors on Science and Technology.²⁶²

NUCLEAR WEAPONS

Textron is building several components for the U.S. Minuteman III missile system, including multiprobe antennas and the missile midsections.²⁶³ Textron is also involved in the missile payload integration project for the Ground Based Strategic Deterrent.²⁶⁴

CONTRACTS

Textron has not been awarded new nuclear weapon related contracts since 2014. However, it is still involved in two multi-year contracts for Minuteman III components, with an estimated combined value of \$106 million. The missile mid-section contract earns around \$4.4 million a year for Textron, and the antenna contract brings in an additional \$8.2 million per year for the company.²⁶⁵

LOBBYING

Textron spent \$5.3 million in lobbying in the U.S. in 2021. Of that, \$750,000 was spent hiring external lobbyists, and the rest was spent on their own behalf.²⁶⁶ Textron hired the following lobbyists in 2021: ACG Advocacy; American Defense International, Inc.; BGR Government Affairs; Covington & Burling LLP; Forza DC Strategies, LLC, and; S-3 Group.²⁶⁷



\$2.35

Earned in nuclear weapon contracts for every dollar Textron spent lobbying.



\$18,576,014

Earned by Scott C. Donnelly, Chairman, President and Chief Executive Officer.



U.S. B-52 bomber. Source: US Airforce; Photo by Benjamin Sutton; ©Public Domain; (The appearance of US Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.)

Think Tanks

INTRODUCTION

Companies that produce nuclear weapons spend millions of dollars each year to support most of the top think tanks that research and write about nuclear weapons. While not all think tanks disclose their funding, according to the most recent reports available, the twelve think tanks featured here accepted between \$5.5 million and at least \$9.8 million in one year from companies producing nuclear weapons. This represents an inflation-adjusted overall decrease of between \$282,000 and \$839,300 from past year funding. Many also have current or former executives or board members from these companies sitting on advisory boards or serving on their board of directors. These think tanks must stop accepting money from companies with vested interests in maintaining and building more weapons of mass destruction. In the meantime, readers of these think tank reports should question if their policy recommendations or research topics are influenced by their funders.

Atlantic Council	\$590,000 - \$1,284,992
Brookings Institution	\$575,000 - \$1,149,997
Carnegie Endowment for International Peace	\$25,000 - \$99,999
Center for New American Security (CNAS)	\$1,260,000 - \$2,274,988
Center for Strategic and International Studies (CSIS)	\$1,245,000 - \$2,134,991
Fondation pour la recherche stratégique (FRS)	amount not specified
French Institute of International Relations (IFRI)	amount not specified
Hudson Institute	\$240,000 - \$300,000
International Institute of Strategic Studies (IISS)	\$757,909 - \$997,245
Observer Research Foundation (ORF)	\$156,109
Royal United Services Institute (RUSI)	\$602,476 - \$1,416,763
Stimson Center	\$25,000

Atlantic Council | \$590,000 - \$1,284,992

The Atlantic Council is an American think tank. One of its featured issues of study is nuclear deterrence.²⁶⁸

According to the Atlantic Council's 2021 Annual Report, in 2020, the Atlantic Council received between \$590,000 - \$1,284,992 from eight companies that produce nuclear weapons: Airbus, Boeing, Lockheed Martin, MBDA, Northrop Grumman, Raytheon Technologies, Safran and Textron.²⁶⁹ Additionally, the Atlantic Council received between \$50,000 - \$99,999 from a national laboratory working on nuclear weapons, Los Alamos National Laboratory. In correspondence with ICAN in reference to last year's report, The Atlantic Council stated that the overwhelming majority of this funding is not to support work on nuclear weapons or nuclear strategy.

This represents an inflation-adjusted decrease of between \$305,886 and \$562,444 from past year funding.²⁷⁰ The Atlantic Council no longer reported funding from BAE Systems, General Dynamics, or Huntington Ingalls Industries, reported increased funding from Northrop Grumman, decreased funding from Boeing, Lockheed Martin, Raytheon Technologies and Safran and constant funding from MBDA, Textron and Los Alamos National Laboratory.

In addition, the CEOs of two companies that produce nuclear weapons sit on the Advisory Board of the Atlantic Council: Guillaume Faury, CEO of Airbus and Gregory J. Hayes, Chairman and CEO of Raytheon Technologies.

- **Airbus**
\$250,000 - \$499,999
- **Boeing**
\$5,000 - \$9,999
- **Lockheed Martin**
\$50,000 - \$99,999
- **MBDA**
\$25,000 - \$49,999
- **Northrop Grumman**
\$100,000 - \$249,999
- **Raytheon Technologies**
\$100,000 - \$249,999
- **Safran**
\$10,000 - \$24,999
- **Textron**
\$50,000 - \$99,999
- **Los Alamos National Laboratory**
\$50,000 - \$99,999*

*Not included in total



A trident II D-5 ballistic missile is launched from the Ohio-class ballistic missile submarine USS Kentucky. Source: U.S. Navy, Public domain, via Wikimedia Commons.

Brookings Institution | \$575,000 - \$1,149,997

→ **Leonardo**
\$50,000 - 99,999

→ **Lockheed Martin**
\$25,000 - \$49,999

→ **Northrop Grumman**
\$500,000 - \$999,999

The Brookings Institution is an American think tank. One of the projects of the foreign policy wing of the think tank is the Arms Control and Nonproliferation Initiative, which “addresses global arms control and proliferation challenges, as well as the central negotiations between the United States and Russia.”²⁷¹

According to the Brookings Institution’s 2021 Annual Report, from July 2020 - June 2021, the Brookings Institution received between \$575,000 and \$1,149,997 from three companies that produce nuclear weapons: Leonardo, Lockheed Martin and Northrop Grumman.²⁷²

This represents an inflation-adjusted increase of between \$287,075 and \$574,149 from past year funding. The Brookings Institution reported a new funder, Leonardo, and constant funding from Lockheed Martin and Northrop Grumman.

Carnegie Endowment for International Peace | \$25,000 - \$99,999

The Carnegie Endowment for International Peace is an American think tank with a global network of experts, including centres in Beirut, Brussels, and New Delhi. One of Carnegie’s programs is the Nuclear Policy Program, which “spans deterrence, disarmament, nonproliferation, nuclear security, and nuclear energy.”²⁷³ The program organises a regular International Nuclear Policy Conference.²⁷⁴

According to the Carnegie Endowment’s 2021 Annual Report, from July 2020 - June 2021, Carnegie received between \$25,000 and \$99,999 from one company that produces nuclear weapons: Northrop Grumman.²⁷⁵ Northrop Grumman’s funding contributed to two programs at Carnegie: the Corporate Circle and the Europe Program, but not to the Nuclear Policy Program. As indicated in the Annual Report and affirmed in a comment to ICAN, the Carnegie Nuclear Policy Program has no funding from companies involved in nuclear weapons production.

This represents an inflation-adjusted decrease of between \$27,350 and \$109,399 from past year funding. The Carnegie Endowment no longer reported receiving funding from Boeing and reported constant funding from Northrop Grumman.

→ **Northrop Grumman**
\$25,000 - \$99,999

Center for New American Security (CNAS) | \$1,260,000 - \$2,274,988

→ **BAE Systems**
\$50,000 - \$99,999

→ **Boeing**
\$50,000 - \$99,999

→ **General Dynamics**
\$25,000 - \$49,999

→ **Honeywell**
\$100,000 - \$249,999

→ **Huntington Ingalls Industries**
\$100,000 - \$249,999

→ **L3 Harris Technologies**
\$25,000 - \$49,999

→ **Leidos**
\$100,000 - \$249,999

→ **Leonardo**
\$100,000 - \$249,999

→ **Lockheed Martin**
\$50,000 - \$99,999

→ **Northrop Grumman**
\$500,000 and above

→ **Raytheon**
\$100,000 - \$249,999

→ **Textron**
\$60,000 - \$124,998

The Center for New American Security is an American think tank. It does not have a specific program on nuclear weapons, but does regularly produce reports, writes articles and provides media interviews on the subject, including on nuclear weapon diplomacy with Iran and on North Korea’s nuclear program.²⁷⁶

According to the CNAS website, from October 2020 - September 2021 CNAS received between \$1,260,000 and at least \$2,274,988 from twelve companies that produce nuclear weapons: BAE Systems, Boeing, General Dynamics, Honeywell, Huntington Ingalls Industries, L3 Harris Technologies, Leidos, Leonardo, Lockheed Martin, Northrop Grumman, Raytheon Technologies and Textron.²⁷⁷

This represents an inflation-adjusted increase of between \$124,005 and \$311,872 from past year funding. CNAS reported two new funders: General Dynamics and Honeywell, reported increased funding from Boeing, Raytheon Technologies and Textron, decreased funding from L3 Harris and Lockheed Martin and constant funding from BAE Systems, Huntington Ingalls Industries, Leidos, Leonardo and Northrop Grumman.

In addition, executives at three companies that produce nuclear weapons sit on the CNAS Board of Advisors: Roger Krone, Chairman and Chief Executive Officer of Leidos; William J. Lynn III, Chief Executive Officer of Leonardo DRS and Leonardo North America; Sally Sullivan, Vice President of Global Public Policy of Raytheon Technologies; and Mike Petters, President and CEO of Huntington Ingalls Industries.²⁷⁸ On CNAS’ Board of Directors sits Richard J. Danzig, Senior Advisor at Johns Hopkins Applied Physics Laboratory, which conducts nuclear weapons research for the Department of Defense, and Admiral Cecil Haney, USN (Ret.), Former Commander of US STRATCOM, the military agency that oversees U.S. nuclear weapon deployments, and a board member of General Dynamics.²⁷⁹

Center for Strategic and International Studies (CSIS) | \$1,245,000 - \$2,595,997

The Center for Strategic and International Studies (CSIS) is an American think tank. Within its International Security Program, CSIS has a Project on Nuclear Issues, a network for “next generation professionals prepared to meet the nuclear challenges of the future.”²⁸⁰ “Weapons of mass destruction proliferation” is a key topic of research within the International Security Program.²⁸¹

According to its website, in FY2020, CSIS received between \$1,245,000 and at least \$2,595,997 from ten companies producing nuclear weapons: BAE Systems, Bechtel, Boeing, General Dynamics, Huntington Ingalls Industries, Jacobs Engineering, Leonardo, Lockheed Martin, Northrop Grumman and Raytheon Technologies.²⁸²

All funders but two contributed to the National Security/International Security Policy programs. BAE Systems contributed to the following program areas: General; Economics and Trade; Development, Global Health, and Food Security; and Regional Studies. Jacobs Engineering contributed to the Executive Education program.

This represents an inflation adjusted decrease of between \$572,078 and \$1,300,751. CSIS reported increased funding from Leonardo, decreased funding from BAE Systems and Raytheon Technologies and constant funding from Bechtel, Boeing, General Dynamics, Huntington Ingalls, Lockheed Martin, Northrop Grumman. CSIS no longer received funding from Airbus or L3 Harris.

Two current and one former CEO of companies that produce nuclear weapons sit on the CSIS Board of Trustees: Brendan Bechtel, Chairman and CEO, Bechtel Group, Inc.; W. James McNerney Jr., Former Chairman, The Boeing Company; and Phebe N. Novakovic Chairman and CEO, General Dynamics.

→	BAE Systems \$35,000 - \$64,999
→	Bechtel \$100,000 - \$199,000
→	Boeing \$100,000 - \$199,999
→	General Dynamics \$100,000 - \$199,000
→	Huntington Ingalls Industries \$100,000 - \$199,000
→	Jacobs Engineering \$5,000 - \$34,999
→	Leonardo \$5,000 - \$34,999
→	Lockheed Martin \$200,000 - \$499,999
→	Northrop Grumman \$500,000 and up
→	Raytheon Technologies \$100,000 - \$199,999



UK Vanguard class submarine 2. Copyright: UK Crown Copyright, public sector information licensed under the Open Government Licence v3.0.

Fondation pour la recherche stratégique (FRS)

The Fondation pour la recherche stratégique (FRS) is a French think tank. One of its areas of focus is “Deterrence/Disarmament” and it regularly publishes on nuclear weapons.²⁸³ FRS does not publicly list all of its funders or the amount that they contribute, but its website does state that one of its partners is the Atomic Energy Commission which, “provides defence and security-related services in various fields, including nuclear warheads for airborne and seaborne deterrent devices, nuclear reactors and cores for submarine and aircraft carrier propulsion, and the fight against nuclear proliferation and terrorism.”²⁸⁴

In addition, three executives at companies that produce nuclear weapons sit on the FRS board: Hervé de Bonnaventure, Defense Advisor, MBDA; William Kurtz, military adviser, Safran; and Xavier Paitard, Defense Advisor for Strategy and Public Affairs, Airbus Group.²⁸⁵



United States Trident II (D-5) missile underwater launch. Source: unknown author, Public domain, via Wikimedia Commons.

French Institute of International Relations (IFRI)

The French Institute of International Relations (IFRI) is a French think tank. One of the research areas within the Security Studies Center is Deterrence and Proliferation which “intends to stimulate public debate and to further our understanding of the complexity of the nuclear issue in all its dimensions: technical, regional, diplomatic and budgetary” and “publishes and circulates reports and analyses on: nuclear postures, strategies and capabilities; multilateral efforts to reduce arsenals and strengthen the non-proliferation regime; and on the development of strategic capabilities closely related to deterrence missions (conventional prompt strategic strikes and ballistic missile defense systems).”²⁸⁶

IFRI does not publicly list its funders or the amount they contribute, but in its 2020 Annual Report, it does list two companies that produce nuclear weapons as corporate partners: Airbus and MBDA.²⁸⁷ In correspondence with ICAN, IFRI clarified that “neither of them are currently (or were in 2021) funding our ‘Deterrence and Proliferation’ activities” but that “Only ArianeGroup, CEA/DAM and DGRIS (part of our ministry of Armed Forces) are financially supporting our

‘Deterrence and Proliferation’ activities.”²⁸⁸ ArianeGroup is the prime contractor for the French M51 nuclear missiles. The Annual Report notes that private contributions, from companies, embassies, organisations, and individuals, account for 70% of IFRI’s resources. IFRI reported, in correspondence with ICAN, that: “In 2021, IFRI’s Deterrence and Proliferation funding amounted to less than 3% of the Institute’s overall revenue.”²⁸⁹ New corporate members supported IFRI one or multiple research units and companies “actively participate in IFRI’s debates and events.”²⁹⁰ IFRI together with the Fondation pour la recherche stratégique are jointly implementing the “Nuclear and Strategy Network New Generation” programme.²⁹¹ This project was launched in 2015 (for a 3 years contract, with a budget of €500,000) and has been ongoing ever since, is co-financed and co-directed by the DGRIS (The Directorate General for International Relations and Strategy) and CEA/DAM (Directorate of Military Applications of the French Atomic Energy Commission).²⁹² It aims to create a network of young researchers to “contribute their reflection on military nuclear issues, in particular deterrence and non-proliferation.”

Hudson Institute | \$240,000 - \$300,000

The Hudson Institute is an American think tank. A featured topic within its National Security programme is “Arms Control and Nonproliferation,” and the institute regularly publishes on nuclear weapons.²⁹³

According to the Hudson Institute’s 2020 Annual Report, the most recent data available, in 2020 the Hudson Institute received between \$240,000 and \$300,000 from four companies producing nuclear weapons: Huntington Ingalls Industries, Lockheed Martin, Northrop Grumman and Textron.²⁹⁴

This represents an inflation-adjusted increase of at least \$67,909 from past year funding. Hudson reported no longer receiving funding from Raytheon, one new funder, Textron and also reported increased funding from Lockheed Martin and Northrop Grumman, and constant funding from Huntington Ingalls Industries.

→	Lockheed Martin \$100,000 and above
→	Huntington Ingalls Industries \$20,000 - \$50,000
→	Northrop Grumman \$100,000 and above
→	Textron \$20,000 - \$50,000

International Institute for Strategic Studies (IISS) | \$757,909 - \$997,245

The International Institute for Strategic Studies (IISS) is a British think tank, which also has centres in Washington, D.C., Bahrain, and Singapore. It has a Strategy, Technology and Arms Control programme, which researches and publishes regularly on nuclear- and missile-security issues.²⁹⁵

According to the IISS website, for the fiscal year ending on 30 September 2021, IISS received between at least £551,000 and at least £724,997 (\$757,909 - \$997,245) from seven companies producing nuclear weapons: Airbus, BAE Systems, Boeing, Lockheed Martin, MBDA, Northrop Grumman and Raytheon Technologies.²⁹⁶ IISS also received between £1,000-£24,999 from Los Alamos National Laboratory, which provides design and engineering for U.S. nuclear warheads.

This represents an inflation-adjusted decrease of between \$105,661 and \$239,663 from the last year reported: 2018. IISS reported no longer receiving funding from Leonardo and Textron, reported increased funding from Northrop Grumman, and constant funding from Airbus, BAE Systems, Boeing, Lockheed Martin, MBDA and Raytheon Technologies.

Thomas Enders, the former CEO of Airbus, a company that produces nuclear weapons, sits on the IISS Advisory Council.²⁹⁷

→	Airbus £100,000 and over
→	BAE systems £100,000 and over
→	Boeing £100,000 and over
→	Raytheon Technologies £100,000 and over
→	Lockheed Martin £100,000 and over
→	MBDA £1,000 - £24,999
→	Northrop Grumman £25,000 - 99,999

Observer Research Foundation (ORF) \$156,109

The Observer Research Foundation (ORF) is an Indian think tank. Within its Strategic Studies programme is the Nuclear and Space Studies Initiative and the think tank regularly publishes about nuclear weapons.²⁹⁸

According to the ORF website, in 2021 it received 11,542,042 INR (\$156,109) from one company producing nuclear weapons, Lockheed Martin.²⁹⁹

This represents an inflated-adjusted increase of \$81,207 from the past year.

→	Lockheed Martin \$156,109
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Royal United Services Institute (RUSI) \$602,476 - \$1,416,763

The Royal United Services Institute (RUSI) is a British think tank. RUSI’s website explains that it covers a range of nuclear policy issues including: “the UK’s nuclear policy, WMD issues around the world, Iranian and North Korean nuclear diplomacy, as well as counter proliferation financing, sanctions and sanction evasion tactics.”³⁰⁰

As of 1 May 2022, RUSI had not published updated donor information since the last publication of this report. RUSI’s website states that from 2018-19, it received between £438,000 and £1,029,987 (\$602,476 - \$1,416,763) from ten companies involved in the production and maintenance of nuclear weapons: Airbus, BAE Systems, Bechtel, General Dynamics, Jacobs Engineering, Leidos, Leonardo, Lockheed Martin, Northrop Grumman, and Raytheon.^{301, 302}

→	Airbus £100,000 - £199,999	→	Leonardo £10,000 - £24,999
→	BAE systems £200,000 - £499,999	→	Lockheed Martin £60,000 - £124,998
→	Bechtel £10,000 - £24,999	→	MBDA £1,000 - £9,999
→	General Dynamics £1,000 - £9,999	→	Northrop Grumman £10,000 - £24,999
→	Jacobs Engineering £10,000 - £24,999	→	Raytheon £26,000 - £59,998
→	Leidos £10,000 - £24,999		



Pakistani ballistic missiles. Published under CC BY-SA 3.0 license; Source: SyedNaqviqo at English Wikipedia.

Stimson Center | \$25,000

The Stimson Center is an American think tank. The Stimson Center has Nonproliferation, U.S. Foreign Policy and Asia programs which include research and publications about nuclear weapons. For example, in June 2021, Stimson Center researchers published “Public Opinion and Crisis Behaviour in Nuclearized South Asia,” an article based on survey research finding “public support for escalating rather than de-escalating a crisis in response to provocation from an adversary.”³⁰³ In April 2021, the South Asia Program published an issue brief: “The Challenge of a Two-Front War: India’s China-Pakistan Dilemma,” including a subsection entitled “The Nuclear Option.”³⁰⁴ The “WMD” topic on the 38North website features numerous posts each month about North Korean nuclear weapons systems.³⁰⁵

In correspondence with ICAN, the Stimson Center asserted that it “does not have an ‘established nuclear weapons program’ and the institution did not, in the last year, ‘frequently write and research on nuclear weapons.’”³⁰⁶ Stimson provided more detail on its projects and programs related to nuclear technology, including its Nuclear Safeguards program, Nuclear Security program, Partnerships in Proliferation Prevention Program and International Nuclear Security Forum, all of which it explained did not publish on nuclear weapons in 2021. Stimson also referred to its South Asia Program, which it said “necessarily address(es) the fact that both India and Pakistan are nuclear-armed states” and “explicitly aims to reduce the risk of nuclear weapons use, arms races, crisis escalation, and war in general on the subcontinent,” and 38North, which “necessarily includes reporting on the progress of North Korea’s nuclear weapons program” but added that “the weapons themselves are not the focus of their work.”

According to the Stimson Center website, in 2020, the Stimson Center received a total of \$25,000 from three companies that produce nuclear weapons: Boeing, Lockheed Martin and Northrop Grumman.³⁰⁷ In a comment to ICAN, Stimson asserted that “None of the funds provided by these donors supported any research or publications on nuclear weapons.”³⁰⁸

According to the Stimson Center’s website, Boeing and Northrop Grumman funded the East Asia program and Lockheed Martin funded the Conventional Defense and East Asia programs. In a comment to ICAN, the Stimson

Center clarified that “Boeing, Lockheed Martin, and Northrop Grumman supported our Japan-East Asia Program’s Voices from Japan speaker series on Japanese foreign policy,” and “Lockheed Martin funded our Conventional Defense program’s work to support the Industry Working Group on the Arms Trade Treaty, which covers only conventional arms.”

In addition, the Stimson Center received \$919,754 from the National Nuclear Security Administration, the semi-autonomous Department of Energy agency that oversees the research and production of the U.S. nuclear weapons arsenal, for the South Asia program.

This represents an inflation-adjusted decrease of \$26,121 from past year funding. The Stimson Center reported no longer receiving funding from BAE Systems and General Dynamics, an increase in funding from Lockheed Martin and NNSA, a decrease in funding from Northrop Grumman, and constant funding from Boeing.

One current and two former executives from nuclear-weapon-producing companies sit on Stimson’s Board of Directors: Michael Arthur, President of Boeing International; David Welch, former vice president and partner of Bechtel and Nicole Paisecki, former vice president and general manager of the Propulsion Systems Division of Boeing Commercial Airplanes.³⁰⁹

→	Boeing \$5,000
→	Lockheed Martin \$17,500
→	Northrop Grumman \$2,500
→	National Nuclear Security Administration \$919,754*

*Not included in total

Conclusion

This is the third annual report documenting massive investments in global nuclear weapons arsenals. Through an ever changing and challenging security environment, from security threats of climate change to the COVID-19 pandemic to the Russian invasion of Ukraine, nuclear weapons spending has steadily increased, with no resulting measurable improvement on the security environment.

As companies throw money at lobbyists and researchers to assert the continued relevance and value of nuclear weapons, the record shows the inutility of weapons of mass destruction to address modern security challenges - and the legitimate fear that they can end civilisation as we know it.

The Treaty on the Prohibition of Nuclear Weapons is the multilateral response to the irresponsible behaviour of all nuclear-armed states to pour money down their nuclear weapons drains. It is the normative barricade against threats to use nuclear weapons. All countries should join this landmark international instrument to prohibit the development and maintenance of nuclear weapons and prevent their eventual use by ensuring their elimination.

The Treaty on the Prohibition of Nuclear Weapons is the multilateral response to the irresponsible behaviour of all nuclear-armed states to pour money down their nuclear weapons drains.



Hiroshima Tricycle. Source: US Airforce; Photo by Elizabeth Baker; ©Public Domain; (The appearance of US Department of Defense (DoD) visual information does not imply or constitute DoD endorsement.)

Methodology

COUNTRIES

The estimates for country nuclear weapon spending (rounded to one decimal point) include nuclear warhead and nuclear-capable delivery systems operating costs and development where these expenditures are publicly available, and are based on a reasonable percentage of total military spending on nuclear weapons when more detailed budget data is not available. Calculations are made in 2021 dollars where possible. 2020 estimates have been adjusted to account for inflation to 2021 dollars to enable comparisons using the annual USD inflation average of 4.7%. Currency exchange calculations are based on annual averages. Figures may not always sum due to rounding.

Due to lack of reliable and consistent global information, these estimates do not include the costs to remediate the environment contaminated by nuclear weapons or to compensate victims of nuclear weapon use and testing, although these are also important markers of the added financial and human cost of nuclear weapons.³¹⁰

A 2011 Global Zero cost estimate which added “unpaid/deferred environmental and health costs, missile defences assigned to defend against nuclear weapons, nuclear threat reduction and incident management” found that this “full” cost of global nuclear arsenal was over 50% higher than just the cost of nuclear weapons system maintenance and development.³¹¹ The methodology and sources used to calculate each country’s spending on nuclear weapons in this report is detailed in each country section.



ICAN campaigners criticise the decision of nuclear-armed states, including India, to boycott the TPNW negotiations in 2017. Photo: ICAN

COMPANIES

U.S. contracts data was secured from two main sources, the daily Department of Defense published contract database, which includes DOD contracts valued over \$7 million. Additional contract information was researched using USASpending.gov, wherein searches by contractor name were performed. Potential award amounts were listed, as opposed to obligated amounts, to illustrate the agreed scope of the contract costs. Subcontract listings were not included unless specifically noted.

In contract awards in which multiple companies were named, the total contract value has been divided equally across the number of companies. This is an estimate, to prevent double reporting, but may not accurately reflect the individual company receipts.

French contracts were assessed based on the various company and Joint Venture websites- including Airbus, BAE Systems, MBDA, ArianeGroup, Safran, and Thales, as well as the French government’s annual Notebook of International Defence Companies for 2021.

For the Trident system, the United Kingdom does not publish contracts directly with the companies, instead, contract awards are given by the United States, and the United Kingdom then reimburses the United States for costs incurred. The US Department of Defense reports on foreign contributions to contract awards on the DOD contract award releases.

French lobbyists are not required to disclose per-client figures, so these figures are estimated based on the number of clients, and total reported amounts. The figures for the defence companies themselves are the median of the reported range. Figures are reported in euros but listed here in U.S. dollars for readability. Currency conversions were conducted at the time of research, and for original figures please contact the authors.

All U.S. lobbying reports were taken either from the U.S. Senate Lobbying Disclosures site (<https://lda.senate.gov/system/public/>), or the U.S. House of Representatives site (<https://disclosurespreview.house.gov>). Each lobbyist or defence contractor files quarterly reports and the full list of referenced reports is available upon request.

The French Transparency Register was the source of information on French lobby expenditures: <https://www.hatvp.fr/>. French lobbyists are not required to disclose per-client figures, so these figures are estimated based on the number of clients, and the median of total reported amounts.

Please note, some calculations may appear off due to rounding. For expanded figures, please contact the authors.



Don’t bank on the bomb protest. Published under CC BY-NC 2.0 license; Source: ICAN via Flickr; Credit: Tim Wright.

THINK TANKS

This report aims to provide an overview of the most recent annual contributions of nuclear weapons producers to major think tanks which regularly write and research on nuclear weapons.

To select think tanks to include in the report, we started with the University of Pennsylvania's 2019 Global Go To Think Tank Index Report and selected the top Defence and National Security think tanks in nuclear-armed states and then chose the think tanks with established nuclear weapons programs, or that frequently write and research about nuclear weapons.³¹² From these, entirely government- or university- funded think tanks were eliminated from consideration in the report. Think tanks with little to no public information about funding sources were also not included.

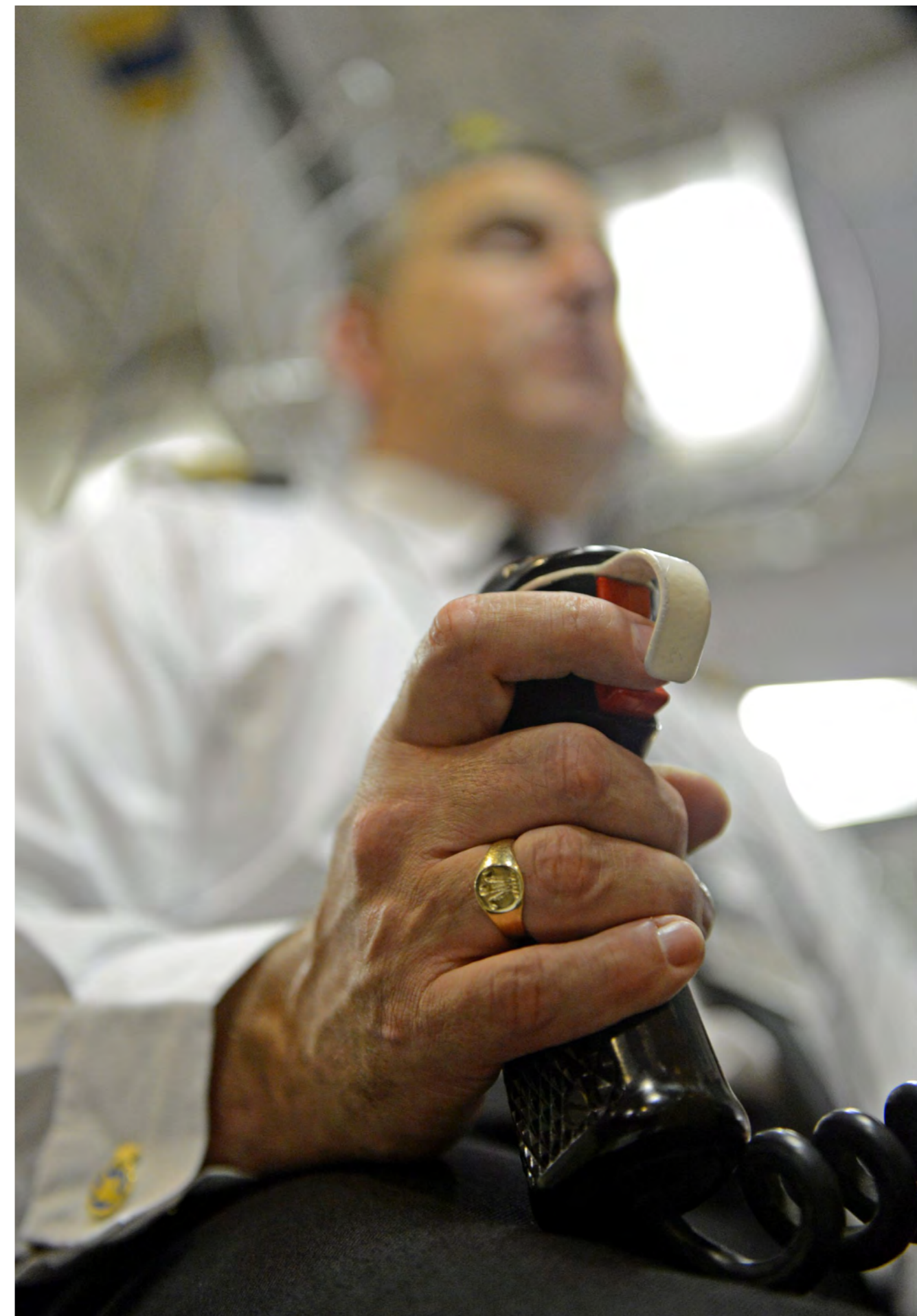
The report considers funding from nuclear weapon-producing companies, and a few nuclear weapon specific governmental agencies (although governmental agency funding was not included in the total spending per think tank), in a one-year period for these selected think tanks during the most recently self-reported timeframe. The funding information is all publicly available through think tank annual reports and websites. Funding information for the most recent one year period available was selected and no information before FY 2018 was considered. General nuclear-armed government funding was not included; only when a funder was listed as a specific governmental agency or laboratory whose primary role is tied to nuclear weapons would governmental funding be considered. As an example, while funding from the U.S. Department of Energy would not be included, funding from the National Nuclear Security Administration would.

Where nuclear weapons producing companies changed from last year's version of the report, this was noted in the section and the change in think tank funding was recalculated in the previous year to allow for accurate comparison. All previous years were adjusted for inflation.

Likewise, although many of the think tanks listed also receive funds from ministries of defence in nuclear armed states or in NATO states, that funding was also not included in the scope of this report. Many think tanks have official policies on intellectual independence from funders, including The Atlantic Council and the Carnegie Endowment, as was referenced in correspondence with ICAN. While most think tanks do not provide program-specific funding, where available it is noted, although all funding from nuclear weapons companies to the think tank are included. All think tanks were contacted prior to publication to provide corrections and comments. Think tanks were also contacted prior to publication to ask to comment on the changes in funding from the past year and to request more information about what work the companies funded in the specified year.

When available, the report notes formal partnerships or membership structures between nuclear-weapon producing companies and think tanks, given that these partnerships give companies access and participation in think tank work and may entail a financial contribution. The report also notes when a member of a board of the think tank, including the Board of Trustees, Board of Directors or Advisory Board, held a current or former senior or governance position at a nuclear-weapon-producing company.

The report considers funding from nuclear-weapon-producing companies, and a few nuclear-weapon specific governmental agencies.



Firing of an unarmed Trident ballistic missile. Copyright: UK Crown Copyright, public sector information licensed under the Open Government Licence v3.0.

About the ICAN and the Authors

The International Campaign to Abolish Nuclear Weapons (ICAN) is a global campaign working to mobilise people in all countries to inspire, persuade and pressure their governments to sign and ratify the Treaty on the Prohibition of Nuclear Weapons. ICAN comprises more than 600 partner organisations in over 100 countries. More information about ICAN can be found at www.icanw.org.

Alicia Sanders-Zakre and Susi Snyder co-authored this report. We would like to thank Ruth Rohde for her support finalising and launching this report.

Alicia is the Policy and Research Coordinator of ICAN where she directs and coordinates research on the Treaty on the Prohibition of Nuclear Weapons, the humanitarian impact of nuclear weapons and general nuclear weapons policy. Previously, she was a research assistant at the Arms Control Association and at the Brookings Institution and she has published over 100 news articles, editorials and reports on nuclear weapons, including “Enough is Enough: 2019 Global Nuclear Weapons Spending” and “Complicit: 2020 Global Nuclear Weapons Spending.” She can be reached with any comments or questions at alicia@icanw.org.

Susi is the Financial Sector Coordinator of ICAN, where she directs and coordinates engagement with the business and financial sector encouraging full implementation of the Treaty on the Prohibition of Nuclear Weapons. She coordinated the Don’t Bank on the Bomb research and campaign while working for the Dutch organisation PAX since 2013. She is an expert on nuclear weapons, with over two decades experience working at the intersect between nuclear weapons and human rights. Susi was a Foreign Policy Interrupted/ Bard College 2020 fellow and one of the 2016 Nuclear Free Future Award Laureates. Previously, Susi worked with PAX and before that served as the Secretary General of the Women’s International League for Peace and Freedom at their Geneva secretariat. She was named Hero of Las Vegas in 2001 for her work with Indigenous populations against US nuclear weapons development and nuclear waste dumping.

About the Treaty on the Prohibition of Nuclear Weapons

On 7 July 2017 – following a decade of advocacy by ICAN and its partners – an overwhelming majority of the world’s nations adopted a landmark global agreement to ban nuclear weapons, known officially as the Treaty on the Prohibition of Nuclear Weapons (TPNW). The TPNW prohibits nations from developing, testing, producing, manufacturing, transferring, possessing, stockpiling, using or threatening to use nuclear weapons, or allowing nuclear weapons to be stationed on their territory.

It also prohibits them from assisting, encouraging or inducing anyone to engage in any of these activities. A nation that possesses nuclear weapons may join the treaty, so long as it agrees to destroy them in accordance with a legally binding, verifiable, time-bound plan. Similarly, a nation that hosts another nation’s nuclear weapons on its territory may join, so long as it agrees to remove them by a specified deadline. Nations are obliged to provide assistance to all victims of the use and testing of nuclear weapons and to take measures for the remediation of contaminated environments. The preamble acknowledges the harm suffered as a result of nuclear weapons, including the disproportionate impact on women and girls, and on indigenous peoples around the world. The TPNW reached 50 states parties in October 2020 entered into force on 22 January 2021.

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