

Chapter 2

Nuclear Weapon Producers

In some of the nuclear-armed states – especially the United States, the United Kingdom and France – governments award contracts to private companies to carry out work on their nuclear arsenals. This report looks at 27 of those companies providing the necessary infrastructure to develop, test, maintain and modernise nuclear arsenals. They are involved in producing or maintaining nuclear weapons or significant, specific components thereof. The 27 companies described in this chapter are substantially involved in the nuclear weapons programmes of the United States, the United Kingdom, France, India or Israel and themselves based in the United States, the United Kingdom, France, the Netherlands, Germany and India.

In other nuclear-armed countries – such as Russia, China, Pakistan and North Korea – the modernization of nuclear forces is carried out primarily or exclusively by government agencies. In those countries, the opportunities to achieve divestment through public campaigning are limited. A potentially more effective way to challenge investments in these nuclear industries would be through influencing budgetary decision-making processes in national legislatures.

Nuclear weapon producers in this report

Aecom (United States)
Alliant Techsystems (United States)
Babcock & Wilcox (United States)
Babcock International (United Kingdom)
BAE Systems (United Kingdom)
Bechtel (United States)
Bharat Electronics (India)
Boeing (United States)
CH2M Hill (United States)
EADS (Netherlands)
Fluor (United States)
Gencorp (United States)
General Dynamics (United States)
Honeywell International (United States)
Huntington Ingalls (United States)
Jacobs Engineering (United States)
Larsen & Toubro (India)
Lockheed Martin (United States)
Northrop Grumman (United States)
Rockwell Collins (United States)
Rolls-Royce (United Kingdom)
Safran (France)
SAIC (United States)
Serco (United Kingdom)
Thales (France)
ThyssenKrupp (Germany)
URS (United States)

The nuclear weapon producers in this chapter, were selected on the basis of a predetermined set of criteria.

- Information on investments is publicly available.
- The company has to be involved directly in the development, testing, production, maintenance or trade of nuclear weapons related technology, parts, products or services.
- The company's involvement is related to warheads, or to delivery systems such as missiles, launch silos, bombers or submarines that are developed for nuclear tasks. This includes technology that is designed for 'dual use' (military and civilian) but excludes technology that is not designed for, but can be used in nuclear warfare.

The resulting list of 27 companies compiled in this report is not exhaustive. It is an attempt to identify the privately owned companies currently most involved in the nuclear weapon industrial complex. There are numerous other companies involved on a smaller scale or more indirectly. For example, companies that develop software for command and control of nuclear forces or companies involved through the production of small parts used in the assembly or maintenance of nuclear devices or delivery vehicles. In that sense, it is important to note that the total financial involvement of financial institutions in the nuclear weapons industry is much larger than what is identified in this report. State owned nuclear industries are sadly outside the scope of this research as well. The financing of nuclear programmes in China, India, Israel, North Korea, Pakistan and Russia therefore remain largely invisible.

Changes from the 2012 Report

The 2012 Don't Bank on the Bomb report provided information about 20 nuclear weapon producers. This 2013 update includes several additional producers, namely: Aecom; Bharat Electronics; CH2M Hill; Fluor; Rockwell Collins; SAIC; ThyssenKrupp, and; URS.

Finmeccanica¹ and Redhall Group were included in the 2012 report, but are not included in this report. In August 2012, Finmeccanica announced in a letter to the Norwegian Council on Ethics that it "is not involved in the production of nuclear weapons." And indeed, independent research suggests that all contracts relating to nuclear weapons of Finmeccanica expired in 2012. IKV Pax Christi is seeking additional confirmation from Finmeccanica that it will refrain from involvement in producing (key components of) nuclear weapons. It is possible that Finmeccanica will in the future be (re-)classified as a producer. Redhall Group has been excluded because although they are a BAE Systems subcontractor and work on nuclear powered submarines, no current contracts for nuclear weapon delivery systems could be found.

Profiles of Nuclear weapon producers

This section provides basic information about each of the 27 identified nuclear weapon producers. Information was gathered using websites and annual reports of military companies; military and government sources; research reports; trade magazines and general press reports. The selection of the nuclear weapon companies was based on availability of information on the company's involvement in the production of nuclear weapons and the likelihood that the company is predominantly financed by financial institutions.

Each section includes information about the general type of work the company does, financial information about the company and details about their involvement in nuclear weapons.

Aecom (United States)

Aecom, based in the United States, provides professional technical and management support services to a broad range of markets, including transportation, facilities, environmental, energy, water and government.²

In the financial year ending 30 September 2012, Aecom reported revenues of USD 8.2 billion (€ 6.4 billion), resulting in an operating income of USD 54 million (€ 42 million) and a net loss of USD 57 million (€ 44 million).³

Nuclear weapons

Aecom, together with Babcock & Wilcox, Northrop Grumman, and CH2M Hill, is a joint venture partner in National Security Technologies (NSTec). The exact ownership distribution is not known. Since 2006, NSTec manages the Nevada National Security Site (NNSS), previously known as the Nevada Test Site.⁴

The USD 3.1 billion (€ 2.3 billion) contract includes operation and maintenance of over 500 facilities and laboratories as well as the associated infrastructure, vehicles, and IT/communications.⁵ The NNSS is the only US nuclear test site where subcritical tests still take place, most recently the Pollux test in December 2012.⁶

Financial institutions

The following financial institutions invest in Aecom:

Affiliated Managers (United States)	Morgan Stanley (United States)
AQR Capital Management (United States)	New York Life Insurance Company (United States)
Aronson Johnson & Ortiz (United States)	Northern Trust (United States)
Bank of America (United States)	Oxford Asset Management (United Kingdom)
Bank of Communications (China)	PanAgora Asset Management (United States)
Bank of Taiwan (Taiwan)	Pictet & Cie (Switzerland)
Barclays (United Kingdom)	PRIMECAP Management Company (United States)
BB&T Corporation (United States)	Principal Financial Group (United States)
BBVA (Spain)	Raymond James Financial (United States)
Blackrock (United States)	Scotiabank (Bank of Nova Scotia) (Canada)
BNP Paribas (France)	Sinopac Financial (Taiwan)
BNY Mellon (United States)	Snow Capital Management (United States)
Chiba Bank (Japan)	State Bank of India (India)
Columbus Circle Investors (United States)	State Street (United States)
Comerica (United States)	State Teachers Retirement System of Ohio (United States)
Dimensional Fund Advisors (United States)	Sumitomo Mitsui Banking (Japan)
E Sun Financial (Taiwan)	Taiwan Business Bank (Taiwan)
Fidelity Investments (United States)	Taiwan Cooperative Financial Holding (Taiwan)
First Commercial Bank (Taiwan)	TIAA-CREF (United States)
Government Pension Fund – Global (Norway)	Two Sigma Investments (United States)
Greenlight Capital (United States)	US Bancorp (United States)
HSBC (United Kingdom)	Vanguard Group (United States)
Hua Nan Financial Holdings (Taiwan)	Washington Trust Bancorp (United States)
JP Morgan Chase (United States)	Water Asset Management (United States)
KeyCorp (United States)	Wells Fargo (United States)
Mega Financial (Taiwan)	
Mitsubishi UFJ Financial (Japan)	



Alliant Techsystems (United States)

Alliant Techsystems (ATK), based in the United States, supplies aerospace and defence products to the US government, allied nations and prime contractors. The company's main business segments are aerospace systems, armament systems, missile products, and security and sporting.⁷

In the financial year ending 31 March 2012, ATK reported revenues of USD 4.6 billion (€ 3.4 billion), resulting in an operating profit of USD 496 million (€ 372 million) and a net profit of USD 263 million (€ 197 million).⁸

Nuclear weapons

The aerospace systems segment of ATK produces rocket propulsion systems for the Trident II ("D5") Fleet Ballistic Missile (FBM).⁹ The Trident II D5 is a three-stage, solid propellant, inertia guided missile system that is the primary strategic weapons programme in the US Navy's Fleet Ballistic Missile system. Deployed in 1990, the Trident II D5 is the only US submarine-launched strategic missile system still in production. The D5 missiles are launched underwater from Trident submarines, which have 24 launch tubes.

Lockheed Martin is the prime contractor for the rocket propulsion systems. In November 2009, Alliant Techsystems received a USD100-million (€ 67 million) contract from Lockheed Martin to produce rocket propulsion systems for all three stages of the US Navy's Trident II D5 through calendar year 2013.¹⁰

In the recent past, the aerospace systems segment of ATK produced rocket propulsion systems for the Minuteman III Intercontinental Ballistic Missile (ICBM), the core component of the US nuclear arsenal for the past four decades. ATK was responsible for refurbishing all three solid propellant stages of the missile under the plan to keep the missiles operational until at least 2030. Northrop Grumman is the overall project leader in the ongoing ICBM Prime Integration Team. During 2010, the 10-year Minuteman Propulsion Replacement Program was completed. ATK produced approximately 1,800 remanufactured motors.¹¹ The Minuteman III-programme continued in 2011 and 2012 at a lower rate under the Minuteman Solid Rocket Motor Warm Line (SRMWL) programme, headed by Northrop Grumman. During these two years, ATK produced up to ten motor sets.¹² The budget request for FY2012 included an additional USD 34 million (€ 27 million) to complete work on the motors purchased in prior years. The FY2013 budget request does not yet contain additional funding for this programme area.¹³

Financial institutions

The following financial institutions invest in Alliant Techsystems:

Alliant (Germany)	Legg Mason (United States)
AQR Capital Management (United States)	LSV Asset Management (United States)
Aronson Johnson & Ortiz (United States)	Managed Account Advisors (United States)
Bank Hapoalim (Israel)	Mitsubishi UFJ Financial (Japan)
Bank of America (United States)	Mizuho Bank (Japan)
BB&T Corporation (United States)	Morgan Stanley (United States)
Blackrock (United States)	New York Life Insurance Company (United States)
BNP Paribas (France)	Northern Trust (United States)
BNY Mellon (United States)	Nuveen Investments (United States)
Calamos Holdings (United States)	Old Mutual (United Kingdom)
Chang Hwa Commercial Bank (Taiwan)	People's United Financial (United States)
Citadel Group (United States)	PNC Bancorp (United States)
Deutsche Bank (Germany)	Principal Financial Group (United States)
Dimensional Fund Advisors (United States)	Prudential Financial (United States)
Dreman Value Management (United States)	Royal Bank of Canada (Canada)
Fidelity Investments (United States)	Royal Bank of Scotland (United Kingdom)
First Commercial Bank (Taiwan)	State Street (United States)
First Eagle (United States)	SunTrust (United States)
General Electric (United States)	Thrivent Financial (United States)
Guardian Life Insurance Company of America (United States)	TIAA-CREF (United States)
Hotchkis and Wiley Capital Management (United States)	Toronto-Dominion Bank (Canada)
Hua Nan Financial Holdings (Taiwan)	Trimaran Capital Partners (United States)
Independence Capital Asset Partners (United States)	United Overseas Bank (Singapore)
Invesco (United States)	US Bancorp (United States)
Iridian Asset Management (United States)	Vanguard Group (United States)
JP Morgan Chase (United States)	Wells Fargo (United States)
KeyCorp (United States)	Western & Southern Mutual (United States)
Lazard Capital Markets (United States)	



Babcock & Wilcox (United States)

Babcock & Wilcox, based in the United States, provides energy technology and services primarily for the nuclear, fossil fuel and renewable power markets worldwide. The company's four business units are nuclear energy, nuclear operations, power generation and technical services.¹⁴

In the financial year ending 31 December 2012, Babcock & Wilcox reported revenues of USD 3.3 billion (€ 2.5 billion), resulting in an operating profit of USD 347 million (€ 262 million) and a net profit of USD 218 million (€ 165 million).¹⁵

Nuclear weapons

Babcock & Wilcox describes itself as an important player in the defence industry as a supplier of large nuclear components, especially for nuclear propelled US submarines.¹⁶ The company also offers other services, including uranium processing, environmental site restoration and operating services for a number of government-owned facilities within the nuclear weapons complex of the Department of Energy (DoE) and the National Nuclear Security Administration (NNSA).¹⁷

The nuclear operations division of the company specializes in the design and manufacture of components for the US government, including uranium processing as well as the manufacture of heavy-walled nuclear components and vessels. Its subsidiary Nuclear Fuel Services (NFS) operates a uranium fuel materials production facility to support the US fleet of nuclear-powered submarines and aircraft carriers.¹⁸

Subsidiaries of the Technical Services Group of Babcock & Wilcox maintain and exploit several laboratories that play a role in the US nuclear weapons programme. In the Y-12 National Security Complex in Tennessee, jointly managed by Babcock & Wilcox and Bechtel, nuclear weapons are produced and refurbished.¹⁹

The technical services division of the company is also responsible for the management and operation of the Pantex Plant in Texas on behalf of the National Nuclear Security Administration, where the nuclear warheads for the Trident missiles of the US Navy are modernized.²⁰ The life extension programme for the W76 warheads deployed on Trident II D5 ballistic missiles is expected to continue through 2018 and also involves engineers, scientists and technicians from the Y-12 National Security Complex, Savannah River Site, Kansas City Plant, Los Alamos National Laboratory and Sandia National Laboratories.²¹ Babcock & Wilcox Technical Services Pantex (B&W Pantex) is responsible for security maintenance, processing, packaging and transport of nuclear materials.²²

The Lawrence Livermore (LLNL) and Los Alamos National Laboratories (LANL), jointly managed by Babcock & Wilcox, University of California, Bechtel and URS Corporation, play an important role in the research and design of nuclear

weapons.²³ LANL is responsible for monitoring the safety and reliability of the US nuclear stockpile and engaged in the design and production of nuclear weapons.²⁴ LLNL also engages in research, design and development of nuclear weapons. Stewardship of the US nuclear weapons stockpile is the foremost responsibility of the facility.²⁵ The Stockpile Stewardship programme is meant to sustain and modernize the US nuclear weapons stockpile through surveillance, assessment, life extension and dismantlement efforts.²⁶

Babcock & Wilcox, together with Northrop Grumman, Aecom and CH2M Hill, is a joint venture partner in National Security Technologies (NSTec). The exact ownership distribution is not known. Since 2006, NSTec manages the Nevada National Security Site (NNSS), previously known as the Nevada Test Site.²⁷ This USD 3.1 billion (€ 2.3 billion) contract includes operation and maintenance of over 500 facilities and laboratories as well as the associated infrastructure, vehicles, and IT/communications.²⁸ The NNSS is the only US nuclear test site where subcritical tests are still taking place. The most recent one was the Pollux test in December 2012.²⁹

Financial institutions

The following financial institutions invest in Babcock & Wilcox:

Addison Clark Management (United States), Allied Irish Banks (Ireland), Ameriprise Financial (United States), Anchor Capital Advisors (United States), AXA (France), Bank of America (United States), BB&T Corporation (United States), BBVA (Spain), Blackrock (United States), BNP Paribas (France), BNY Mellon (United States), Carlson Capital (United States), Comerica (United States), Crédit Agricole (France), D.E. Shaw (United States), Fidelity Investments (United States), Fifth Third Bancorp (United States), Glenview Capital Management (United States), Greenlight Capital (United States), Groupe BPCE (France), Guggenheim Capital (United States), Hancock Holding (United States), Invesco (United States), Janus Capital Group (United States), Joley Corporation (United States), JP Morgan Chase (United States), Kingstown Capital Management (United States), Lakewood Capital Management (United States), Managed Account Advisors (United States), Mason Capital Management (United States), Millennium Management (United States), Mitsubishi UFJ Financial (Japan), Morgan Stanley (United States), New Jersey Division of Investment (United States), Northern Trust (United States), PNC Bancorp (United States), PRIMECAP Management Company (United States), Proxima Capital Management (United States), Prudential Financial (United States), Regions Financial Corporation (United States), Scotiabank (Bank of Nova Scotia) (Canada), Shapiro Capital Management (United States), Silvercrest Asset Management (United States), State Street (United States), Sumitomo Mitsui Banking (Japan), T. Rowe Price Group (United States), Toronto-Dominion Bank (Canada), US Bancorp (United States), Vanguard Group (United States), Wells Fargo (United States)

Babcock International (United Kingdom)

Babcock International, based in the United Kingdom, provides engineering support services. It operates in four divisions: Marine, & Technology, Defence And Security, Support Services and International (services for the Middle East and Africa).³⁰

In the financial year ended 31 March 2012, it reported revenues of £ 2.8 billion (€ 3.3 billion), resulting in an operating profit of £ 202 million (€ 242 million) and a net profit of £ 101 million (€ 121 million).³¹

Nuclear weapons

The Marine & Technology division of Babcock International, together with BAE Systems and Rolls-Royce, started the Future Submarines (FSM) project in 2007. The objective of this project is to design the Successor, a new class of submarines equipped with nuclear missiles for the Royal Navy. The Successor will replace the present Vanguard-class submarines armed with nuclear Trident ballistic missiles. In May 2012, the British government awarded contracts with a total value of £ 350 million (€ 435 million) to the three companies as part of the assessment phase. Babcock International was awarded a contract worth £ 15 million (€ 19 million).³² Babcock International is involved in the long-term technical engineering support and will provide the launch system for the weapons.³³ The main investment decision will be taken by the UK government in 2016.³⁴

The marine division of the company is also involved in the maintenance of the four Vanguard-class submarines of the British navy, each of which carries 16 Trident nuclear weapons.³⁵ In its 2011 annual report, Babcock International stated that the British government committed to retain the current submarine-based nuclear deterrent, providing a key role for the division in the so-called Vanguard Life Extension Project. This project has an estimated value of £ 1,3 billion (€ 1,6 billion).³⁶

In May 2012, Babcock International obtained a contract of over £ 350 million (€ 435 million) from the UK Ministry of Defence for a 3.5 year long renovation of the submarine HMS Vengeance, the fourth and last of the Vanguard-class submarines to be renovated.³⁷

Financial institutions

The following financial institutions invest in Babcock International:

Ameriprise Financial (United States)	HSBC (United Kingdom)
AMP (Australia)	JP Morgan Chase (United States)
ANZ Banking Group (Australia)	Kuwait Investment Authority (Kuwait)
Artisan Partners Limited (United States)	Legal & General Group (United Kingdom)
Aviva (United Kingdom)	Lloyds Banking Group (United Kingdom)
AXA (France)	M&G Investments (United Kingdom)
Bank of America (United States)	Mitsubishi UFJ Financial (Japan)
Barclays (United Kingdom)	Northern Trust (United States)
BayernLB (Germany)	Royal Bank of Canada (Canada)
Blackrock (United States)	Royal Bank of Scotland (United Kingdom)
Cantillon Capital Management (United States)	SAFE Investment Company (Hong Kong)
Capital Group of Companies (United States)	Standard Life (United Kingdom)
Cazenove Capital Management (United Kingdom)	State Street (United States)
Co-operative (United Kingdom)	The National Farmers Union Mutual Insurance Society (United Kingdom)
Crédit Mutuel (France)	UBS (Switzerland)
Crédit Suisse (Switzerland)	Vanguard Group (United States)
Dimensional Fund Advisors (United States)	Wellington Management Company (United States)
F&C Asset Management (United Kingdom)	William Blair & Company (United States)
Fidelity Investments (United States)	
Government Pension Fund – Global (Norway)	



BAE Systems (United Kingdom)

BAE Systems, based in the United Kingdom, is a worldwide defence, security and aerospace company. The company's main divisions are Electronic Systems, Intelligence & Security, Land & Armaments, Maritime, Military Air & Services and Support Solutions.³⁸

In the financial year 2012, BAE Systems reported revenues of £ 16.6 billion (€ 20.3 billion), resulting in an operating profit of £1.6 billion (€ 2.0 billion) and a net profit of £ 1.1 billion (€ 1.3 million).³⁹

Nuclear weapons

The current Vanguard-class submarines, which are equipped with Trident nuclear missiles, were developed by BAE Systems between 1986 and 1999.⁴⁰ Together with Babcock Marine (a division of Babcock International and Rolls-Royce, BAE Systems started the Future Submarines project in 2007. The objective of this project is to design the Successor, a new class of submarines equipped with nuclear missiles for the Royal Navy. The Successor will replace the present Vanguard-class submarines armed with nuclear Trident ballistic missiles. In May 2012, the British government awarded contracts with a total value of £ 350 million (€ 435 million) to the three companies as part of the assessment phase. The submarines division of BAE Systems obtained the largest contract, with a value of £ 328 million (€ 410 million), for the overall design of the submarines.⁴¹ The company states that it is not involved in the development of the actual nuclear weapons that these vessels will carry.⁴² However, given that only four of the UK's current fleet of eleven deployed submarines are nuclear weapon capable Vanguard-class, it is questionable whether investment would continue if the UK decided against renewing its nuclear arsenal.⁴³

Financial institutions

The following financial institutions invest in BAE Systems:

ABP (Netherlands)	JP Morgan Chase (United States)
Aegon (Netherlands)	Legal & General Group (United Kingdom)
Allianz (Germany)	Lloyds Banking Group (United Kingdom)
Ameriprise Financial (United States)	LSV Asset Management (United States)
ANZ Banking Group (Australia)	M&G Investments (United Kingdom)
Artemis Investment Management (United Kingdom)	Majedie Asset Management (United Kingdom)
Aviva (United Kingdom)	Marathon Asset Management (United Kingdom)
AXA (France)	Mercator Asset Management (United States)
Bank of America (United States)	Mitsubishi UFJ Financial (Japan)
Barclays (United Kingdom)	Morgan Stanley (United States)
BayernLB (Germany)	New York Life Insurance Company (United States)
Blackrock (United States)	Newton Investment Management (United Kingdom)
BNP Paribas (France)	Northern Trust (United States)
Capital Group of Companies (United States)	Principal Financial Group (United States)
Citi (United States)	Prudential (United Kingdom)
Commerzbank (Germany)	Prudential Financial (United States)
Commonwealth Bank of Australia (Australia)	Royal Bank of Scotland (United Kingdom)
Crédit Agricole (France)	Schroders (United Kingdom)
Crédit Mutuel (France)	Silchester International Investors (United Kingdom)
Crédit Suisse (Switzerland)	Skandinaviska Enskilda Banken (SEB) (Sweden)
Deutsche Bank (Germany)	Société Générale (France)
Epoch Investment Partners (United States)	State Street (United States)
F&C Asset Management (United Kingdom)	Sumitomo Mitsui Banking (Japan)
Fidelity Investments (United States)	Sun Life Financial (United States)
Franklin Resources (United States)	Thrivent Financial (United States)
GAM Holding (Switzerland)	TIAA-CREF (United States)
Goldman Sachs (United States)	Toronto-Dominion Bank (Canada)
Grantham, Mayo, Van Otterloo (United States)	UBS (Switzerland)
Invesco (United States)	Vanguard Group (United States)
	Wells Fargo (United States)



Bechtel (United States)

Bechtel Group, a private company based in the United States, operates as an engineering, construction and project management company. Its business units are Civil Infrastructure, Communications, Mining and Metals, Oil, Gas and Chemicals, Power and US Government Services.⁴⁴

In the financial year ended 31 December 2011, Bechtel Group reported revenues of USD 32.9 billion (€ 25.4 billion). Profits are not reported by the company.⁴⁵

Nuclear weapons

Bechtel's business unit US Government Services (Bechtel National) assists the US Department of Energy (DoE) in the areas of national security, scientific research and environmental clean-up. In the Y-12 National Security Complex in Tennessee, that is jointly managed by Bechtel National and Babcock & Wilcox, nuclear weapons are produced and refurbished.⁴⁶

The Lawrence Livermore (LLNL) and Los Alamos National Laboratories (LANL), jointly managed by Babcock & Wilcox, University of California, Bechtel and URS Corporation, play an important role in the research and design of nuclear weapons.⁴⁷

LANL is responsible for monitoring the safety and reliability of the US nuclear stockpile. The laboratory is engaged in the design and production of nuclear weapons.⁴⁸ LLNL engages in research, design and development of nuclear weapons. Stewardship of the US nuclear weapons stockpile is the foremost responsibility of the facility.⁴⁹ The Stockpile Stewardship programme is meant to sustain and modernize the US nuclear weapons stockpile through surveillance, assessment, life extension and dismantlement efforts.⁵⁰

Financial institutions

The following financial institutions invest in Bechtel:

Abu Dhabi Commercial Bank (United Arab Emirates)
 Arab Bank (Jordan)
 Bank of America (United States)
 Barclays (United Kingdom)
 BBVA (Spain)
 BNP Paribas (France)
 BNY Mellon (United States)
 Citi (United States)
 Crédit Agricole (France)
 Crédit Mutuel (France)
 Goldman Sachs (United States)
 Gulf International Bank (Bahrain)
 HSBC (United Kingdom)

Intesa Sanpaolo (Italy)
 JP Morgan Chase (United States)
 Lloyds Banking Group (United Kingdom)
 Mitsubishi UFJ Financial (Japan)
 Mizuho Bank (Japan)
 National Bank of Kuwait (Kuwait)
 Northern Trust (United States)
 Riyadh Bank (Saudi Arabia)
 Royal Bank of Scotland (United Kingdom)
 Scotiabank (Bank of Nova Scotia) (Canada)
 Société Générale (France)
 US Bancorp (United States)
 Wells Fargo (United States)



Bharat Electronics (India)

Bharat Electronics, based in India, manufactures and supplies electronic products to defence services in India.⁵¹ The Indian government has a 75.86% stake in the company.⁵²

In the financial year ending 31 March 2012, Bharat Electronics reported revenues of Rp 65.1 billion (€ 937 million), resulting in a net profit of Rp 8.5 billion (€ 122 million).⁵³

Nuclear weapons

Bharat Electronics is involved in the development of the Akash, a mid-range surface-to-air nuclear-capable missile system developed by India's state-owned Defence Research and Development Organisation (DRDO).⁵⁴ The Indian Air Force approved the addition of the Akash missile system to its arsenal in 2010.⁵⁵ While Bharat Dynamics (another state-owned company) is the main manufacturer for the solid-fuel missile, Bharat Electronics is contracted for the radar system, and according to media reports for other electronic support systems.⁵⁶

Financial institutions

The following financial institutions invest in Bharat Electronics:

Capital Group of Companies (United States)

Housing Development Finance Corporation (India)

Life Insurance Corporation of India (India)

UTI Asset Management Company (India)



Boeing (United States)

Boeing, based in the United States, is the world's largest aerospace company and a leading manufacturer of jetliners and defence, space and security systems. Its products and services include commercial and military aircraft, satellites, weapons, electronic and defence systems, launch systems, advanced information and communication systems, and performance-based logistics and training.⁵⁷

In the financial year ending 31 December 2012, Boeing reported revenues of USD 81.7 billion (€ 61.8 billion), resulting in an operating profit of USD 6.3 billion (€ 4.8 billion) and a net profit of USD 3.9 billion (€ 2.9 billion).⁵⁸

Nuclear weapons

Since 1958, Boeing has been responsible for the development and production of the US long-range nuclear LGM-30 Minuteman Intercontinental Ballistic Missiles (ICBM) (versions I, II and III). These are intercontinental ground-to-ground missiles, of which the United States had roughly 1,000 in operation around 1967.⁵⁹ Since that time the number has been reduced as a consequence of disarmament agreements with the former Soviet Union. All Minuteman I and II have been retired. However, there are still 450 Minuteman III deployed today.⁶⁰

As a member of the ICBM Prime Integration Team under leadership of Northrop Grumman, Boeing is involved in the maintenance of the nuclear Minuteman III ICBM for the US arsenal. It is responsible for guidance, flight controls, secure codes, ground subsystems, weapons systems testing and engineering in this ongoing project.⁶¹ Boeing reported that it had delivered the final guidance set in early February 2009. The Air Force did not request any additional funding for this programme in financial year 2010. However, it did request USD 1.2 million (€ 0.9 million) in FY2011 and USD 0.6 million in FY2012 (€ 0.5 million) to complete the programme.⁶² The modernization programme is meant to extend the service life of Minuteman III through the year 2020.⁶³

Boeing also produces the B-52 Stratofortress, which is a long-range, strategic heavy bomber capable of dropping or launching the widest array of weapons in the US inventory. It entered service in 1954. The latest version, the B-52H, can carry up to 20 air-launched cruise missiles. These cruise missiles can be equipped with nuclear or precision-guided conventional ordnance.⁶⁴

The Nuclear Command and Control Network Communications System, the satellite communication system of the US nuclear forces, was developed by Boeing, in close cooperation with the US Air Force.⁶⁵ The first two engineering development models were delivered for testing in April 2013.⁶⁶

Financial institutions

The following financial institutions invest in Boeing:

Abu Dhabi Commercial Bank (United Arab Emirates), Aegon (Netherlands), Allianz (Germany), ANZ Banking Group (Australia), Arab Bank (Jordan), Arab Banking Corporation (Bahrain), Aviva (United Kingdom), AXA (France), Banco Santander (Spain), Bank of America (United States), Bank of China (China), Barclays (United Kingdom), BayernLB (Germany), BBVA (Spain), Blackrock (United States), BNP Paribas (France), BNY Mellon (United States), Capital Group of Companies (United States), Citi (United States), Commerzbank (Germany), Crédit Agricole (France), Crédit Suisse (Switzerland), DBS Group (Singapore), Deutsche Bank (Germany), Eaton Vance (United States), Evercore Partners (United States), Fidelity Investments (United States), Geode Capital Management (United States), Goldman Sachs (United States), Groupe BPCE (France), ICBC (China), ICICI Bank (India), ING Group (Netherlands), Intesa Sanpaolo (Italy), JP Morgan Chase (United States), Lloyds Banking Group (United Kingdom), Loop Capital (United States), Mitsubishi

UFJ Financial (Japan), Mizuho Bank (Japan), Morgan Stanley (United States), Neuberger Berman (United States), New York Life Insurance Company (United States), Northern Trust (United States), PNC Bancorp (United States), Prudential (United Kingdom), Prudential Financial (United States), Riyadh Bank (Saudi Arabia), Royal Bank of Canada (Canada), Royal Bank of Scotland (United Kingdom), Société Générale (France), Standard Chartered (United Kingdom), State Street (United States), Sumitomo Mitsui Banking (Japan), T. Rowe Price Group (United States), TIAA-CREF (United States), UBS (Switzerland), US Bancorp (United States), Vanguard Group (United States), Viking Global Investors (United States), Wellington Management Company (United States), Wells Fargo (United States), Westpac Banking (Australia), Williams Capital Group (United States)



CH2M Hill (United States)

CH2M Hill provides consulting, design, design-build, operations, and programme management services. Key sectors include energy, environmental, facilities, resources, transportation and water.⁶⁷

In the financial year 2012, CH2M Hill generated revenues of USD 6.2 billion (€ 4.7 billion), resulting in an operating profit of USD 159 million (€ 120 million) and a net profit of USD 93 million (€ 70 million).⁶⁸

Nuclear weapons


CH2M Hill, together with Aecom, Babcock & Wilcox and Northrop Grumman, is a joint venture partner in National Security Technologies (NSTec). The exact ownership distribution is not known. Since 2006, NSTec has managed the Nevada National Security Site (NNSS), previously known as the Nevada Test Site.⁶⁹

This USD 3.1 billion (€ 2.3 billion) contract includes operation and maintenance of over 500 facilities and laboratories as well as the associated infrastructure, vehicles, and IT/communications.⁷⁰ The NNSS is the only US nuclear test site where subcritical tests are still taking place. The most recent one was the Pollux test in December 2012.⁷¹

Financial institutions

The following financial institutions invest in CH2M HILL:

- Bank of America (United States)
- BNP Paribas (France)
- HSBC (United Kingdom)
- JP Morgan Chase (United States)
- Mitsubishi UFJ Financial (Japan)
- Northern Trust (United States)
- Royal Bank of Scotland (United Kingdom)
- US Bancorp (United States)
- Wells Fargo (United States)



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EADS (The Netherlands)

European Aeronautic Defence and Space Company (EADS), based in the Netherlands, engages in the manufacture and sale of commercial aircraft (Airbus), civil and military helicopters, commercial space launch vehicles, missiles, military aircraft, satellites, defence systems and defence electronics.⁷²

In the year ending 31 December 2012, EADS generated revenues of € 56.5 billion, resulting in an operating profit of € 2.1 billion and a net profit of € 1.2 billion.⁷³

Nuclear weapons

EADS and its predecessor companies have been involved in the French nuclear weapons programme from its outset. The company's subsidiary Astrium develops and produces the M4-generation ballistic missiles since the 1980s, which feature multiple warheads and have a range of over 4,000 km. They were incrementally introduced on the first generation of the French nuclear-powered ballistic missiles submarines from 1985, as a replacement for the previously deployed M20 missiles.

Astrium also developed an enhanced version, the M45, with higher-performance TN75 nuclear warheads. The M45 entered service aboard the Triomphant submarine in 1997. Astrium is responsible for maintaining these missiles.⁷⁴

In December 2004, Astrium entered into a contract to build the new M51 nuclear missile for new French submarines, an estimated value of € 3 billion. As with all French nuclear missile systems, Astrium is the prime contractor for development, production, deployment and maintenance services. Safran, Thales, SNPE (part of Safran-subsi-dary Herakles) and DCNS (formerly DCN) are the main subcontractors. The M51 features multiple warheads, with far greater payload mass and volume than the M4. The M51 also offers a longer range, enabling submarines to expand their patrol zones. The nuclear submarine Le Terrible has been equipped with the M51 since late 2010. The missile will also enter operational service aboard the other next-generation submarines, Triomphant and Téméraire, after retrofit. A second version of the missile upper stage with new nuclear warheads, will be commissioned from 2015.⁷⁵

Financial institutions

The following financial institutions invest in EADS:

ABP (Netherlands)	ING Group (Netherlands)
ANZ Banking Group (Australia)	Intesa Sanpaolo (Italy)
Banco Santander (Spain)	Invesco (United States)
Bank of America (United States)	JP Morgan Chase (United States)
Barclays (United Kingdom)	KfW (Germany)
BayernLB (Germany)	Lloyds Banking Group (United Kingdom)
BBVA (Spain)	Mitsubishi UFJ Financial (Japan)
Blackrock (United States)	Mizuho Bank (Japan)
BNP Paribas (France)	Morgan Stanley (United States)
Caisse des Dépôts et Consignations (France)	Old Mutual (United Kingdom)
Capital Group of Companies (United States)	Oppenheimer & Co. (United States)
Citi (United States)	PRIMECAP Management Company (United States)
Commerzbank (Germany)	Principal Financial Group (United States)
Commonwealth Bank of Australia (Australia)	Royal Bank of Canada (Canada)
Crédit Agricole (France)	Royal Bank of Scotland (United Kingdom)
Crédit Mutuel (France)	Skandinaviska Enskilda Banken (SEB) (Sweden)
Crédit Suisse (Switzerland)	Société Générale (France)
DBS Group (Singapore)	State Street (United States)
Deutsche Bank (Germany)	Sumitomo Mitsui Banking (Japan)
DZ Bank (Germany)	Toronto-Dominion Bank (Canada)
Erste Bank (Austria)	UBS (Switzerland)
Goldman Sachs (United States)	UniCredit (Italy)
Groupe BPCE (France)	Vanguard Group (United States)
Helaba (Germany)	Viking Global Investors (United States)
HSBC (United Kingdom)	Westpac Banking (Australia)
ICBC (China)	



Fluor (United States)

Fluor, based in the United States, provides complex engineering, procurement, construction, and maintenance projects for commercial and government clients.⁷⁶

In the year ending 31 December 2012, Fluor generated revenues of USD 27.6 billion (€ 20.9 billion), resulting in an operating profit of USD 733 million (€ 555 million) and a net profit of USD 456 million (€ 345 million).⁷⁷

Nuclear weapons

Fluor is the lead partner in Savannah River Nuclear Solutions (SRNS), a joint venture with Honeywell and Newport News Nuclear (part of Huntington Ingalls).⁷⁸ SRNS is responsible for the management and operation of the Department of Energy's Savannah River Site and Savannah River National Laboratory in South Carolina under a USD 4 billion (€ 2.7 billion) five-year contract. The Department of Energy prolonged the contract in September 2012 for a period of 38 months.⁷⁹

SRNS is responsible for site management and operation, environmental management, management of the nuclear arsenal, the removal of excess nuclear materials, and environmental services. The Tritium Extraction Facility at the Savannah River Site is the only source of new tritium for the US nuclear stockpile. Tritium, a radioactive form of hydrogen (also called "super heavy water"), is essential for the continued operation of the US nuclear arsenal.⁸⁰

Financial institutions

The following financial institutions invest in Fluor:

ANZ Banking Group (Australia)	KeyCorp (United States)
Aronson Johnson & Ortiz (United States)	Legg Mason (United States)
AXA (France)	Lloyds Banking Group (United Kingdom)
Banco Santander (Spain)	M&G Investments (United Kingdom)
Bank of America (United States)	Managed Account Advisors (United States)
Barclays (United Kingdom)	Mitsubishi UFJ Financial (Japan)
Beck, Mack & Oliver (United States)	New York Life Insurance Company (United States)
Blackrock (United States)	Northern Trust (United States)
BNP Paribas (France)	Nuveen Investments (United States)
BNY Mellon (United States)	Orix Corporation (Japan)
Brown Advisory Holdings (United States)	Permanent Portfolio Fund (United States)
Calamos Holdings (United States)	Prudential Financial (United States)
Citi (United States)	Royal Bank of Canada (Canada)
Crédit Agricole (France)	Scotiabank (Bank of Nova Scotia) (Canada)
Crédit Suisse (Switzerland)	Standard Chartered (United Kingdom)
Fidelity Investments (United States)	State Street (United States)
Geode Capital Management (United States)	Sun Life Financial (United States)
Government Pension Fund – Global (Norway)	SunTrust (United States)
Guardian Life Insurance Company of America (United States)	TIAA-CREF (United States)
ING Group (Netherlands)	UBS (Switzerland)
Intesa Sanpaolo (Italy)	US Bancorp (United States)
Invesco (United States)	Vanguard Group (United States)
JP Morgan Chase (United States)	Wells Fargo (United States)



GenCorp (United States)

GenCorp, based in the United States, is engaged in aerospace and defence (through subsidiary Aerojet) and real estate (Easton).⁸¹

In the financial year ending 30 November 2012, GenCorp generated revenues of USD 995 million (€ 767 million), resulting in an operating profit of USD 35 million (€ 27 million) and a net loss of USD 2.6 million (€ 2 million). The aerospace and defence activities organized under Aerojet accounted for 99% of the revenues.⁸²

Nuclear weapons

Aerojet, GenCorp's aerospace and defence company, has been involved in nuclear weapon production for 50 years, through design, development and production of land-based and sea-based nuclear ballistic missile systems.

This included contributions to the retired Polaris, Minuteman II, MGM-134A Midgetman (Small Intercontinental Ballistic Missile), Peacekeeper and Trident I (C4). It currently produces solid and liquid propulsion systems for the still deployed Minuteman III and Trident II (D5) nuclear missile systems.⁸³ The Minuteman III has been the core component of the US nuclear arsenal for the past four decades. 450 Minuteman III are still deployed today and are expected to stay active until at least 2020.⁸⁴ The submarine-launched Trident II D5 missile is currently aboard US Ohio-class and British Vanguard-class submarines.⁸⁵ The US is planning to keep the Trident II missiles deployed until 2042.⁸⁶

Financial institutions

The following financial institutions invest in GenCorp:

Allianz (Germany)	Legg Mason (United States)
AQR Capital Management (United States)	Lioneye Capital (United States)
AXA (France)	Lord, Abnett & Co (United States)
Blackrock (United States)	Marcato Capital Management (United States)
BNP Paribas (France)	MFP Investors (United States)
BNY Mellon (United States)	Morgan Stanley (United States)
Capital Group of Companies (United States)	New York Life Insurance Company (United States)
Carlson Capital (United States)	Northern Trust (United States)
Citadel Group (United States)	Oppenheimer & Co. (United States)
Citi (United States)	Park West Asset Management (United States)
Commerzbank (Germany)	Principal Financial Group (United States)
Deutsche Bank (Germany)	Prudential (United Kingdom)
Dimensional Fund Advisors (United States)	Renaissance Technologies (United States)
Dreman Value Management (United States)	Richmond Hill Investments (United States)
Eaton Vance (United States)	Roaring Blue Lion Capital Management (United States)
Fidelity Investments (United States)	SkyTop Capital Management (United States)
First Eagle (United States)	State Street (United States)
GAMCO Investors (United States)	Steel Partners Holdings (United States)
Groupe BPCE (France)	SunTrust (United States)
Hirzel Capital Management (United States)	Teton Advisors (United States)
Invesco (United States)	TIAA-CREF (United States)
IONIC Capital Management (United States)	Tiger Veda Management (United States)
Joley Corporation (United States)	Two Sigma Investments (United States)
JP Morgan Chase (United States)	UBS (Switzerland)
Kennedy Capital Management (United States)	Umpqua Bank (United States)
Kingstown Capital Management (United States)	US Bancorp (United States)
Lawson Kroeker Investment Management (United States)	Vanguard Group (United States)
Lazard Capital Markets (United States)	Wells Fargo (United States)
Legal & General Group (United Kingdom)	Winslow Asset Management (United States)



General Dynamics (United States)

General Dynamics, based in the United States, provides business aviation, land and expeditionary combat systems, armaments and munitions, shipbuilding and marine systems, and information systems, technologies, and mission-critical information systems and technology.⁸⁷

In the financial year ending 31 December 2012, General Dynamics generated revenues of USD 31.5 billion (€ 23.8 billion), resulting in an operating profit of USD 541 million (€ 409 million) and a net loss of USD 332 million (€ 251 million).⁸⁸

Nuclear weapons

General Dynamics Electric Boat, a subsidiary of General Dynamics, built the Ohio-class nuclear submarines for the US navy, which are equipped with up to 24 multiple warhead ballistic missiles (SLBMs). The strategic weapon on board is the Trident II (D5) missile.⁸⁹ As the website of General Dynamics Electric Boat claims, these submarines are “*the most powerful ships ever put to sea*”, referring to the nuclear explosive power aboard the submarines.⁹⁰

In 2011, General Dynamics Electric Boat was awarded a USD429-million (€ 477 million) contract modification by the US navy to provide maintenance, engineering and technical support for nuclear submarines.⁹¹

Since 2005, General Dynamics’ Advanced Information Systems (GDAIS) has been involved in a project with Honeywell International and Raytheon to extend the lifecycle of the guidance systems of the Trident II (D5) nuclear missiles of the US navy.⁹² In December 2009, GDAIS’ contract was prolonged by another three years.⁹³ In January 2012, it obtained another USD 96 million (€ 75 million) contract for production and deployed-systems support of the Trident II-weapons system, with a maximum contract value of USD 225 million (€ 173 million) if all options are exercised.⁹⁴ The submarine-launched Trident II D5 missile is currently aboard US Ohio-class and British Vanguard-class submarines.⁹⁵ The US is planning to keep the Trident II missiles deployed until 2042.⁹⁶

Financial institutions

The following financial institutions invest in General Dynamics:

Abrams Bison Investments (United States)	Managed Account Advisors (United States)
Abu Dhabi Commercial Bank (United Arab Emirates)	Mitsubishi UFJ Financial (Japan)
American Century Investments (United States)	Mizuho Bank (Japan)
ANZ Banking Group (Australia)	Morgan Stanley (United States)
Banco Santander (Spain)	Neuberger Berman (United States)
Bank of America (United States)	New York Life Insurance Company (United States)
Bank of Montreal (BMO Financial Group) (Canada)	Northern Trust (United States)
Bank of Taiwan (Taiwan)	PNC Bancorp (United States)
Barclays (United Kingdom)	Power Corporation of Canada (Canada)
BBVA (Spain)	Prudential Financial (United States)
Blackrock (United States)	Riyad Bank (Saudi Arabia)
BNY Mellon (United States)	Royal Bank of Scotland (United Kingdom)
Capital Group of Companies (United States)	Sanders Capital (United States)
Cornerstone Investment Partners (United States)	Scotiabank (Bank of Nova Scotia) (Canada)
Cowen Group (United States)	Standard Life (United Kingdom)
Crédit Suisse (Switzerland)	State Street (United States)
Deutsche Bank (Germany)	Sumitomo Mitsui Banking (Japan)
Evercore Partners (United States)	SunTrust (United States)
Fidelity Investments (United States)	Svenska Handelsbanken (Sweden)
Franklin Resources (United States)	TIAA-CREF (United States)
Geode Capital Management (United States)	Toronto-Dominion Bank (Canada)
Goldman Sachs (United States)	UBS (Switzerland)
Groupe BPCE (France)	US Bancorp (United States)
Invesco (United States)	Vanguard Group (United States)
Janus Capital Group (United States)	Victory Capital Management (United States)
JP Morgan Chase (United States)	Wellington Management Company (United States)
Lazard Capital Markets (United States)	Wells Fargo (United States)
Lloyds Banking Group (United Kingdom)	Williams Capital Group (United States)
Longview Asset Management (United States)	

GENERAL DYNAMICS

Honeywell International (United States)

Honeywell International, based in the United States, operates as a diversified technology and manufacturing company. The company's business units are Aerospace, Automation and Control Solutions, Transportation Systems and Specialty Materials.⁹⁷

In the financial year ending 31 December 2012, Honeywell International generated revenues of USD 37.7 billion (€ 28.5 billion), resulting in an operating profit of USD 3.9 billion (€ 2.9 billion) and a net profit of USD 2.9 billion (€ 2.2 billion).⁹⁸

Nuclear weapons

Honeywell Federal Manufacturing & Technologies manages and operates the Kansas City Plant, a facility of the National Nuclear Security Administration (NNSA), where an estimated 85% of the non-nuclear components for US nuclear weapons are produced.⁹⁹ In 2010, the NNSA extended the contract with Honeywell to manage the facility for a maximum of five years.¹⁰⁰

Honeywell is co-owner of Savannah River Nuclear Solutions (SRNS), together with lead partner Fluor and Newport News Nuclear (part of Huntington Ingalls). Since 2008 SRNS has been responsible for the management and operation of the Department of Energy's Savannah River Site and Savannah River National Laboratory in South Carolina under a USD 4 billion (€ 2.7 billion) five-year contract. The Department of Energy prolonged the contract in September 2012 for a period of 38 months.¹⁰¹

SRNS is responsible for site management and operation, environmental management, management of the nuclear arsenal, the removal of excess nuclear materials, and environmental services. The Tritium Extraction Facility at the Savannah River Site is the only source of new tritium for the US nuclear stockpile. Tritium, a radioactive form of hydrogen (also called "super heavy water"), is essential for the continued operation of the US nuclear arsenal.¹⁰²

Honeywell Technology Solutions Inc (HTSI) has a contract with the US government's Defense Threat Reduction Agency (DTRA). As the instrumentation support contractor, HTSI is responsible for maintaining an inventory of instrumentation to monitor and record data associated with the testing on the White Sands Missile Range in New Mexico of simulated nuclear weapons and conventional weapons.¹⁰³

Honeywell, together with General Dynamics and Raytheon, is also involved in a project that aims to extend the lifecycle of the Trident II (D5) nuclear missiles for the US navy.¹⁰⁴ In December 2009, this contract was extended by three years. Honeywell International was the most important subcontractor, producing components for integrated circuits at its factory in Plymouth (Minnesota).¹⁰⁵ The submarine-launched Trident II D5 missile is currently aboard US Ohio-class and British Vanguard-class submarines.¹⁰⁶ The US is planning to keep the Trident II missiles deployed until 2042.¹⁰⁷

Financial institutions

The following financial institutions invest in Honeywell International:

Adage Capital Management (United States)
 Aegon (Netherlands)
 Allianz (Germany)
 American Century Investments (United States)
 Ameriprise Financial (United States)
 Aviva (United Kingdom)
 Banco Santander (Spain)
 Bank of America (United States)
 Barclays (United Kingdom)
 BBVA (Spain)
 Blackrock (United States)
 BNP Paribas (France)
 BNY Mellon (United States)
 Capital Group of Companies (United States)
 Citi (United States)
 Crédit Agricole (France)
 Danske Bank (Denmark)
 DBS Group (Singapore)
 Deutsche Bank (Germany)
 DnB (Norway)
 Evercore Partners (United States)
 Fidelity Investments (United States)
 GAMCO Investors (United States)
 Geode Capital Management (United States)
 Goldman Sachs (United States)
 HSBC (United Kingdom)
 ING Group (Netherlands)
 Intesa Sanpaolo (Italy)
 JP Morgan Chase (United States)
 Lazard Capital Markets (United States)
 Legg Mason (United States)
 Mitsubishi UFJ Financial (Japan)
 Mizuho Bank (Japan)
 Morgan Stanley (United States)
 New York Life Insurance Company (United States)
 Northern Trust (United States)
 Old Mutual (United Kingdom)
 Oppenheimer & Co. (United States)
 Power Corporation of Canada (Canada)
 PRIMECAP Management Company (United States)
 Prudential Financial (United States)
 Royal Bank of Canada (Canada)
 Royal Bank of Scotland (United Kingdom)
 Société Générale (France)
 Standard Chartered (United Kingdom)
 State Street (United States)
 Sumitomo Mitsui Banking (Japan)
 Sun Life Financial (United States)
 T. Rowe Price Group (United States)
 TIAA-CREF (United States)
 Toronto-Dominion Bank (Canada)
 UBS (Switzerland)
 UniCredit (Italy)
 US Bancorp (United States)
 Vanguard Group (United States)
 Wellington Management Company (United States)
 Wells Fargo (United States)
 Westpac Banking (Australia)



Huntington Ingalls Industries (United States)

Huntington Ingalls Industries (HII), based in the United States, designs, constructs and maintains nuclear and non-nuclear ships for the US Navy and Coast Guard and offers after-market services for military ships around the world.¹⁰⁸

In the financial year ending 31 December 2012, HII generated revenues of USD 6.7 billion (€ 5.1 billion), resulting in an operating profit of USD 358 million (€ 271 million) and a net profit of USD 146 million (€ 110 million).¹⁰⁹

Nuclear weapons

Huntington Ingalls' subsidiary Newport News Nuclear is co-owner of Savannah River Nuclear Solutions (SRNS), together with lead partner Fluor and Honeywell. Since 2008, SRNS has been responsible for the management and operation of the Department of Energy's Savannah River Site and Savannah River National Laboratory in South Carolina under a USD 4 billion (€ 2.7 billion) five-year contract. The Department of Energy has prolonged the contract in September 2012 for 38 months.¹¹⁰

SRNS is responsible for site management and operation, environmental management, management of the nuclear arsenal, the removal of excess nuclear materials, and environmental services. The Tritium Extraction Facility at the Savannah River Site is the only source of new tritium for the US nuclear stock. Tritium, a radioactive form of hydrogen (also called "super heavy water"), is essential for the continued operation of the US nuclear arsenal.¹¹¹

Financial institutions

The following financial institutions invest in Huntington Ingalls Industries:

Allianz (Germany)	Morgan Stanley (United States)
Ameriprise Financial (United States)	New York Life Insurance Company (United States)
AXA (France)	Newtyn Management (United States)
Bank of America (United States)	Northern Trust (United States)
BB&T Corporation (United States)	Oppenheimer & Co. (United States)
Blackrock (United States)	Orix Corporation (Japan)
BNP Paribas (France)	Piper Jaffray Companies (United States)
BNY Mellon (United States)	Prudential Financial (United States)
Capital One Financial (United States)	Pzena Investment Management (United States)
Comerica (United States)	QS Investors (United States)
Crédit Suisse (Switzerland)	Renaissance Technologies (United States)
D.E. Shaw (United States)	Royal Bank of Scotland (United Kingdom)
Denver Investments (United States)	Scotia Bond Co (Canada)
Deutsche Bank (Germany)	Scotiabank (Bank of Nova Scotia) (Canada)
Dimensional Fund Advisors (United States)	Southpoint Capital Advisors (United States)
Eaton Vance (United States)	State Street (United States)
Fidelity Investments (United States)	Sumitomo Mitsui Banking (Japan)
Firefly Value Partners (United States)	Sun Life Financial (United States)
First Eagle (United States)	SunTrust (United States)
Franklin Resources (United States)	Taiwan Business Bank (Taiwan)
Goldman Sachs (United States)	Taiwan Cooperative Financial Holding (Taiwan)
Government Pension Fund – Global (Norway)	TIAA-CREF (United States)
Guardian Life Insurance Company of America (United States)	Toronto-Dominion Bank (Canada)
Hotchkis and Wiley Capital Management (United States)	US Bancorp (United States)
Invesco (United States)	US Fiduciary Services (United States)
Jacobs Levy Equity Management (United States)	Vanguard Group (United States)
JP Morgan Chase (United States)	Wedge Capital Management (United States)
Kestrel Investment Management (United States)	Wells Fargo (United States)
Lord, Abnett & Co (United States)	
Mitsubishi UFJ Financial (Japan)	



Jacobs Engineering (United States)

Jacobs Engineering Group, based in the United States, provides professional, technical and construction services. Among its primary markets are aerospace and defence, energy, oil and gas and infrastructure.¹¹²

In the financial year ending 28 September 2012, Jacobs Engineering generated revenues of USD 10.9 billion (€ 8.5 billion), resulting in an operating profit of USD 596 million (€ 463 million) and a net profit of USD 379 million (€ 294 million).¹¹³

Nuclear weapons

In December 2008, Jacobs Engineering acquired a one-third share in the joint venture AWE-ML, the company that manages the United Kingdom's Atomic Weapons Establishment (AWE). The other partners are Lockheed Martin and Serco.¹¹⁴ The AWE is responsible for the maintenance of the warheads for the UK nuclear arsenal. Trident is a submarine-launched, intercontinental ballistic missile system carried by Vanguard-class submarines.

AWE's involvement with Trident missiles covers the entire life cycle, from initial concept to assessment, design, component manufacture and assembly, in-service support and decommissioning and disposal.¹¹⁵ AWE-ML has a 25 year-long non-revocable contract to run the AWE that expires in March 2025.¹¹⁶

Financial institutions

The following financial institutions invest in Jacobs Engineering:

Ameriprise Financial (United States)	Platinum Investment Management (Australia)
Artisan Partners Limited (United States)	PNC Bancorp (United States)
Bank of America (United States)	PRIMECAP Management Company (United States)
Blackrock (United States)	Provident Trust Company (United States)
BNP Paribas (France)	Royal Bank of Scotland (United Kingdom)
BNY Mellon (United States)	Ruane Cunniff & Goldfarb (United States)
Burgundy Asset Management (Canada)	Scotiabank (Bank of Nova Scotia) (Canada)
Calamos Holdings (United States)	State Street (United States)
Century Management (United States)	T. Rowe Price Group (United States)
D.F. Dent & Company (United States)	Thrivent Financial (United States)
Eaton Vance (United States)	TIAA-CREF (United States)
Fidelity Investments (United States)	UMB Financial (United States)
Geode Capital Management (United States)	Union Bank of California (United States)
Goldman Sachs (United States)	US Bancorp (United States)
Janus Capital Group (United States)	Van Eck Associates Corporation (United States)
Legg Mason (United States)	Vanguard Group (United States)
Lord, Abbett & Co (United States)	Wellington Management Company (United States)
Madison Investment Advisors (United States)	Wells Fargo (United States)
Northern Trust (United States)	William Blair & Company (United States)
Partner Fund Management (United States)	



Larsen & Toubro (India)

Larsen & Toubro, based in India, is a technology, engineering, construction and manufacturing company. It has nine operating divisions, among which are Heavy Engineering, Construction and Power.¹¹⁷

In the financial year ending 31 March 2012, Larsen & Toubro generated revenues of Rp 545 billion (€ 7.8 billion), resulting in an operating profit of Rp 62.5 billion (€ 1 billion) and a net profit of Rp 44.6 billion (€ 642 million).¹¹⁸

Nuclear weapons

As one of India's major construction companies, Larsen & Toubro is involved in designing and building the Advanced Technology Vessel, the future nuclear-armed submarine of the Indian navy. The project, with a total value of USD 3 billion, was initiated in 1970 and its objective was to build five nuclear submarines, each equipped with a dozen K-15 nuclear missiles.¹¹⁹ The K-15, developed by the Defence Research and Development Organisation (DRDO) of the Indian Ministry of Defence, has a strike range of 700 km.¹²⁰ The expected date for the sea trial has been postponed several times, now expected sometime in 2013. Another three submarines of the same class are in different stages of construction.¹²¹

According to media reports, Larsen & Toubro is responsible for developing the launcher system for the nuclear-capable surface-to-air Akash missile system developed by India's state-owned Defence Research and Development Organisation (DRDO).¹²²

Financial institutions

The following financial institutions invest in Larsen & Toubro:

Axis Bank (India)	JM Financial (India)
Barclays (United Kingdom)	JP Morgan Chase (United States)
Blackrock (United States)	Kotak Mahindra Group (India)
Citi (United States)	Life Insurance Corporation of India (India)
Crédit Suisse (Switzerland)	LKP Finance (India)
Darashaw (India)	Mata Securities India (India)
Deutsche Bank (Germany)	Mizuho Bank (Japan)
Edelweiss Financial Services (India)	SPA Group (India)
Equator Securities (Indonesia)	Standard Chartered (United Kingdom)
Equirus Capital (India)	State Bank of India (India)
Fidelity Investments (United States)	Sumitomo Mitsui Banking (Japan)
FirstRand Bank (South Africa)	The New India Assurance Co. (India)
General Insurance Corporation of India (India)	Trust Investment Advisors (India)
HDFC Bank (India)	UTI Asset Management Company (India)
Housing Development Finance Corporation (India)	Vanguard Group (United States)
HSBC (United Kingdom)	VIEL (India)
ICICI Bank (India)	
Infrastructure Development Finance Company (India)	



LARSEN & TOUBRO

Lockheed Martin (United States)

Lockheed Martin, based in the United States, focuses on aeronautics, space systems, electronic systems and information systems. Its most important divisions are Aerospace and Defence, Information Technology and New Technologies.¹²³

In the financial year ending 31 December 2012, it generated revenues of USD 47.2 billion (€ 35.7 billion), resulting in an operating profit of USD 4.4 billion (€ 3.3 billion) and a net profit of USD 2.7 billion (€ 2.0 billion).¹²⁴

Nuclear weapons

Lockheed Martin is the world's largest weapons producer.¹²⁵ It produces and maintains a wide variety of conventional weapons as well as nuclear weapons for both the United States and the United Kingdom.¹²⁶

Lockheed Martin is responsible for the construction of the Trident II (D5) nuclear missiles for the US Ohio-class submarines and the British Vanguard-class submarines.¹²⁷ Deployed in 1990, the Trident II D5 is the only US submarine-launched intercontinental ballistic missile system still in production. The D5 missiles are currently aboard US Ohio-class and British Vanguard-class submarines.¹²⁸ The United States is planning to keep Trident II missiles deployed until 2042.¹²⁹

Lockheed Martin holds a 33.3% share and takes the lead in the joint venture AWE-ML, the company that manages the United Kingdom's Atomic Weapons Establishment (AWE). The other partners are Jacobs Engineering and Serco.¹³⁰ AWE is responsible for maintaining the warheads for the UK nuclear arsenal. Trident is a submarine-launched, intercontinental ballistic missile system carried by Vanguard-class submarines.

AWE's involvement with Trident missiles covers the entire life cycle, from initial concept to assessment, design, component manufacture and assembly, in-service support, decommissioning and disposal.¹³¹ AWE-ML has a 25 year-long non-revocable contract to run the AWE that expires in March 2025.¹³²

As a member of the ICBM Prime Integration Team, Lockheed Martin is involved in the production and maintenance of the Minuteman III nuclear intercontinental ballistic missiles.¹³³ Lockheed Martin is responsible for the weapons, control and re-entry systems in this project under leadership of Northrop Grumman.¹³⁴

In March 2011, the company received a USD 12.5 million (€ 8.8 million) contract for the refurbishment of re-entry vehicle arming and fusing assemblies for the Minuteman III missiles. According to the latest plans, these nuclear missiles will continue to be part of the US nuclear defence programme until at least 2030.¹³⁵

In May 2009, Lockheed Martin acquired the Scottish company Imes Strategic Support, a supplier of key components for the British navy's nuclear weaponry.¹³⁶

Financial institutions

The following financial institutions invest in Lockheed Martin:

Allianz (Germany)
 Ameriprise Financial (United States)
 ANZ Banking Group (Australia)
 Aronson Johnson & Ortiz (United States)
 Bank of America (United States)
 Barclays (United Kingdom)
 Blackrock (United States)
 BNY Mellon (United States)
 Capital Group of Companies (United States)
 Citadel Group (United States)
 Citi (United States)
 Crédit Agricole (France)
 DBS Group (Singapore)
 Deutsche Bank (Germany)
 Epoch Investment Partners (United States)
 First Eagle (United States)
 Franklin Resources (United States)
 Geode Capital Management (United States)
 Goldman Sachs (United States)
 Hotchkis and Wiley Capital Management (United States)
 Invesco (United States)
 JP Morgan Chase (United States)
 Lloyds Banking Group (United Kingdom)
 LSV Asset Management (United States)
 Managed Account Advisors (United States)
 Mitsubishi UFJ Financial (Japan)
 Mizuho Bank (Japan)
 Morgan Stanley (United States)
 New York Life Insurance Company (United States)
 Newton Investment Management (United Kingdom)
 Northern Trust (United States)
 Principal Financial Group (United States)
 Prudential (United Kingdom)
 Prudential Financial (United States)
 Riyad Bank (Saudi Arabia)
 Royal Bank of Canada (Canada)
 Royal Bank of Scotland (United Kingdom)
 State Street (United States)
 Sumitomo Mitsui Banking (Japan)
 Sun Life Financial (United States)
 T. Rowe Price Group (United States)
 Thrivent Financial (United States)
 TIAA-CREF (United States)
 UBS (Switzerland)
 US Bancorp (United States)
 Vanguard Group (United States)
 Veritas Asset Management (United Kingdom)
 Wellington Management Company (United States)
 Wells Fargo (United States)
 Western & Southern Mutual (United States)



Northrop Grumman (United States)

Northrop Grumman Corporation, based in the United States, provides products, services and solutions in the aerospace, electronics, information systems and shipbuilding sectors.¹³⁷

In the financial year ending 31 December 2012, Northrop Grumman generated revenues of USD 25.2 billion (€ 19.1 billion), resulting in an operating profit of USD 3.1 billion (€ 2.3 billion) and a net profit of USD 2.0 billion (€ 1.5 billion).¹³⁸

Nuclear weapons

Northrop Grumman, as prime contractor of the US Air Force, developed and built the B-2 Spirit stealth bomber, which first flew in 1989. The bomber is designed to be able to carry more than 20 tons of conventional and nuclear ordnance. The fleet currently consists of 20 aircraft.¹³⁹ In February 2013, the company obtained a contract to modernize the B-2's Defensive Management System (DMS), the electronic warfare system. The project is expected to last for approximately three years.¹⁴⁰

After acquiring the US company TRW in 2002, Northrop Grumman inherited the leadership of the ICBM Prime Integration Team. This project was initiated in 1997 and is ongoing. It has a total value of USD 6.5 billion (€ 5 billion). Northrop Grumman and its principle partners Alliant Techsystems, Boeing and Lockheed Martin, are responsible for the production and maintenance of the Minuteman III nuclear Intercontinental Ballistic Missiles (ICBM). There are 450 Minuteman III deployed today.¹⁴¹

Northrop Grumman, together with partners Babcock & Wilcox, Aecom and CH2M Hill, is a joint venture partner in National Security Technologies (NSTec). Since 2006, NSTec has managed the Nevada National Security Site (NNSS), previously known as Nevada Test Site.¹⁴² Northrop Grumman was the managing partner, but decreased its interest in NSTec in 2011.¹⁴³ The exact ownership distribution is not known. This USD 3.1 billion (€ 2.3 billion) contract includes operation and maintenance of over 500 facilities and laboratories as well as the associated infrastructure, vehicles, and IT/communications.¹⁴⁴ The NNSS is the only US nuclear test site where subcritical tests are still taking place. The most recent one was the Pollux test in December 2012.¹⁴⁵

Financial institutions

The following financial institutions invest in Northrop Grumman:

Abu Dhabi Commercial Bank (United Arab Emirates), Allianz (Germany), American Century Investments (United States), Ameriprise Financial (United States), ANZ Banking Group (Australia), AQR Capital Management (United States), Aronson Johnson & Ortiz (United States), Aviva (United Kingdom), AXA (France), Bank of America (United States), Bank of Montreal (BMO Financial Group) (Canada), Barclays (United Kingdom), BayernLB (Germany), Blackrock (United States), BNP Paribas (France), BNY Mellon (United States), Capital Group of Companies (United States), Charles Schwab Investment Management (United States), Citi (United States), Crédit Suisse (Switzerland), Danske Bank (Denmark), Deutsche Bank (Germany), Dimensional Fund Advisors (United States), Drexel Hamilton (United States), First Eagle (United States), Franklin Resources (United States), Geode Capital Management (United States), Goldman Sachs (United States), Groupe BPCE (France), Gulf Bank (Kuwait), Hotchkis and Wiley Capital Management (United States), Intesa Sanpaolo (Italy), Invesco (United States), Janus Capital Group (United States), JP Morgan Chase (United States), Lloyds Banking Group (United Kingdom), Longview Partners (United Kingdom), LSV Asset Management (United States),

Macquarie Group (Australia), Managed Account Advisors (United States), Mischler Financial Group (United States), Mitsubishi UFJ Financial (Japan), Mizuho Bank (Japan), Morgan Stanley (United States), New York Life Insurance Company (United States), Northern Trust (United States), Old Mutual (United Kingdom), PNC Bancorp (United States), Power Corporation of Canada (Canada), Prudential (United Kingdom), Prudential Financial (United States), Pzena Investment Management (United States), Royal Bank of Scotland (United Kingdom), Schroders (United Kingdom), Scotiabank (Bank of Nova Scotia) (Canada), State Street (United States), Sumitomo Mitsui Banking (Japan), Sun Life Financial (United States), SunAmerica Asset Management Corporation (United States), SunTrust (United States), TIAA-CREF (United States), UniCredit (Italy), US Bancorp (United States), Vanguard Group (United States), Wellington Management Company (United States), Wells Fargo (United States), Williams Capital Group (United States)

NORTHROP GRUMMAN



Rockwell Collins (United States)

Rockwell Collins, based in the United States, provides design, production and support solutions for customers in the aerospace and defence sector, such as cockpit electronics, communications, information management and simulation and training.¹⁴⁶

During the financial year ending 30 September 2012, Rockwell Collins reported revenues of USD 4.7 billion (€ 3.7 billion), resulting in an operating profit of USD 857 million (€ 666 million) and a net profit of USD 609 million (€ 473 million).¹⁴⁷

Nuclear weapons

In 2006, the US Air Force awarded a technology development contract of unknown duration to Rockwell Collins for the Minuteman Modernization Program Upgrade (MMP Upgrade). The company was selected to improve the satellite communications capacity of the Minuteman Launch Control Centers (LCCs). The upgrade ensures that all Minuteman units receive Emergency Action Messages from the National Command Authority under all circumstances.¹⁴⁸

Financial institutions

The following financial institutions invest in Rockwell Collins:

Aegon (Netherlands)	Artisan Partners Limited (United States)
Aviva (United Kingdom)	Blackrock (United States)
New York Life Insurance Company (United States)	Capital Group of Companies (United States)
Permanent Portfolio Fund (United States)	Epoch Investment Partners (United States)
Prudential Financial (United States)	Farallon Capital Management (United States)
Bank of America (United States)	Fidelity Investments (United States)
Citi (United States)	First Manhattan (United States)
Crédit Agricole (France)	Geode Capital Management (United States)
JP Morgan Chase (United States)	Government Pension Fund – Global (Norway)
KeyCorp (United States)	Janus Capital Group (United States)
Mitsubishi UFJ Financial (Japan)	Luther King Capital Management (United States)
Mizuho Bank (Japan)	Neuberger Berman (United States)
UBS (Switzerland)	Nordea Bank (Sweden)
US Bancorp (United States)	Northern Trust (United States)
Wells Fargo (United States)	Ontario Teachers' Pension Plan Board (Canada)
BNY Mellon (United States)	SunTrust (United States)
State Street (United States)	ValueAct Holdings (United States)
Adage Capital Management (United States)	Power Corporation of Canada (Canada)
Affiliated Managers (United States)	TIAA-CREF (United States)
American Century Investments (United States)	Vanguard Group (United States)
Anchor Capital Advisors (United States)	



Rolls-Royce (United Kingdom)

Rolls-Royce, based in the United Kingdom, provides integrated power systems for use on land, at sea and in the air. The company's main business divisions are Civil Aerospace, Defence Aerospace, Marine and Energy.¹⁴⁹

In the financial year ending 31 December 2012, Rolls-Royce generated revenues of £ 12.1 billion (€ 14.8 billion), resulting in an operating profit of £ 1.4 billion (€ 1.7 billion) and a net profit of £ 2.3 billion (€ 2.8 billion).¹⁵⁰

Nuclear weapons

Rolls-Royce has been involved in the development and maintenance of the current fleet of nuclear-armed Vanguard class submarines of the Royal Navy. The company is responsible for the development of nuclear-powered engines.¹⁵¹

Together with Babcock Marine and BAE Systems, the marine division of Rolls-Royce launched the Future Submarines (FSM) project in 2007. The goal of this project is the development of "Successor", a new class of nuclear missile submarines for the Royal Navy, replacing the current Vanguard class submarines armed with Trident nuclear ballistic missiles.

In May 2012, contracts valued at £ 350 million (€ 435 million) were allocated to the three companies by the British government. The contract with Rolls-Royce, which is responsible for the integration of the reactor design, has a value of over £ 4 million (more than € 5 million).¹⁵² In June 2012, Rolls-Royce was granted a £ 1.1 billion (€ 1.36 billion) contract by the British Ministry of Defence for submarine nuclear reactor cores (£ 600 million) for both the current Astute class as well as the next generation submarines, and for industrial investment in the Raynesway plant that manufactures them (£ 500 million).¹⁵³

Financial institutions

The following financial institutions invest in Rolls Royce:

ABP (Netherlands)	JP Morgan Chase (United States)
Aegon (Netherlands)	KfW (Germany)
Ameriprise Financial (United States)	Legal & General Group (United Kingdom)
ANZ Banking Group (Australia)	Lloyds Banking Group (United Kingdom)
AXA (France)	M&G Investments (United Kingdom)
Baillie Gifford & Co (United Kingdom)	Mitsubishi UFJ Financial (Japan)
Banco Santander (Spain)	National Bank of Abu Dhabi (United Arab Emirates)
Bank of America (United States)	Nordea Bank (Sweden)
Barclays (United Kingdom)	Northern Cross (United States)
BayernLB (Germany)	Northern Trust (United States)
Blackrock (United States)	Royal Bank of Canada (Canada)
BNP Paribas (France)	Royal Bank of Scotland (United Kingdom)
Capital Group of Companies (United States)	Ruane Cunniff & Goldfarb (United States)
Citi (United States)	Schroders (United Kingdom)
Commerzbank (Germany)	Société Générale (France)
Commonwealth Bank of Australia (Australia)	Standard Life (United Kingdom)
Crédit Agricole (France)	State Street (United States)
DBS Group (Singapore)	Sumitomo Mitsui Banking (Japan)
Deutsche Bank (Germany)	T. Rowe Price Group (United States)
Egerton Capital (United Kingdom)	Thornburg Investment Management (United States)
Fidelity Investments (United States)	Toronto-Dominion Bank (Canada)
GAMCO Investors (United States)	Vanguard Group (United States)
Goldman Sachs (United States)	Wellington Management Company (United States)
Government Pension Fund – Global (Norway)	William Blair & Company (United States)
Helaba (Germany)	
HSBC (United Kingdom)	
Invesco (United States)	



Safran (France)

Safran, based in France, is a high-tech group with three key business areas: aerospace, defence and security.¹⁵⁴ The French state holds a 27.08% stake in the company.¹⁵⁵

In 2012, Safran reported revenues of € 13.6 billion, resulting in an operating profit of € 1.4 billion and a net profit of € 1.0 billion.¹⁵⁶

Nuclear weapons

Safran, together with EADS, Thales and others, obtained a contract in December 2004 to build the new M51 nuclear missile for the new French submarines, with an estimated value of € 3 billion. EADS's subsidiary Astrium is the lead contractor, whereas Safran, Thales, and DCNS were selected as the main subcontractors.¹⁵⁷

The M51 features multiple warheads, with far greater payload mass and volume than the M4. It also offers a longer range, enabling submarines to expand their patrol zones. The nuclear submarine Le Terrible has been equipped with the M51 since late 2010. The missile will also enter operational service aboard the other new-generation submarines, Triomphant and Téméraire, after retrofit. A second version of the missile upper stage with new nuclear warheads, will be commissioned from 2015.¹⁵⁸

Safran's subsidiary Snecma is the prime contractor of the propulsion system for the M51 missile project, producing all inert components in the rocket motors. Sagem, another subsidiary of Safran, developed the navigation systems for the M51, which will improve the accuracy of the missile.¹⁵⁹ SNPE Matériaux Energétiques (SME), a subsidiary of state-owned SNPE which was merged into Safran's subsidiary Herakles together with Snecma Propulsion Solide (SPS) in 2011, made the rocket propellant that powers the nuclear ballistic missile.¹⁶⁰

Financial Institutions

The following financial institutions invest in Safran:

ABP (Netherlands)	Groupe BPCE (France)
Allianz (Germany)	HSBC (United Kingdom)
Banco Santander (Spain)	ING Group (Netherlands)
Bank of America (United States)	Mitsubishi UFJ Financial (Japan)
Blackrock (United States)	Morgan Stanley (United States)
BNP Paribas (France)	Oddo & Cie (France)
Citi (United States)	Royal Bank of Scotland (United Kingdom)
Commerzbank (Germany)	Société Générale (France)
Crédit Agricole (France)	Tweedy Browne Company (United States)
Crédit Mutuel (France)	Vanguard Group (United States)
Deutsche Bank (Germany)	Wellington Management Company (United States)
Fidelity Investments (United States)	
Franklin Resources (United States)	



SAFRAN
AEROSPACE · DEFENCE · SECURITY

SAIC (United States)

Science Applications International Corporation (SAIC), based in the United States, offers scientific, technical and technological applications. The key divisions of the company are Cybersecurity, Energy, Environment and Infrastructure, Research, Health and Logistics.¹⁶¹

In the financial year ending 31 January 2013, SAIC reported revenues of USD11.2 billion (€ 8.3 billion), resulting in an operating income of USD 734 million (€ 543 million) and a net profit of USD 525 million (€ 388 million).¹⁶²

Nuclear weapons

In the past 25 years, SAIC has provided technical, engineering and support services to the nuclear programme of the National Nuclear Security Administration (NNSA) Office of Defense Programs. SAIC's work in inventory for the Office of Defense Programs include technical and programmatic support for weapons maintenance, security, life extension, and modifications to the weapons systems. SAIC supports the development and deployment of production technologies for materials, production, purchasing, and inspection and testing of replacement parts used in nuclear weapons and ballistic missiles, and for joint test assemblies.¹⁶³

Recent contracts include an agreement from February 2012 for technical and analytical services, including nuclear-related technical assessments, to the Department of Defense (DoD). The contract has a term of one year, but may be renewed four times by one year. The contract value is up to a maximum of USD 95 million (€ 72 million), if all options are exercised.¹⁶⁴

In October 2012, SAIC obtained a task order by the Defense Information Systems Agency (DISA) to provide strategic command, control and communications (C3) system engineering and technical services in support of the Nuclear C3 System. The single-award contract has a one-year base period of performance, four one-year options, and a total contract value of USD18 million (€ 14 million) if all options are exercised.¹⁶⁵

In January 2013, SAIC was awarded a prime contract by the NNSA to provide enterprise-wide technical, engineering, and programmatic support services for programme management, nuclear engineering, training, security management, emergency operations, aviation operations, nuclear nonproliferation and emergency management. The contract was awarded to SAIC as a member of the TechSource-led small business team, which is one of eight small business contractor teams eligible to compete for work under the contract.¹⁶⁶ About SAIC's tasks it was only announced that it "*will provide support services to mission critical national security programs*". The five-year multiple-award purchase agreement has a total contract value of USD300 million (€ 232 million) for all awardees.¹⁶⁷

Financial institutions

The following financial institutions invest in SAIC:

Addison Clark Management (United States)	States)
Aegon (Netherlands)	New York Life Insurance Company (United States)
Anchor Capital Advisors (United States)	Northern Trust (United States)
Aronson Johnson & Ortiz (United States)	Nuveen Investments (United States)
Artisan Partners Limited (United States)	Pensioenfonds Zorg & Welzijn (Netherlands)
Bank of America (United States)	Principal Financial Group (United States)
Blackrock (United States)	Prudential (United Kingdom)
BNY Mellon (United States)	Royal Bank of Scotland (United Kingdom)
Citi (United States)	Schroders (United Kingdom)
Crestwood Capital Management (United States)	Scotiabank (Bank of Nova Scotia) (Canada)
Fidelity Investments (United States)	Shapiro Capital Management (United States)
Franklin Resources (United States)	Société Générale (France)
Geode Capital Management (United States)	State Street (United States)
Government Pension Fund – Global (Norway)	SunTrust (United States)
ING Group (Netherlands)	UBS (Switzerland)
Invesco (United States)	US Bancorp (United States)
Iridian Asset Management (United States)	Vanguard Group (United States)
LSV Asset Management (United States)	Wells Fargo (United States)
Mayo Investment Advisors (United States)	
Morgan Stanley (United States)	



Serco (United Kingdom)

Serco Group, based in the United Kingdom, operates as a service company to governments and commercial customers worldwide. Its main business areas in public service are health, education, transport, science and defence, while private-sector customers operate in various markets.¹⁶⁸

In 2012, Serco generated revenues of £ 4.9 billion (€ 5.7 billion), resulting in an operating profit of £ 287 million (€ 335 million) and a net profit of £ 245 million (€ 299 million).¹⁶⁹

Nuclear weapons

Serco holds a 33.3% share in the joint venture AWE-ML, the company that manages the UK Atomic Weapons Establishment (AWE). The other two partners are Jacobs Engineering and Lockheed Martin. The AWE is responsible for the maintenance of the warheads for the UK nuclear arsenal. Trident is a submarine-launched, intercontinental ballistic missile system carried by Vanguard-class submarines.

AWE's involvement with Trident missiles covers the entire life cycle, from initial concept to assessment, design, component manufacture and assembly, in-service support and decommissioning and disposal.¹⁷⁰ AWE-ML has a 25 year-long non-revocable contract to run the AWE that expires in March 2025.¹⁷¹

Financial institutions

The following financial institutions invest in Serco:

ABP (Netherlands)	HSBC (United Kingdom)
Aegon (Netherlands)	Invesco (United States)
Allianz (Germany)	JP Morgan Chase (United States)
ANZ Banking Group (Australia)	KBC Bank (Belgium)
AXA (France)	Legal & General Group (United Kingdom)
Baillie Gifford & Co (United Kingdom)	Lloyds Banking Group (United Kingdom)
Bank of America (United States)	Longview Partners (United Kingdom)
Barclays (United Kingdom)	Mitsubishi UFJ Financial (Japan)
Blackrock (United States)	Mondrian Investment Partners (United Kingdom)
Capital Group of Companies (United States)	National Bank of Abu Dhabi (United Arab Emirates)
Commerzbank (Germany)	Newton Investment Management (United Kingdom)
Commonwealth Bank of Australia (Australia)	Royal Bank of Scotland (United Kingdom)
Crédit Agricole (France)	Standard Life (United Kingdom)
DBS Group (Singapore)	State Street (United States)
Fidelity Investments (United States)	Sumitomo Mitsui Banking (Japan)
Financière de l'Echiquier (France)	Sun Life Financial (United States)
Gryphon International Investmebt Corporation (Canada)	T. Rowe Price Group (United States)
Helaba (Germany)	Vanguard Group (United States)



Thales (France)

Thales, based in France, provides information systems for the defence and security, aerospace and transportation markets.¹⁷² Thales holds a 35% stake in DCNS, the company responsible for the refit of French submarines with new M51 intercontinental nuclear warhead missile.

In 2012, Thales generated revenues of € 14.2 billion, resulting in an operating income of € 915 million and a net income of € 536 million.¹⁷³

Nuclear weapons

Thales is producing sonar installations for British and French submarines. In March 2013, the company obtained a £ 600 million (€ 708 million) ten-year contract to maintain and repair the sensor and electronic warfare systems of the Royal Navy submarine fleet, including Vanguard-class submarines, armed with Trident II (D5) nuclear missiles.¹⁷⁴

Thales, together with EADS, Safran, SNPE (part of Safran-subsiary Herakles) and DCNS, obtained a contract in December 2004 to build the new M51 nuclear missile for the new French submarines, an estimated value of € 3 billion. EADS's subsidiary Astrium is the lead contractor, whereas Safran, SNPE, DCNS and Thales are the main subcontractors.¹⁷⁵

The M51 features multiple warheads, with far greater payload mass and volume than the M4. It also offers a longer range, enabling submarines to expand their patrol zones. The nuclear submarine Le Terrible has been equipped with the M51 since late 2010. The missile will also enter operational service aboard the other new-generation submarines, Triomphant and Téméraire, after retrofit. A second version of the missile upper stage with new nuclear warheads, will be commissioned from 2015.¹⁷⁶

Financial institutions

The following financial institutions invest in Thales:

ANZ Banking Group (Australia)	Groupe BPCE (France)
Aviva (United Kingdom)	HSBC (United Kingdom)
Banco Santander (Spain)	International Value Advisors (United States)
Barclays (United Kingdom)	Intesa Sanpaolo (Italy)
BBVA (Spain)	Mitsubishi UFJ Financial (Japan)
Blackrock (United States)	Riyad Bank (Saudi Arabia)
BNP Paribas (France)	Royal Bank of Scotland (United Kingdom)
Citi (United States)	Société Générale (France)
Commerzbank (Germany)	Sumitomo Mitsui Banking (Japan)
Crédit Agricole (France)	UniCredit (Italy)
Crédit Mutuel (France)	Vanguard Group (United States)
Deutsche Bank (Germany)	
Government Pension Fund – Global (Norway)	



ThyssenKrupp (Germany)

ThyssenKrupp, based in Germany, has five key business areas: Components Technology, Elevator Technology, Industrial Solutions, Materials Services and Steel Europe.

In the financial year ending 30 September 2012, ThyssenKrupp generated revenues of € 40.1 billion, resulting in an operating income of € 937 million and a net loss of € 4.7 billion.¹⁷⁷

Nuclear weapons

ThyssenKrupp's division ThyssenKrupp Marine Systems (TKMS) is building the Dolphin submarines for the Israeli army. In total six submarines will be delivered by 2017. Atlas Elektronik, co-owned by Thyssen Krupp (60%) and EADS (40%), supplies the combat and guidance systems for the submarines. Atlas Elektronik's conventional DM2A3 torpedoes can be launched from the six 533mm tubes.¹⁷⁸

The submarines are the result of two decades of strategic cooperative programme between Israel and Germany and are partly paid for by the German government. Construction is taking place in Germany, according to Israeli design specifications, hosting Israeli-developed command, control and combat systems including, according to various media reports, land-attack and cruise missiles designed to be capable of carrying nuclear warheads.¹⁷⁹

The German government insists that it doesn't know anything about the nuclear-capability of the submarines. However, former top German officials have recently confirmed that the boats were originally constructed for the purposes of nuclear capability. The use of Israeli Popeye Turbo missiles as nuclear carrier missiles is possible through the four 650mm torpedo tubes of the Dolphins. HDW equipped the Israeli submarines with a newly developed hydraulic ejection system instead of their usual compressed air ejection system. The hydraulic ejection system is strong enough to catapult the Popeye Turbo carrying a nuclear warhead.¹⁸⁰

Financial institutions

The following financial institutions invest in ThyssenKrupp:

BayernLB (Germany)	HSBC (United Kingdom)
Blackrock (United States)	Janus Capital Group (United States)
BNP Paribas (France)	Royal Bank of Scotland (United Kingdom)
Citi (United States)	Sparkassen Finanzgruppe (Germany)
Commerzbank (Germany)	UBS (Switzerland)
Deutsche Bank (Germany)	UniCredit (Italy)
Franklin Resources (United States)	Vanguard Group (United States)
Government Pension Fund – Global (Norway)	

ThyssenKrupp



URS (United States)

URS, based in the United States, is a fully integrated engineering, construction and technical services organization offering programme management; planning, design and engineering; systems engineering and technical assistance; information technology; construction and construction management; operations and maintenance; and decommissioning and closure services.¹⁸¹

In the financial year ending 28 December 2012, URS generated revenues of USD 11.0 billion (€ 8.3 billion), resulting in an operating income of USD 686 million (€ 518 million) and a net income of USD 311 million (€ 235 million).¹⁸²

Nuclear weapons

The Lawrence Livermore (LLNL) and Los Alamos National Laboratories (LANL), is jointly managed by Babcock & Wilcox, University of California, Bechtel and URS Corporation, and plays an important role in the research and design of nuclear weapons.¹⁸³

LANL is responsible for monitoring the safety and reliability of the US nuclear stockpile. The laboratory is engaged in the design and production of nuclear weapons.¹⁸⁴

LLNL engages in research, design and development of nuclear weapons. Stewardship of the US nuclear weapons stockpile is the foremost responsibility of the facility.¹⁸⁵ The Stockpile Stewardship programme is meant to sustain and modernize the US nuclear weapons stockpile through surveillance, assessment, life extension and dismantlement efforts.¹⁸⁶

For both labs, URS is responsible for managing the labs' nuclear and other technically complex operations, working under seven-year contracts with an option for extensions up to 13 years.¹⁸⁷

Financial institutions

The following financial institutions invest in URS:

Affiliated Managers (United States)	JP Morgan Chase (United States)
Ameriprise Financial (United States)	Legg Mason (United States)
AQR Capital Management (United States)	Lord, Abnett & Co (United States)
Aronson Johnson & Ortiz (United States)	LSV Asset Management (United States)
AXA (France)	M&T Bank (United States)
Bank of America (United States)	Macquarie Group (Australia)
Bank of Montreal (BMO Financial Group) (Canada)	Mizuho Bank (Japan)
Barclays (United Kingdom)	Morgan Stanley (United States)
Blackrock (United States)	New Jersey Division of Investment (United States)
BNP Paribas (France)	New York Life Insurance Company (United States)
BNY Mellon (United States)	Northern Trust (United States)
Citi (United States)	Old Mutual (United Kingdom)
City National Bank (CNB) (United States)	Orix Corporation (Japan)
Comerica (United States)	PanAgora Asset Management (United States)
D.E. Shaw (United States)	Pzena Investment Management (United States)
DePrince Race & Zollo (United States)	Raymond James Financial (United States)
Deutsche Bank (Germany)	Renaissance Technologies (United States)
Dimensional Fund Advisors (United States)	Royal Bank of Scotland (United Kingdom)
Dreman Value Management (United States)	SouthernSun Asset Management (United States)
E Sun Financial (Taiwan)	State Street (United States)
Earnest Partners (United States)	Sumitomo Mitsui Banking (Japan)
Fidelity Investments (United States)	SunTrust (United States)
Glenview Capital Management (United States)	Thornburg Investment Management (United States)
Government Pension Fund – Global (Norway)	Union Bank of California (United States)
Guardian Life Insurance Company of America (United States)	US Bancorp (United States)
Guggenheim Capital (United States)	Vanguard Group (United States)
Heartland Financial (United States)	Wedge Capital Management (United States)
HSBC (United Kingdom)	Wells Fargo (United States)
ICC Capital Management (United States)	Westpac Banking (Australia)
Invesco (United States)	
Jacobs Levy Equity Management (United States)	
Janus Capital Group (United States)	



References

- 1 Following news from 2012 on Finmeccanica (Italy), it was decided not to include them in this report. In August 2012, Finmeccanica announced in a letter to the Norwegian Council on Ethics, that it "is not involved in the production of nuclear weapons." IKV Pax Christi is following the news and seeks confirmation from Finmeccanica if it will also in the future refrain from involvement in producing (parts of) nuclear weapons. Until this investigation is completed the company is not on the list of nuclear weapon companies. Depending on new information, it is though possible that Finmeccanica in the future will be (re-) classified as a producer.
- 2 AECOM, "About", Website AECOM (www.aecom.com/About/), viewed June 2013.
- 3 AECOM, "10-K Annual Report 2012", AECOM, November 2012 (media.corporate-ir.net/media_files/IROL/13/131318/AECOM%202012%2010-K%209-30-2012.pdf).
- 4 National Security Technologies, "NSTec, Who we are...", Website National Security Technologies (www2.nstec.com/Pages/About.aspx), viewed May 2013.
- 5 AECOM, "Nevada Test Site Management and Operations", Website AECOM (www.aecom.com/What+We+Do/Government/_projectsList/Nevada+Test+Site+Management+and+Operations), viewed June 2013.
- 6 Nevada Site Office, "NNSA Conducts Pollux Subcritical Experiment at Nevada National Security Site", Website Nevada Site Office, 6 December 2012 (nnsa.energy.gov/mediaroom/pressreleases/pollux120612); Licherman, A., "Issue Update – Subcritical tests", Western States Legal Foundation, 2012 (www.wslfweb.org/docs/WSLF%20Issue%20Update--Subcritical%20Tests%20Fall%202012.pdf).
- 7 ATK, "Corporate overview", Website ATK (www.atk.com/corporate-overview/), viewed May 2013.
- 8 ATK, "10-K Annual Report 2012", ATK, 23 May 2012 (www.atk.com/wp-content/uploads/2012/09/annualreport_ATK_20122.pdf).
- 9 ATK, "10-K Annual Report 2012", ATK, 23 May 2012 (www.atk.com/wp-content/uploads/2012/09/annualreport_ATK_20122.pdf).
- 10 ATK, "ATK Awarded \$100 Million Contract for Trident II Solid Rocket Propulsion Systems", Website ATK, 11 November 2009 (atk.mediaroom.com/index.php?s=25280&item=58065), viewed May 2013; ATK, "Trident II", Website ATK (www.atk.com/products-services/trident-ii/), viewed May 2013.
- 11 ATK, "Minuteman III", Website ATK (www.atk.com/products-services/minuteman-iii/), viewed May 2013; ATK, "10-K Annual Report 2011", ATK, June 2011; Woolf, A.E., "US Strategic Nuclear Forces: Background, Developments and Issues", Congressional Research Service, 14 January 2013 (www.fas.org/sgp/crs/nuke/RL33640.pdf).
- 12 Northrop Grumman, "Press release: Northrop Grumman and ATK Successfully Test Minuteman III Stage 1 for US Air Force", Northrop Grumman, 24 October 2011 (www.irconnect.com/noc/press/pages/news_releases.html?d=235765).
- 13 Woolf, A.E., "US Strategic Nuclear Forces: Background, Developments and Issues", Congressional Research Service, 14 January 2013 (www.fas.org/sgp/crs/nuke/RL33640.pdf).
- 14 Babcock & Wilcox, "About B&W", Website Babcock & Wilcox (www.babcock.com/about/), viewed May 2013.
- 15 Babcock & Wilcox, "Annual Report 2012", Babcock & Wilcox, 27 February 2013 (phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9NTAyMjI3fENoaWxkSUQ9NTQyNzI5fFR5cGU9MQ==&ct=1).
- 16 Babcock & Wilcox, "Annual Report 2011: 10-K", Babcock & Wilcox, March 2012 (phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MTMz-MTA4fENoaWxkSUQ9LTf8VHlWZT0z&ct=1).
- 17 Babcock & Wilcox, "Nuclear Operations Management", Website Babcock & Wilcox (www.babcock.com/services/nuclear_operations_management/), viewed May 2013.
- 18 Babcock & Wilcox, "B&W Announces \$79 Million Naval Nuclear Fuel Contract Extension", Babcock & Wilcox, 11 februari 2011 (www.babcock.com/news_and_events/2011/20110211a.html); Babcock & Wilcox, "Annual Report 2012", Babcock & Wilcox, 27 February 2013 (phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9NTAyMjI3fENoaWxkSUQ9NTQyNzI5fFR5cGU9MQ==&ct=1).
- 19 National Nuclear Security Administration, "Our locations", Website National Nuclear Security Administration (nnsa.energy.gov/aboutus/ourlocations), viewed May 2013; Babcock & Wilcox, "Y-12 National Security Complex (Y-12)", Website Babcock & Wilcox (www.babcock.com/library/project_profiles_Y12.html), viewed May 2013.
- 20 National Nuclear Security Administration, "FY 2012 Congressional Budget Request", Department of Energy, February 2011 (www.mbe.doe.gov/budget/12budget/Content/Volume1.pdf); Babcock & Wilcox, "Pantex", Website Babcock & Wilcox (www.babcock.com/library/project_profiles_Pantex.html), viewed May 2013; National Nuclear Security Administration, "Our locations", Website National Nuclear Security Administration (nnsa.energy.gov/aboutus/ourlocations), viewed May 2013.
- 21 Kristensen, H.M., "The Nuclear Weapons Modernization Budget", FAS Strategic Security Blog of the Federation of American Scientists, 17 February 2011 (blogs.fas.org/security/2011/02/nuclearbudget/); Y12 National Security Complex, "NNSA Delivers All Scheduled W76-1 Units to Navy for 2012", Website Y12 national Security Complex, 19 November 2012 (www.y12.doe.gov/news/press-releases/nnsa-delivers-all-scheduled-w76-1-units-navy-2012).
- 22 Babcock & Wilcox, "Pantex Overview", Website Babcock & Wilcox (www.babcock.com/library/project_profiles_pantex.html), viewed May 2013; Vartabedian, R., "Program to refurbish aging nuclear warheads faces setbacks", Los Angeles Times, 29 May 2009 (articles.latimes.com/2009/may/29/nation/na-broken-warheads29); Babcock & Wilcox, "Babcock & Wilcox Technical Services Group, Inc.", Website Babcock & Wilcox (www.babcock.com/about/business_units/technical_services_group/), viewed May 2013.
- 23 Babcock & Wilcox, "Lawrence Livermore National Laboratory (LLNL)", Website Babcock & Wilcox (www.babcock.com/library/project_profiles_llnl.html), viewed May 2013; Babcock & Wilcox, "Los Alamos National Laboratory (LANL)", Website Babcock & Wilcox (www.babcock.com/library/project_profiles_lanl.html), viewed May 2013; National Nuclear Security Administration, "Our locations", Website National Nuclear Security Administration (nnsa.energy.gov/aboutus/ourlocations), viewed May 2013; Union of Concerned Scientists, "Lawrence Livermore National Laboratory", Union of Concerned Scientists, November 2012 (www.ucsusa.org/assets/documents/nwgs/nuclear-weapons-complex/livermore-fact-sheet.pdf).
- 24 Mello, G., "The US nuclear weapons complex: Pushing for a new production capability", The Bulletin, 20 March 2008 (www.thebulletin.org/web-edition/features/the-us-nuclear-weapons-complex-pushing-a-new-production-capability), viewed May 2013; Bechtel, "US National Laboratories", Website Bechtel (www.bechtel.com/u.s._national_laboratories.html), viewed May 2013.
- 25 Bechtel, "US National Laboratories", Website Bechtel (www.bechtel.com/u.s._national_laboratories.html), viewed May 2013; National Nuclear Security Administration (NNSA), "Lawrence Livermore National Laboratory (LLNL): Nuclear design and engineering and high explosive research & development (R&D)", Website NNSA (nnsa.energy.gov/sites/default/files/nnsa/inlinedfiles/Livermore-FactSheet.pdf), viewed May 2013; Defense Nuclear Facilities Safety Board, "Lawrence Livermore National Laboratory", Website Defense Nuclear Facilities Safety Board (www.dnfsb.gov/about/where-we-work/doe-defense-nuclear-facilities/lawrence-livermore-national-laboratory), viewed May 2013.
- 26 US Department of Energy, "FY 2012 Stockpile Stewardship and Management Plan", US Department of Energy Report to Congress, 15 April 2011 (www.fas.org/programs/ssp/nukes/nuclearweapons/SSMP-FY2012.pdf).
- 27 National Security Technologies, "NSTec, Who we are...", Website National Security Technologies (www2.nstec.com/Pages/About.aspx), viewed May 2013.
- 28 AECOM, "Nevada Test Site Management and Operations", Website AECOM (www.aecom.com/What+We+Do/Government/_projectsList/Nevada+Test+Site+Management+and+Operations), viewed June 2013.
- 29 Nevada Site Office, "NNSA Conducts Pollux Subcritical Experiment at Nevada National Security Site", Website Nevada Site Office, 6 December 2012 (nnsa.energy.gov/mediaroom/pressreleases/pollux120612); Licherman, A., "Issue Update – Subcritical tests", Western States Legal Foundation, 2012 (www.wslfweb.org/docs/WSLF%20Issue%20Update--Subcritical%20Tests%20Fall%202012.pdf).
- 30 Babcock International Group, "About us - Divisions", Website Babcock International (www.babcockinternational.com/about-us/divisions/), viewed May 2013.
- 31 Babcock International, "Annual Report 2012", Babcock International, 14 May 2012 (www.babcockinternational.com/media/332637/annual_report_and_accounts_2012.pdf).
- 32 Needham, L., "50 years in submarine propulsion", Rolls Royce In-depth, issue 13, 2008 (www.rolls-royce.com/Images/In-depth13_tcm92-23311.pdf); UK Ministry of Defence, "Successor Submarine Programme", Ministry of Defence informative aan UK Parliament, 22 mei 2012 (www.parliament.uk/).

- documents/commons-vote-office/May_2012/22-05-12/2.Defence-Successor-submarine-programme.pdf).
- 33 Babcock International, "Annual Report 2012", Babcock International, 14 May 2012 (www.babcockinternational.com/media/332637/annual_report_and_accounts_2012.pdf).
 - 34 U.K. Government, "The United Kingdom's future nuclear deterrent: 2012 update to Parliament", Website U.K. Government, 19 December 2012 (www.gov.uk/government/publications/the-united-kingdom-s-future-nuclear-deterrent-2012-update-to-parliament).
 - 35 Babcock International, "Planning milestone achieved with Vengeance", Website Babcock International, 1 October 2011 (www.babcockinternational.com/media-centre/planning-milestone-achieved-with-vengeance/); Babcock International, "End in sight for Vigilance", Website Babcock International, 23 February 2012 (www.babcockinternational.com/media-centre/end-in-sight-for-vigilant/); BBC News, "Trident missile fact file", Website BBC News, 23 September 2009 (news.bbc.co.uk/2/hi/uk_news/4438392.stm).
 - 36 Babcock International, "Annual Report 2011", Babcock International, June 2011 (www.babcockinternational.com/media/63725/annual_report_2011.pdf).
 - 37 Ministry of Defence, "£350m upgrade for HMS Vengeance", Website UK Government, 26 March 2012 (www.gov.uk/government/news/350m-upgrade-for-hms-vengeance--2); Babcock International, "Planning for Vengeance", Website Babcock International (www.babcockinternational.com/media-centre/planning-for-vengeance/?alttemplate=MobileNewsItem), viewed May 2013.
 - 38 BAE Systems, "Our businesses", Website BAE Systems (www.baesystems.com/our-company-rzz/our-businesses_afrLoop=1408897039934000), viewed May 2013.
 - 39 BAE Systems, "Annual Report 2012", BAE Systems, March 2012 (bae-systems-investor-relations-v2.production.investis.com/-/media/Files/B/BAE-Systems-Investor-Relations-V2/Annual%20Reports/BAE-annual-report-final.pdf).
 - 40 Federation of American Scientists, "Vanguard Class Ballistic Missile Submarine", Website Federation of American Scientists (www.fas.org/nuke/guide/uk/slbm/vanguard.html), viewed May 2013.
 - 41 Needham, L., "50 years in submarine propulsion", Rolls Royce In-depth, issue 13, 2008 (www.rolls-royce.com/Images/In-depth13_tcm92-23311.pdf); UK Ministry of Defence, "Successor Submarine Programme", Ministry of Defence informative aan UK Parliament, 22 May 2012 (www.parliament.uk/documents/commons-vote-office/May_2012/22-05-12/2.Defence-Successor-submarine-programme.pdf).
 - 42 Council on Ethics, "Recommendation to revoke the exclusion of the companies BAE Systems plc. and Finmeccanica S.p.A. from the investment universe of the Government Pension Fund Global", Council on Ethics for the Government Pension Fund Global, 31 August 2012 (www.regjeringen.no/upload/FIN/etik/2013/bae_finmec_eng.pdf).
 - 43 The Royal Navy, Fleet, <http://www.royalnavy.mod.uk/The-Fleet/Submarines>, viewed 9 September 2013.
 - 44 Bechtel Corporation, "Business Units", Website Bechtel Corporation (www.bechtel.com/business_units.html), viewed May 2013.
 - 45 Bechtel Corporation, "Annual Report 2012", Bechtel Corporation, April 2012 (www.bechtel.com/assets/annual_report2012).
 - 46 National Nuclear Security Administration, "Our locations", Website National Nuclear Security Administration (nnsa.energy.gov/aboutus/ourlocations), viewed May 2013; Babcock & Wilcox, "Y-12 National Security Complex (Y-12)", Website Babcock & Wilcox (www.babcock.com/library/project_profiles_Y12.html), viewed May 2013.
 - 47 Babcock & Wilcox, "Lawrence Livermore National Laboratory (LLNL)", Website Babcock & Wilcox (www.babcock.com/library/project_profiles_llnl.html), viewed May 2013; Babcock & Wilcox, "Los Alamos National Laboratory (LANL)", Website Babcock & Wilcox (www.babcock.com/library/project_profiles_lanl.html), viewed May 2013; National Nuclear Security Administration, "Our locations", Website National Nuclear Security Administration (nnsa.energy.gov/aboutus/ourlocations), viewed May 2013; Union of Concerned Scientists, "Lawrence Livermore National Laboratory", Union of Concerned Scientists, November 2012 (www.ucsusa.org/assets/documents/nwgs/nuclear-weapons-complex/livermore-fact-sheet.pdf).
 - 48 Mello, G., "The US nuclear weapons complex: Pushing for a new production capability", The Bulletin, 20 March 2008 (www.thebulletin.org/web-edition/features/the-us-nuclear-weapons-complex-pushing-a-new-production-capability), viewed May 2013; Bechtel, "US National Laboratories", Website Bechtel (www.bechtel.com/u.s._national_laboratories.html), viewed May 2013.
 - 49 Bechtel, "US National Laboratories", Website Bechtel (www.bechtel.com/u.s._national_laboratories.html), viewed May 2013; National Nuclear Security Administration (NNSA), "Lawrence Livermore National Laboratory (LLNL): Nuclear design and engineering and high explosive research & development (R&D)", Website NNSA (nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/LivermoreFactSheet.pdf), viewed May 2013; Defense Nuclear Facilities Safety Board, "Lawrence Livermore National Laboratory", Website Defense Nuclear Facilities Safety Board (www.dnfsb.gov/about/where-we-work/doe-defense-nuclear-facilities/lawrence-livermore-national-laboratory), viewed May 2013.
 - 50 US Department of Energy, "FY 2012 Stockpile Stewardship and Management Plan", US Department of Energy Report to Congress, 15 April 2011 (www.fas.org/programs/ssp/nukes/nuclearweapons/SSMP-FY2012.pdf).
 - 51 Bloomberg Businessweek, "Bharat Electronics Ltd.", Website Bloomberg Businessweek (investing.businessweek.com/research/stocks/snapshot/snapshot.aspx?ticker=BHE:IN), viewed June 2013.
 - 52 Bharat Electronics, "Annual Report 2011/12", Bharat Electronics, 30 July 2012 (www.bel-india.com/sites/default/files/AR_2011-12.pdf).
 - 53 Bharat Electronics, "Annual Report 2011/12", Bharat Electronics, 30 July 2012 (www.bel-india.com/sites/default/files/AR_2011-12.pdf).
 - 54 Times of India, "Nuclear-capable Akash missile test fired", Website Times of India, 13 December 2007 (articles.timesofindia.indiatimes.com/2007-12-13/india/27973517_1_akash-missile-nuclear-capable-multi-target-missile).
 - 55 Airforce Technology, "Indian Air Force Approves Akash Missile", Website Airforce Technology, 1 February 2010 (www.airforce-technology.com/news/news75582.html).
 - 56 Bharat Electronics, "Annual Report 2011/12", Bharat Electronics, 30 July 2012 (www.bel-india.com/sites/default/files/AR_2011-12.pdf); Army Technology, "Akash Surface-to-Air Missile System, India", Website Army Technology (www.army-technology.com/projects/akashsurfaceairmissil/), viewed June 2013.
 - 57 Boeing, "Boeing in Brief", Website Boeing (www.boeing.com/companyoffices/aboutus/brief.html), viewed May 2013.
 - 58 Boeing, "Annual Report 2012", Boeing, 11 February 2013 (materials.proxyvote.com/Approved/097023/20130301/CMBO_157699/Download).
 - 59 Boeing, "LGM-30 Minuteman Missile", Website Boeing (www.boeing.com/history/boeing/minuteman.html), viewed May 2013.
 - 60 US Air Force, "LGM-30G Minuteman III", Website US Air Force, 9 May 2013 (www.af.mil/information/factsheets/factsheet.asp?id=113).
 - 61 Boeing, "Intercontinental Ballistic Missile Systems", Website Boeing (www.boeing.com/defense-space/ic/ibcmsys/index.html), viewed May 2013; Boeing, "Strategic Missile Systems", Website Boeing (www.boeing.com/boeing/defense-space/ic/ibcmsys/), viewed May 2013; Defense Industry Daily, "Missile Envy: Modernizing the US ICBM Force", Defense Industry Daily, 14 March 2011 (www.defenseindustrydaily.com/Missile-Envy-Modernizing-the-US-ICBM-Force-06059/); Washington Watch, "Minuteman III Solid Rocket Motor Warm Line Program (SRMWL)", Website Washington Watch (www.washingtonwatch.com/bills/show/ED_81542.html), viewed May 2013; Globe Newswire, "Minuteman ICBM Commemorates 50 Years of Nuclear Deterrence", Website GlobeNewswire, 9 January 2013 (globenewswire.com/news-release/2013/01/09/515498/10017538/en/Minuteman-ICBM-Commemorates-50-Years-of-Nuclear-Deterrence.html).
 - 62 Woolf, A.E., "US Strategic Nuclear Forces: Background, Developments and Issues", Congressional Research Service, 14 January 2013 (www.fas.org/sgp/crs/nuke/RL33640.pdf).
 - 63 Boeing, "Guidance Replacement Program (GRP)", Website Boeing (www.boeing.com/boeing/defense-space/ic/ibcmsys/grp.page), viewed May 2013.
 - 64 Boeing, "B-52 Stratofortress", Website Boeing (www.boeing.com/defense-space/military/b52-strat/index.html), viewed May 2013.
 - 65 Boeing, "Boeing FAB-T Satellite Communications Program making progress", News Release Boeing, 18 July 2011 (boeing.mediaroom.com/index.php?s=43&item=1842).
 - 66 Boeing, "Boeing Delivers FAB-T Test Units to US Air Force", Website Boeing, 9 April 2013 (boeing.mediaroom.com/index.php?s=43&item=2644).
 - 67 CH2M HILL, "Markets", Website CH2M HILL (www.ch2m.com/corporate/about_us/default.asp#), viewed June 2013;

- CH2M HILL, "About us", Website CH2M HILL (www.ch2m.com/corporate/about_us/default.aspx), viewed June 2013.
- 68 CH2M HILL, "10-K Annual Report 2012", CH2M HILL, 28 February 2013 (www.sec.gov/Archives/edgar/data/777491/000104746913002034/a2212415z10-k.htm#Con_balance_Sheets).
- 69 National Security Technologies, "NSTec, Who we are...", Website National Security Technologies (www.2nstec.com/Pages/About.aspx), viewed May 2013.
- 70 AECOM, "Nevada Test Site Management and Operations", Website AECOM (www.aecom.com/What+We+Do/Government/_projectsList/Nevada+Test+Site+Management+and+Operations), viewed June 2013.
- 71 Nevada Site Office, "NNSA Conducts Pollux Subcritical Experiment at Nevada National Security Site", Website Nevada Site Office, 6 December 2012 (nnsa.energy.gov/mediaroom/pressreleases/pollux120612); Licherman, A., "Issue Update – Subcritical tests", Western States Legal Foundation, 2012 (www.wslfweb.org/docs/WSLF%20Issue%20Update--Subcritical%20Tests%20Fall%202012.pdf).
- 72 EADS, "What we do", Website EADS (www.eads.com/eads/int/en/our-company/What-we-do.html), viewed May 2013.
- 73 EADS, "Financial Statements 2012", EADS, 25 February 2013 (www.eads.com/dms/eads/int/en/investor-relations/documents/2013/AGM/EADS-Financial-Statements-2012/EADS%20Financial%20statements%202012.pdf).
- 74 Astrium, "M45", Website Astrium (www.astrium.eads.net/node.php?articleid=105), viewed May 2013.
- 75 Astrium, "M51", Website Astrium (www.astrium.eads.net/en/programme/m-51.html), viewed May 2013; Aviation Week, "M51 gives France more flexible deterrent to meet changing threats", Aviation Week and Space Technology, October 2006 (www.globalspec.com/reference/15676/121073/m51-gives-france-more-flexible-deterrent-to-meet-changing-threats).
- 76 Fluor, "Business Segments", Website Fluor (www.fluor.com/business_segments/Pages/default.aspx), viewed May 2013.
- 77 Fluor, "Annual Report 2012", Fluor, 8 March 2013 (phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MTc1NDA1fENoaWxkSUQ9LTF8VHlwZ-T0z&ct=1).
- 78 SRNS, "SRNS", Website SRNS (www.savannahrivernuclearsolutions.com/), viewed June 2013.
- 79 Huntington Ingalls, "Annual Report 2011 10-K", Huntington Ingalls, 28 March 2012 (services.corporate-ir.net/SEC.Enhanced/SecCapsule.aspx?c=243052&fid=8096459).
- 80 Fluor, "USDOE Savannah River Nuclear Site Management & Operations", Website Fluor (www.fluor.com/projects/pages/projectinfopage.aspx?prjid=116), viewed May 2013; SRNS, "Defense Programs", Website Savannah River Nuclear Solutions (www.savannahrivernuclearsolutions.com/programs/def_prgms01.htm), viewed May 2013.
- 81 Gencorp, "About Gencorp", Website Gencorp (www.gencorp.com/pages/aboutgc.php), viewed May 2013.
- 82 Gencorp, "Annual Report 2012", Gencorp, 11 February 2013 (investor.gencorp.com/secfiling.cfm?filingID=1193125-13-49466&CIK=40888).
- 83 Aerojet, "Capabilities: Strategic Systems Propulsion", Website Aerojet (www.aerojet.com/capabilities/strategic.php), viewed May 2013.
- 84 US Air Force, "LGM-30G Minuteman III", Website US Air Force, 9 May 2013 (www.af.mil/information/factsheets/factsheet.asp?id=113).
- 85 Lockheed Martin, "Trident II D5 Fleet Ballistic Missile (FBM)", Website Lockheed Martin (www.lockheedmartin.com/us/products/trident-ii-d5-fleet-ballistic-missile--fbm-.html), viewed May 2013.
- 86 UK Parliament, "Selected Committee on Defence Eight Report, 2006", Website UK Parliament (www.publications.parliament.uk/pa/cm200506/cmselect/cmdfence/986/98609.htm), viewed May 2013.
- 87 General Dynamics, "About GD", Website General Dynamics (www.generaldynamics.com/about/), viewed May 2013.
- 88 General Dynamics, "Annual Report 2012", General Dynamics, 6 March 2013 (phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MTc1OTA0fENoaWxkSUQ9LTF8VHlwZT0z&ct=1).
- 89 America's Navy, "Fleet Ballistic Missile Submarines – SSBN", Website America's Navy (www.navy.mil/navydata/fact_display.asp?cid=4100&tid=200&ct=4), viewed May 2013. Federation of American Scientists "Ohio class SSGN", Website Federation of American Scientists (www.fas.org/programs/ssp/man/uswpns/navy/submarines/ssgn726_ohio.html), viewed May 2013.
- 90 General Dynamics Electric Boat, "Our Product: Ohio Class", Website General Dynamics Electric Boat (www.gdeb.com/about/product/ohio/), viewed May 2013.
- 91 General Dynamics Electric Boat, "US Navy awards General Dynamics \$429 million for nuclear submarine support work", News Release General Dynamics Electric Boat, 17 October 2011 (www.gdeb.com/news/news_archives/PDF/2011/2011-10-17.pdf).
- 92 Defense Industry Daily, "\$101.1M to Develop the MK6 LE - So, What's That?", Website Defense Industry Daily (www.defenseindustrydaily.com/1011m-to-develop-the-mk6-le-so-whats-that-01627/), viewed May 2013.
- 93 General Dynamics Advanced Information Systems, "General Dynamics Awarded \$110 Million for Procurement of Foundry Services", News Release General Dynamics Advanced Information Systems, 14 December 2009 (www.gd-ais.com/News/General-Dynamics-Awarded-110-Million-for-Procurement-of-Foundry-Services-).
- 94 General Dynamics Advanced Information Systems, "General Dynamics Awarded \$96 Million to Support Trident II Submarine Strategic Weapons Systems", News Release General Dynamics Advanced Information Systems, 5 January 2012 (www.gd-ais.com/News/General-Dynamics-Awarded-96-Million-to-Support-Trident-II-Submarine-Strategic-Weapons-Systems).
- 95 Lockheed Martin, "Trident II D5 Fleet Ballistic Missile (FBM)", Website Lockheed Martin (www.lockheedmartin.com/us/products/trident-ii-d5-fleet-ballistic-missile--fbm-.html), viewed May 2013.
- 96 UK Parliament, "Selected Committee on Defence Eight Report, 2006", Website UK Parliament (www.publications.parliament.uk/pa/cm200506/cmselect/cmdfence/986/98609.htm), viewed May 2013.
- 97 Honeywell International, "Our Company", Website Honeywell International (honeywell.com/About/Pages/our-company.aspx), viewed May 2013.
- 98 Honeywell International, "10-K Annual Report 2012", Honeywell International, 22 April 2013 (phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9ND-k2NjM5fENoaWxkSUQ9NTM1NTQ5fFR5cGU9MQ==&ct=1).
- 99 Nuclear Watch, "Kansas City and the US Nuclear Weapons Complex", Nuclear Watch, 14 August 2010 (nukewatch.org/facts/nwd/KC_NWC.pdf).
- 100 St. Louis Chapter of the National Defense Industrial Association, "Honeywell's Nuclear Weapons Parts Plant Contract is Extended", Website St. Louis Chapter of the National Defense Industrial Association, 23 July 2010 (www.ndiastl.org/blog/honeywell%E2%80%99s-nuclear-weapons-parts-plant-contract-is-extended/).
- 101 Huntington Ingalls, "Annual Report 2011 10-K", Huntington Ingalls, 28 March 2012 (services.corporate-ir.net/SEC.Enhanced/SecCapsule.aspx?c=243052&fid=8096459).
- 102 Fluor, "USDOE Savannah River Nuclear Site Management & Operations", Website Fluor (www.fluor.com/projects/pages/projectinfopage.aspx?prjid=116), viewed May 2013; SRNS, "Defense Programs", Website Savannah River Nuclear Solutions (www.savannahrivernuclearsolutions.com/programs/def_prgms01.htm), viewed May 2013.
- 103 The New Mexico Partnership, "New Mexico: Aviation & Aerospace", Website The New Mexico Partnership (nmpartnership.com/uploads/navigation/Aviation_Aerospace_PDF/Aviation.pdf), viewed May 2013.
- 104 Defense Industry Daily, "\$101.1M to Develop the MK6 LE - So, What's That?", Defense Industry Daily (www.defenseindustrydaily.com/1011m-to-develop-the-mk6-le-so-whats-that-01627/), viewed May 2013.
- 105 General Dynamics Advanced Information Systems, "General Dynamics Awarded \$110 Million for Procurement of Foundry Services", News Release General Dynamics Advanced Information Systems, 14 December 2009 (www.gd-ais.com/

- News/General-Dynamics-Awarded-110-Million-for-Procurement-of-Foundry-Services-).
- 106 Lockheed Martin, "Trident II D5 Fleet Ballistic Missile (FBM)", Website Lockheed Martin (www.lockheedmartin.com/us/products/trident-ii-d5-fleet-ballistic-missile--fbm-.html), viewed May 2013.
- 107 UK Parliament, "Selected Committee on Defence Eight Report, 2006", Website UK Parliament (www.publications.parliament.uk/pa/cm200506/cmselect/cmdfence/986/98609.htm), viewed May 2013.
- 108 Huntington Ingalls Industries, "Who we are", Website Huntington Ingalls (www.huntingtoningalls.com/about/index), viewed May 2013.
- 109 Huntington Ingalls Industries, "Annual Report 2012 10-K", Huntington Ingalls Industries, 27 February 2013 (phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MTc5MTE3fENoaWxkSUQ9LTF8VHlwZT0z&ct=1).
- 110 Huntington Ingalls, "Annual Report 2011 10-K", Huntington Ingalls, 28 March 2012 (services.corporate-ir.net/SEC.Enhanced/SecCapsule.aspx?c=243052&fid=8096459).
- 111 Fluor, "USDOE Savannah River Nuclear Site Management & Operations", Website Fluor (www.fluor.com/projects/pages/projectinfopage.aspx?prjid=116), viewed May 2013; SRNS, "Defense Programs", Website Savannah River Nuclear Solutions (www.savannahrivernuclearsolutions.com/programs/def_prgms01.htm), viewed May 2013.
- 112 Jacobs Engineering, "About", Website Jacobs (www.jacobs.com/about.aspx?id=46), viewed May 2013.
- 113 Jacobs Engineering, "Annual Report 2012", Jacobs Engineering, 20 November 2012 (phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9MTYyOTE0fENoaWxkSUQ9LTF8VHlwZT0z&ct=1).
- 114 Edwards, R., "Anger as US arms dealer takes over running of Scottish nuclear bomb base", Scotland Herald (www.heraldscotland.com/news/home-news/anger-as-us-arms-dealer-takes-over-running-of-scottish-nuclear-bomb-base.13864732), 28 May 2011.
- 115 Jacobs Engineering, "Jacobs Agrees to Acquire Share in AWE Management Limited", News Release Jacobs Engineering, 17 December 2012 (www.jacobs.com/News.aspx?id=5242); AWE, "About AWE: The Company", Website AWE (www.awe.co.uk/aboutus/the_company_eb1b2.html), viewed May 2013; AWE, "About AWE: What We Do", Website AWE (www.awe.co.uk/aboutus/what_we_do_27815.html), viewed May 2013.
- 116 The Guardian, "Britain's nuclear spending soars amid defence cuts", Website The Guardian, 2 October 2011 (www.guardian.co.uk/uk/2011/oct/02/ministry-of-defence-nuclear-spending-project-pegasus); AWE, "About AWE: The Company", Website AWE (www.awe.co.uk/aboutus/the_company_eb1b2.html), viewed May 2013.
- 117 Larsen & Toubro, "Company profile", Website Larsen & Toubro (www.larsentoubro.com/Intcorporate/common/ui_templates/HtmlContainer.aspx?res=P_CORP_AABT_ACOM_AOVR), viewed May 2013.
- 118 Larsen & Toubro, "Annual Report 2011-2012", Larsen & Toubro, May 2012 (www.larsentoubro.com/Intcorporate/Uploads/AnnualReport2011-12-23.pdf).
- 119 Naqvi, T.H., "Indian nuclear submarine programme", The Nation, 13 May 2012 (www.nation.com.pk/pakistan-news-newspaper-daily-english-online/columns/13-May-2012/indian-nuclear-submarine-programme); Sandeep Unnithan, "The secret undersea weapon", India Today, 17 January 2008 (indiatoday.intoday.in/story/The+secret+undersea+weapon/1/3659.html); Ajai Shukla, "Larsen & Toubro flexes its engineering might", Business Standard, 21 March 2008 (business-standard.com/india/news/larsentoubro-flexes-its-engineering-might/317578/); Global Security, "India ATV", Website Global Security (www.globalsecurity.org/military/world/india/atv.htm), viewed May 2013; Ray, K., "INS Arihant will miss December deadline", Deccan Herald, 10 November 2012 (www.deccanherald.com/content/291417/ins-arihant-miss-december-deadline.html).
- 120 Mallikarjun, Y., "India to integrate K-15 missiles into nuclear submarine soon", Website The Hindu, 20 November 2012 (www.thehindu.com/todays-paper/tp-national/india-to-integrate-k15-missiles-into-nuclear-submarine-soon/article4113618.ece).
- 121 Naqvi, T.H., "Indian nuclear submarine programme", The Nation, 13 May 2012 (www.nation.com.pk/pakistan-news-newspaper-daily-english-online/columns/13-May-2012/indian-nuclear-submarine-programme); Sandeep Unnithan, "The secret undersea weapon", India Today, 17 January 2008 (indiatoday.intoday.in/story/The+secret+undersea+weapon/1/3659.html); Ajai Shukla, "Larsen & Toubro flexes its engineering might", Business Standard, 21 March 2008 (business-standard.com/india/news/larsentoubro-flexes-its-engineering-might/317578/); Global Security, "India ATV", Website Global Security (www.globalsecurity.org/military/world/india/atv.htm), viewed May 2013; Ray, K., "INS Arihant will miss December deadline", Deccan Herald, 10 November 2012 (www.deccanherald.com/content/291417/ins-arihant-miss-december-deadline.html).
- 122 Army Technology, "Akash Surface-to-Air Missile System, India", Website Army Technology (www.army-technology.com/projects/akashsurface-to-air-missiles/), viewed June 2013;
- 123 Lockheed Martin, "What we do", Website Lockheed Martin (www.lockheedmartin.com/us/what-we-do.html), viewed May 2013.
- 124 Lockheed Martin, "Annual Report 2012", Lockheed Martin, 28 February 2013 (www.lockheedmartin.com/content/dam/lockheed/data/corporate/documents/2012-Annual-report.pdf).
- 125 Stockholm International Peace Research Institute (SIPRI), "The SIPRI Top 100 arms producing and military services companies, 2010", Website SIPRI (www.sipri.org/research/armaments/production/Top100), viewed May 2013.
- 126 Lockheed Martin, "Annual Report 2011", Lockheed Martin, 23 February 2012; Edwards, R., "Anger as US arms dealer takes over running of Scottish nuclear bomb base", Scotland Herald, 28 May 2011 (www.heraldscotland.com/news/home-news/anger-as-us-arms-dealer-takes-over-running-of-scottish-nuclear-bomb-base.13864732).
- 127 Lockheed Martin, "Trident II D5 Fleet Ballistic Missile (FBM)", Website Lockheed Martin (www.lockheedmartin.com/us/products/trident-ii-d5-fleet-ballistic-missile--fbm-.html), viewed May 2013.
- 128 ATK, "ATK Awarded \$100 Million Contract for Trident II Solid Rocket Propulsion Systems", Website ATK, 11 November 2009 (atk.mediaroom.com/index.php?s=25280&item=58065), viewed May 2013; ATK, "Trident II", Website ATK (www.atk.com/products-services/trident-ii/), viewed May 2013.
- 129 UK Parliament, "Selected Committee on Defence Eight Report, 2006", Website UK Parliament (www.publications.parliament.uk/pa/cm200506/cmselect/cmdfence/986/98609.htm), viewed May 2013.
- 130 Edwards, R., "Anger as US arms dealer takes over running of Scottish nuclear bomb base", Scotland Herald (www.heraldscotland.com/news/home-news/anger-as-us-arms-dealer-takes-over-running-of-scottish-nuclear-bomb-base.13864732), 28 May 2011.
- 131 Jacobs Engineering, "Jacobs Agrees to Acquire Share in AWE Management Limited", News Release Jacobs Engineering, 17 December 2012 (www.jacobs.com/News.aspx?id=5242); AWE, "About AWE: The Company", Website AWE (www.awe.co.uk/aboutus/the_company_eb1b2.html), viewed May 2013; AWE, "About AWE: What We Do", Website AWE (www.awe.co.uk/aboutus/what_we_do_27815.html), viewed May 2013.
- 132 The Guardian, "Britain's nuclear spending soars amid defence cuts", Website The Guardian, 2 oktober 2011 (www.guardian.co.uk/uk/2011/oct/02/ministry-of-defence-nuclear-spending-project-pegasus); AWE, "About AWE: The Company", Website AWE (www.awe.co.uk/aboutus/the_company_eb1b2.html), viewed May 2013.
- 133 Defense Industry Daily, "Missile Envy: Modernizing the US ICBM Force, 14 March 2011", Defense Industry Daily Website (www.defenseindustrydaily.com/Missile-Envy-Modernizing-the-US-ICBM-Force-06059/), viewed May 2013.
- 134 Lockheed Martin, "Lockheed Martin Receives \$12.5 Million Contract for Reentry Vehicle Fuze Refurbishment for Air Force's ICBM Program", News Release Lockheed Martin, 14 March 2011 (www.lockheedmartin.com/us/news/press-releases/2011/march/LockheedMartinReceives125.html); Boeing, "Intercontinental Ballistic Missile Systems", Website Boeing (www.boeing.com/defense-space/ic/ibmsys/index.html), viewed May 2013.
- 135 Lockheed Martin, "Lockheed Martin Receives \$12.5 Million Contract for Reentry Vehicle Fuze Refurbishment for Air Force's ICBM Program", News Release Lockheed Martin, 14 March 2011 (www.lockheedmartin.com/us/news/press-releases/2011/march/LockheedMartinReceives125.html), viewed May 2013; US Air Force, "SecAF discusses Minuteman III, space at Vandenberg, 17

- June 2011", Website US Air Force (www.af.mil/news/story.asp?id=123209799), viewed May 2013.
- 136 Lockheed Martin, "Lockheed Martin UK Acquires Imes Strategic Support Limited", News Release Lockheed Martin, 30 April 2009 (www.lockheedmartin.co.uk/uk/news/press-releases/2009-press-releases/lmuk-issl.html).
- 137 Northrop Grumman, "About us", Website Northrop Grumman (www.northropgrumman.com/about_us/index.html), viewed May 2013.
- 138 Northrop Grumman, "Annual Report 2012", Northrop Grumman, 4 February 2013 (www.northropgrumman.com/AboutUs/AnnualReports/Documents/pdfs/2012_noc_ar.pdf).
- 139 Northrop Grumman, "B-2 Spirit Bomber", Website Northrop Grumman (www.northropgrumman.com/Capabilities/B2SpiritBomber/Pages/default.aspx), viewed May 2013.
- 140 Northrop Grumman, "Northrop Grumman to begin next phase of modernizing B-2 defensive system", News Release Northrop Grumman, 14 February 2013 (www.globenewswire.com/newsarchive/noc/press/pages/news_releases.html?id=10021861).
- 141 US Air Force, "LGM-30G Minuteman III", Website US Air Force, 9 May 2013 (www.af.mil/information/factsheets/factsheet.asp?id=113); Boeing, "Intercontinental Ballistic Missile Systems", Website Boeing (www.boeing.com/defense-space/ic/icbmsys/index.html), viewed May 2013; Boeing, "Strategic Missile Systems", Website Boeing (www.boeing.com/boeing/defense-space/ic/icbmsys/), viewed May 2013; Defense Industry Daily, "Missile Envy: Modernizing the US ICBM Force", Defense Industry Daily, 14 March 2011 (www.defenseindustrydaily.com/Missile-Envy-Modernizing-the-US-ICBM-Force-06059/); Washington Watch, "Minuteman III Solid Rocket Motor Warm Line Program (SRMWL)", Website Washington Watch (www.washingtonwatch.com/bills/show/ED_81542.html), viewed May 2013; Globe Newswire, "Minuteman ICBM Commemorates 50 Years of Nuclear Deterrence", Website GlobeNewswire, 9 January 2013 (globenewswire.com/news-release/2013/01/09/515498/10017538/en/Minuteman-ICBM-Commemorates-50-Years-of-Nuclear-Deterrence.html).
- 142 National Security Technologies, "NSTec, Who we are...", Website National Security Technologies (www2.nstec.com/Pages/About.aspx), viewed May 2013.
- 143 Northrop Grumman, "Annual Report 2011", Northrop Grumman, 7 February 2012 (www.northropgrumman.com/pdf/2011_noc_ar.pdf).
- 144 AECOM, "Nevada Test Site Management and Operations", Website AECOM (www.aecom.com/What+We+Do/Government/_projectsList/Nevada+Test+Site+Management+and+Operations), viewed June 2013.
- 145 Nevada Site Office, "NNSA Conducts Pollux Subcritical Experiment at Nevada National Security Site", Website Nevada Site Office, 6 December 2012 (nnsa.energy.gov/mediaroom/pressreleases/pollux120612); Licherman, A., "Issue Update – Subcritical tests", Western States Legal Foundation, 2012 (www.wslfweb.org/docs/WSLF%20Issue%20Update--Subcritical%20Tests%20Fall%202012.pdf).
- 146 Rockwell Collins, "Our company", Website Rockwell Collins (www.rockwellcollins.com/Our_Company.aspx), viewed May 2013.
- 147 Rockwell Collins, "10-K Annual Report 2012", Rockwell Collins, 13 november 2012 (phx.corporate-ir.net/External.File?item=UGFyZW50SUQ9NDg1OD-kzfENoaWxkSUQ9NTI1MzAzfFR5cGU9MQ=&ct=1).
- 148 Rockwell Collins, "Rockwell Collins selected for Minuteman upgrade program", News Release Rockwell Collins (www.rockwellcollins.com/-/media/Files/Unsecure/News%20Archive/FY07/20061211%20Rockwell%20Collins%20select-ed%20for%20Minuteman%20Upgrade%20program.pdf), 11 December 2006.
- 149 Rolls-Royce, "About: Group overview", Website Rolls-Royce (www.rolls-royce.com/about/index.jsp), viewed May 2013.
- 150 Rolls-Royce, "Annual Report 2012", Rolls-Royce, 13 February 2013 (www.rolls-royce.com/Images/rolls_royce_annual_report_2012_tcm92-44211.pdf).
- 151 Rolls Royce, "Submarines", Website Rolls Royce (www.rolls-royce.com/marine/about/market_sectors/submarines/), viewed May 2013; Naval Technology, "SSBN Vanguard Class", Website Naval Technology (www.naval-technology.com/projects/vanguard/), viewed May 2013.
- 152 Needham, L., "50 years in submarine propulsion", Rolls Royce In-depth, issue 13, 2008 (www.rolls-royce.com/Images/In-depth13_tcm92-23311.pdf); UK Ministry of Defence, "Successor Submarine Programme", Ministry of Defence informative aan UK Parliament, 22 mei 2012 (www.parliament.uk/documents/commons-vote-office/May_2012/22-05-12/2.Defence-Successor-submarine-programme.pdf).
- 153 Defense Industry Daily, "New Nukes: Britain's Next-Gen Missile Submarines", Website Defense Industry Daily, last updated 20 March 2013 (www.defenseindustrydaily.com/new-nukes-britains-next-gen-missile-submarines-07432/).
- 154 Safran, "Group", Website Safran (www.safran-group.com/site-safran-en/group/), viewed May 2013.
- 155 Horobin, W., Pearson, D., "France Sells Safran Shares to Invest Elsewhere", Website Wall Street Journal, 27 March 2013 (online.wsj.com/article/SB10001424127887324685104578385922126180766.html).
- 156 Safran, "Consolidated balance sheet and income statement 2011", Safran, 20 February 2012 (www.safran-group.com/IMG/pdf/2012_consolidated_financial_statements_EN.pdf).
- 157 EADS, "Press release: Contract for Production of the M51 Weapon System", Website EADS (www.eads.net/1024/en/pressdb/archiv/2004/en_20041223_m51.html), 23 december 2004; Tran, P., "Rocket Rendezvous? France Seeks To Merge Engine, Fuel Suppliers", Defense News, 28 June 2010 (www.defensenews.com/print/article/20100628/DEFFEAT02/6280325/Rocket-Rendezvous); Herakles, "History", Website Herakles (www.herakles.com/notre-societe/histoire/history), viewed June 2013.
- 158 Astrium, "M51", Website Astrium (www.astrium.eads.net/en/programme/m-51.html), b viewed May 2013.
- 159 Safran Magazine, "M51, the key to French deterrence", Safran Magazine, November 2007 (safran-group.com/IMG/pdf/EN_mag2-2.pdf).
- 160 Tran, P., "Rocket Rendezvous? France Seeks To Merge Engine, Fuel Suppliers", Defense News, 28 June 2010 (www.defensenews.com/print/article/20100628/DEFFEAT02/6280325/Rocket-Rendezvous).
- 161 SAIC, "Solutions", Website SAIC (www.saic.com/business/), viewed May 2013.
- 162 SAIC, "Annual Report 10-K 2013", SAIC, 26 March 2013 (www.saic.com/news/pdf/AnnualReport2013.pdf).
- 163 SAIC, "SAIC Helps the National Nuclear Security Administration Meet its Mission", Website SAIC (www.saic.com/project/national-nuclear-security-administration-nnsa-office-defense-programs), viewed May 2013.
- 164 SAIC, "SAIC Awarded Contract by Office of the Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs", Website SAIC, 9 February 2012 (investors.saic.com/phoenix.zhtml?c=193857&p=irol-newsArticle&ID=1658898).
- 165 SAIC, "SAIC Awarded \$18 Million Task Order By Defense Information Systems Agency", News Release SAIC, 17 October 2012 (investors.saic.com/phoenix.zhtml?c=193857&p=irol-newsarticle&id=1746366&highlight=).
- 166 TechSource, "TechSource awarded blanket purchase agreement", Press Release TechSource, 19 November 2012 (www.techsource-inc.com/pr.php).
- 167 SAIC, "SAIC Awarded Contract By National Nuclear Security Administration", News Release SAIC, 7 January 2013 (investors.saic.com/phoenix.zhtml?c=193857&p=irol-newsarticle&id=1771583&source=inews).
- 168 Serco, "About Us", Website Serco (www.serco.com/about/index.asp), viewed May 2013.
- 169 Serco, "Annual Report 2012", Serco, March 2012 (www.serco.com/Images/Serco_AR12_WEB_tcm3-40447.pdf).
- 170 Jacobs Engineering, "Jacobs Agrees to Acquire Share in AWE Management Limited", News Release Jacobs Engineering, 17 December 2012 (www.jacobs.com/News.aspx?id=5242); AWE, "About AWE: The Company", Website AWE (www.awe.co.uk/aboutus/the_company_eb1b2.html), viewed May 2013; AWE, "About AWE: What We Do", Website AWE (www.awe.co.uk/aboutus/what_we_do_27815.html), viewed May 2013.
- 171 The Guardian, "Britain's nuclear spending soars amid defence cuts", Website The Guardian, 2 October 2011 (www.guardian.co.uk/uk/2011/oct/02/ministry-of-defence-nuclear-spending-project-pegasus); AWE, "About AWE: The Company", Website AWE (www.awe.co.uk/aboutus/the_company_eb1b2.html), viewed May 2013.
- 172 Thales, "At a glance", Website Thales (www.thalesgroup.com/Group/About_us/At_a_Glance/), viewed May 2013.
- 173 Thales, "Thales consolidated financial statements at 31 December 2012", Thales, 28 February 2013 (www.thalesgroup.com/Group/Investors/Documents/).

Releases_and_Publications/2013/Thales_consolidated_financial_statements_31_12_2012/).

- 174 Gent, E., "Thales wins £600m Royal Navy sensor contract", Engineering and Technology Magazine, 28 May 2013 (eandt.theiet.org/news/2013/may/navy-contract.cfm).
- 175 EADS, "Press release: Contract for Production of the M51 Weapon System", Website EADS (www.eads.net/1024/en/pressdb/archiv/2004/en_20041223_m51.html), 23 December 2004.
- 176 Astrium, "M51", Website Astrium (www.astrium.eads.net/en/programme/m-51.html), viewed May 2013.
- 177 ThyssenKrupp, "Annual Report 2011/2012", ThyssenKrupp, December 2012 (www.thyssenkrupp.com/documents/investor/Finanzberichte/eng/ThyssenKrupp_2011_2012_AR.pdf).
- 178 Defense Industry Daily, "Germany Sells Israel More Dolphin Subs", Defense Industry Daily, 1 May 2013 (www.defenseindustrydaily.com/germany-may-sell-2-more-dolphin-subs-to-israel-for-117b-01528/); Steinmetz, D., "German-Israeli Armaments Cooperation", Website Berlin Information Center for Transatlantic Security (BITS), November 2002 (www.bits.de/public/articles/cast06-02.htm).
- 179 International DefenseNews, "Israel inaugurates 5th Dolphin-class sub", Website International DefenseNews, 29 April 2013 (www.defensenews.com/apps/pbcs.dll/article?AID=2013304290008); Howaldtswerke-Deutsche Werft, "Contracts 1981-2008", Website Howaldtswerke-Deutsche Werft (www.hdw.de/en/contracts-1981-today.html), viewed May 2013.
- 180 Spiegel, "Operation Samson: Israel's Deployment of Nuclear Missiles on Subs from Germany", Website Spiegel Online International, 4 June 2012 (www.spiegel.de/international/world/israel-deploys-nuclear-weapons-on-german-built-submarines-a-836784.html); Spiegel, "The World from Berlin: 'Helping Israel Defend Itself Is Germany's Duty'", Website Spiegel Online International, 5 June 2012 (www.spiegel.de/international/world/german-press-supports-sale-of-submarines-to-israel-a-837093.html); Jerusalem Post, "'Germany to finalize sale of Dolphin submarine to Israel'", Website Jerusalem Post, 18 July 2011 (www.jpost.com/Defense/Germany-to-finalize-sale-of-Dolphin-submarine-to-Israel).
- 181 URS, "About us", Website URS (www.urscorp.com/About_URS/index.php), viewed June 2013.
- 182 URS, "Annual report 2012 10-k", URS, 25 February.
- 183 Babcock & Wilcox, "Lawrence Livermore National Laboratory (LLNL)", Website Babcock & Wilcox (www.babcock.com/library/project_profiles_llnl.html), viewed May 2013; Babcock & Wilcox, "Los Alamos National Laboratory (LANL)", Website Babcock & Wilcox (www.babcock.com/library/project_profiles_lanl.html), viewed May 2013; National Nuclear Security Administration, "Our locations", Website National Nuclear Security Administration (nnsa.energy.gov/about/ourlocations), viewed May 2013; Union of Concerned Scientists, "Lawrence Livermore National Laboratory", Union of Concerned Scientists, November 2012 (www.ucsusa.org/assets/documents/nwgs/nuclear-weapons-complex/livermore-fact-sheet.pdf).
- 184 Mello, G., "The US nuclear weapons complex: Pushing for a new production capability", The Bulletin, 20 March 2008 (www.thebulletin.org/web-edition/features/the-us-nuclear-weapons-complex-pushing-a-new-production-capability), viewed May 2013; Bechtel, "US National Laboratories", Website Bechtel (www.bechtel.com/u.s._national_laboratories.html), viewed May 2013.
- 185 Bechtel, "US National Laboratories", Website Bechtel (www.bechtel.com/u.s._national_laboratories.html), viewed May 2013; National Nuclear Security Administration (NNSA), "Lawrence Livermore National Laboratory (LLNL): Nuclear design and engineering and high explosive research & development (R&D)", Website NNSA (nnsa.energy.gov/sites/default/files/nnsa/inlinefiles/LivermoreFactSheet.pdf), viewed May 2013; Defense Nuclear Facilities Safety Board, "Lawrence Livermore National Laboratory", Website Defense Nuclear Facilities Safety Board (www.dnfsb.gov/about/where-we-work/doe-defense-nuclear-facilities/lawrence-livermore-national-laboratory), viewed May 2013.
- 186 US Department of Energy, "FY 2012 Stockpile Stewardship and Management Plan", US Department of Energy Report to Congress, 15 April 2011 (www.fas.org/programs/ssp/nukes/nuclearweapons/SSMP-FY2012.pdf).
- 187 URS, "Lawrence Livermore Laboratory", Website URS (www.urscorp.com/Projects/projView.php?s=800&csec=31&pn=2), viewed June 2013; URS, "Los Alamos National Laboratory", Website URS (www.urscorp.com/Projects/projView.php?s=803&csec=31&pn=3), viewed June 2013.

