The Future Fund:

Strengthening the World's Nuclear Weapons Arsenals

Why the Australian Government's Future Fund must divest from companies involved in nuclear arms production

A Joint Report by GetUp Australia and the International Campaign to Abolish Nuclear Weapons

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- The Australian Government's Future Fund has disclosed to the Senate that it invests taxpayers' money in 14 companies involved in the production and maintenance of nuclear weapons or associated technology.
- The total value of its holdings in nuclear weapons companies at 19 January 2012 was approximately $133 million, while the overall value of the Future Fund's assets was around $73 billion.
- The 14 nuclear weapons companies in its portfolio are involved in the design, production and maintenance of nuclear weapons for the US, British, French and Indian governments.
- The investments undermine the Australian Government's efforts to advance a world free of nuclear weapons and appear to breach the Future Fund's own investment policies.
- The Future Fund has divested from companies involved in the production of other inhumane weapons – cluster munitions and landmines. It must now divest from nuclear arms makers.

The Future Fund is the Australian Government's largest investment fund. It was established in 2006 to generate returns to help cover the future pension costs of retiring politicians, judges and public servants. A freedom of information request by the International Campaign to Abolish Nuclear Weapons (ICAN) in May 2011 revealed that the fund invests more than $130 million in foreign-owned companies that manufacture and maintain nuclear weapons and the missiles and submarines to deliver them.[i] The Future Fund has resisted public pressure since then to divest itself of shares in these companies.

The Australian Government has, on numerous occasions, stated its commitment to "the goal of a world free of nuclear weapons" – most recently in March 2012.[ii] By disposing of its investments in nuclear arms makers, the Future Fund would help to advance this objective. It would send a clear signal to the companies that their involvement in the production of these illegal, inhumane and environmentally damaging weapons is unacceptable. It would also set a positive example for other financial institutions, in Australia and globally, to stop financing this illegitimate industry.

In 2010 all 189 states parties to the Nuclear Non-Proliferation Treaty (NPT) – including the US, Russia, the UK, France and China, which together possess around 98 per cent of the world's 20,000 nuclear weapons – acknowledged that any use of nuclear weapons would have catastrophic humanitarian consequences.[iii] In addition, the International Court of Justice has stated that any use of nuclear weapons would violate fundamental principles of international law.[iv]

There are strong precedents for the Future Fund to divest from the nuclear weapons industry. Both the Norwegian Government Pension Fund and the New Zealand Superannuation Fund have divested

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from companies involved in nuclear weapons production and simulated nuclear testing. And the Future Fund itself has divested from the manufacturers of other weapons that cause unacceptable humanitarian harm – namely, cluster munitions and land mines. It must now exclude nuclear weapons makers from its investment portfolio.

Investments in nuclear weapons companies at 19 January 2012

1.	Babcock International	UK	$127,480
2.	BAE Systems	UK	$2,222,733
3.	Boeing	US	$6,354,965*
4.	EADS	Netherlands	$1,757,321
5.	Goodrich Corporation	US	$1,286,207
6.	Honeywell International	US	$96,986,221
7.	Jacobs Engineering	US	$586,237
8.	Larsen & Toubro	India	$3,305,949
9.	Northrop Grumman	US	$2,292,481
10.	Rockwell Collins	US	$15,429,979
11.	Rolls-Royce	UK	$1,766,436
12.	Safran	France	$713,731
13.	Serco	UK	$119,253
14.	Thales	France	$264,972
	Total		**$133,213,965**

* Value at 12 April 2011

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2. Background

About nuclear weapons

Nuclear weapons are the most powerful explosive devices ever created. They release energy in the form of heat, blast and radiation through a process that involves the splitting or fusing of atoms. Their core material is either highly enriched uranium or plutonium. They have been used twice in warfare – against the Japanese cities of Hiroshima and Nagasaki in 1945 – as well as more than 2000 times in atmospheric and underground tests.[v]

The vast majority of nuclear weapons – around 95 per cent – belong to the US and Russia, which amassed thousands during the cold war. The UK, France, China, India, Pakistan and Israel own the rest. (North Korea may also have developed an operational nuclear arsenal.) 184 nations have made a legal undertaking never to acquire nuclear weapons,[vi] and all nations are legally obliged to pursue and achieve nuclear disarmament.

About the Future Fund

The Future Fund was established under the Howard Government to assist future Australian governments meet the cost of public sector superannuation liabilities by delivering investment returns on contributions to the fund. It aims to strengthen the Commonwealth's long-term financial position. A Board of Guardians is responsible for determining how the fund is invested. The Board is accountable to the Minister for Finance and Deregulation, who is currently Senator Penny Wong.

It is supported by a Management Agency, which employs around 80 staff. A number of staff members are responsible for considering environmental, social and governance issues in relation to the Fund's investments. The Board is required by the Future Fund Act 2006 to adopt a set of policies to govern its investment decisions. The Board must "take all reasonable steps" to comply with these policies. The current Statement of Investment Policies, published in February 2012, states:

> *The Board may invest in any entities and assets where it is lawful do so subject to applicable laws, including the Board's own legislative constraints under the Future Fund Act 2006 (Cth), the Nation-building Funds Act 2008 (Cth) and the associated Investment Mandates given to the Board by the responsible Ministers. The Board in turn requires its investment managers to comply with applicable laws in connection with their investment activities on behalf of the Board.*
>
> *Where it comes to the attention of the Board that an investment in any entity or relevant funding activity may be unlawful the relevant investment will be excluded or removed from the portfolio. There are also circumstances where the activities of an entity or relevant funding activity may be lawful in the relevant jurisdiction but the Board may nevertheless exclude or remove an investment from the portfolio having considered the issues set out in the following two paragraphs.*

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Australia has ratified a number of international conventions and treaties that limit certain activities. Where the Board becomes aware that the activities of an entity or funding activity may contravene such a convention or treaty, the Board will consider the exclusion or removal of the investment from the portfolio generally having regard to the nature of the limitations.[vii]

Treaty obligations

Australia is a party to all major international conventions relating to nuclear weapons. These include the NPT, which forbids Australia from ever acquiring nuclear weapons and obliges the nuclear-weapon states to disarm; the Comprehensive Nuclear Test Ban Treaty (CTBT), which places a universal ban on nuclear weapons testing; and the South Pacific Nuclear Free Zone Treaty, which establishes a regional zone free of nuclear weapons.

None of these treaties expressly prohibit Australia from investing in nuclear weapons companies. However, the South Pacific Nuclear Free Zone Treaty forbids Australia from facilitating the manufacture of nuclear weapons anywhere in the world,[viii] and the NPT requires Australia to advance nuclear disarmament.[ix] Additionally, the simulated testing of nuclear weapons carried out by the company Honeywell International, in which the Future Fund invests, is clearly against the spirit of the CTBT.[x]

Australian law

Australian law explicitly prohibits nuclear weapons. Under the South Pacific Nuclear Free Zone Treaty Act 1986 (Cth), it is an offence in Australia to manufacture, produce, acquire, possess, have control over or test nuclear weapons. It is also forbidden to facilitate any of these acts.[xi] In addition, the Weapons of Mass Destruction (Prevention of Proliferation) Act 1995 (Cth) makes it illegal in Australia to provide goods or services to anyone if they will or may assist the development, production, acquisition or stockpiling of nuclear weapons or missiles used to deliver them.[xii]

The Government's position on the issue

In March 2012 the Prime Minister stated that Australia has long been a leading advocate for nuclear non-proliferation and disarmament, citing its establishment of the Canberra Commission on the Elimination of Nuclear Weapons under the Keating Government and the International Commission on Nuclear Non-Proliferation and Disarmament under the Rudd Government.[xiii]
Australia regularly expresses support for nuclear abolition in United Nations (UN) forums, such as the General Assembly, the Conference on Disarmament and review meetings of the NPT. Financing companies involved in the manufacture of nuclear weapons is inconsistent with its stated commitment to the elimination of nuclear weapons, as it provides material support for the indefinite retention of nuclear weapons by certain nations.

In November 2011 the Finance Minister wrote in a letter to ICAN: "It is appropriate that the [Future Fund] Board exercise its independence, recognising the investment mandate and legislation that it

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operates within … the Board has been focused on ESG [environmental, social and governance] issues for some time, including establishing an international best-practice framework with regard to international conventions … The Government is firmly committed to the investment activities of the Board remaining independent of Government."[xiv]

The Future Fund's position on the issue

Future Fund spokespeople have made a number of statements in response to criticisms that the Fund invests in companies involved in the manufacture of nuclear weapons. For example:

- In May 2011 *The Age* quoted a Fund spokesperson as stating: "We've got no plans to divest those holdings. Our view is that conventions dealing with nuclear weapons are focused on non-proliferation, and we're not aware of any companies involved in acts that are prohibited by the non-proliferation frameworks."[xv]
- In November 2011 *The Australian* reported that a Future Fund spokesperson had informed the paper that legitimate countries still held nuclear weapons and contracted legitimate companies to support those programs.[xvi]

However, Article VI of the NPT obliges nations with nuclear weapons to disarm – and to refrain from doing anything that would undermine that goal, such as modernising their nuclear forces with the clear intention of retaining them for many decades to come. The International Court of Justice, which is the highest authority in the world on general questions of international law, held in 1996 that Article VI requires all nations not only to "pursue" disarmament, but to "achieve" disarmament within a reasonable time. Nuclear disarmament is a central tenet of the grand bargain that is the heart of the 1968 NPT. The non-nuclear-weapon states agreed never to acquire nuclear weapons if, in exchange, the nuclear-weapon states would disarm. In its public comments, the Future Fund has dismissed the NPT's disarmament obligation.

The Future Fund's position also ignores the general illegality of using nuclear weapons. The International Committee of the Red Cross – the guardian of the Geneva Conventions on the laws of arms conflict – said in 2010 that it finds it "difficult to envisage how any use of nuclear weapons could be compatible with the rules of international humanitarian law".[xvii] In addition, the UN General Assembly has declared that the use of nuclear weapons would violate the UN Charter and constitute a crime against humanity.[xviii]

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3. Case for divestment

Nuclear weapons are the ultimate weapons of mass destruction. They have a destructive force that vastly exceeds that of any other weapon. Any use of a nuclear weapon would have catastrophic humanitarian and environmental consequences, and violate international law. Supporting the industry that produces such arms is unethical and grossly irresponsible, as it heightens the risk of their proliferation and use and undermines efforts to achieve a nuclear-weapon-free world.

By divesting from nuclear weapons producers, the Future Fund would contribute to the further delegitimisation of these weapons, challenge the costly programs under way to modernise existing nuclear arsenals, and prevent the further spread of nuclear weapons. The ultimate aim of divestment is to force nuclear weapons companies to withdraw from the nuclear weapons industry.

While it is unlikely that divestment by a single fund would create sufficient pressure on a company for it to end its involvement in nuclear weapons work, divestment by multiple institutions based on the same ethical objection could, over time, have a significant impact on the company's strategic direction. Its directors may decide to reduce their reliance on nuclear weapons contracts and expand into other areas.

Furthermore, the Future Fund's investments in nuclear weapons producers are harmful to its public image. The Australian people must perceive the Fund's investments as legitimate if it is to operate effectively. Opinion polls demonstrate strong opposition to nuclear weapons. A Lowy Institute survey in 2011, for example, showed that 76 per cent of Australians believe that nuclear non-proliferation and disarmament should be a top foreign policy objective of the Australian Government.[xix]

Catastrophic harm

Like cluster munitions and anti-personnel mines – from which the Future Fund has divested – nuclear weapons are inherently inhumane weapons. A single nuclear bomb dropped on a large city could kill millions of people. In the event of a nuclear attack, medical infrastructure would be destroyed and no effective humanitarian response would be possible.[xx] The lingering effects of radiation cause suffering and death many years after the explosion.

Those in the vicinity who survive the blast suffer from extreme dehydration and diarrhoea, as well as life-threatening infections and severe bleeding. They also have a significantly increased risk of developing cancers, and may pass on genetic damage to their children. The atomic bombs dropped on Hiroshima and Nagasaki in 1945 have claimed hundreds of thousands of lives, with many people dying long after the bombings from radiation-induced illnesses.

In 2011 the Red Cross and Red Crescent movement – the largest humanitarian relief organisation in the world – adopted a resolution describing nuclear weapons as "unique in their destructive power, in the unspeakable human suffering they cause … and in the threat they pose to the environment, to future generations and indeed to the survival of humanity".[xxi] Nuclear weapons have been

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categorically condemned by the World Health Organization and numerous national medical associations.

Environmental effects

Investments in nuclear arms makers are incompatible with the Future Fund's stated commitment to environmental sustainability, given the devastating environmental effects of the use, testing and production of nuclear weapons. Any use of nuclear weapons would disperse radiation across a wide area, contaminating land, waters, seas and foodstuffs for millennia.

Scientists predict that the use of even a small fraction of the world's nuclear weapons would lead to global climatic disruption, reduced sunlight and rainfall, mass starvation due to agricultural collapse, and the destruction of many plant and animal species.[xxii] Humans rely on the environment for food production, drinkable water and the natural conditions to continue life. Dramatic changes in the environment would have major effects on our own health and survival.

The laws of war

Nuclear weapons are not legitimate weapons of war. International humanitarian law prohibits the use of weapons that are incapable of distinguishing in their effects between civilians and combatants. Furthermore, nations are prohibited from using weapons that cause superfluous injury or unnecessary suffering, or weapons that are intended or expected to cause "widespread, long-term and severe" damage to the natural environment.[xxiii]

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4. Company profiles

At 19 January 2012 the Future Fund had investments worth approximately $133 million in the following 14 foreign-owned companies,[xxiv] which are involved in the manufacture, maintenance and modernisation of nuclear arms, or associated technology, for the US, British, French and Indian governments. The investments represent around 0.18 per cent of the Future Fund's entire investment portfolio, meaning that a decision to divest from these 14 companies would have minimal or no impact on the Fund's performance.

1. Babcock International

Future Fund's holdings in Babcock International at 19 January 2012: $127,480
Babcock International is a British company that provides engineering support services. In 2007 its marine division started the Future Submarines project with BAE Systems and Rolls-Royce. The objective of this project is to develop a new class of nuclear-armed submarine for the British navy, which will replace the present fleet of submarines armed with nuclear-tipped Trident II D5 ballistic missiles.[xxv]

The marine division of the company is also involved in the maintenance of the existing Vanguard-class submarines. In its 2011 annual report, Babcock International states that the British government had committed to retaining the current submarine-based nuclear deterrent, providing a key role for the marine division in the so-called "Vanguard life extension project".[xxvi] Additionally, the nuclear services division of the company is a frequent subcontractor for the Atomic Weapons Establishment, the entity responsible for providing and maintaining the warheads for the UK's nuclear weapons program.[xxvii]

2. BAE Systems

Future Fund's holdings in BAE Systems at 19 January 2012: $2,222,733
BAE Systems is a British defence, security and aerospace company with operations worldwide. Its international division holds a 37.5 per cent share in MBDA, a joint venture with the European Aeronautic Defence and Space Company (EADS) and Finmeccanica responsible for building ASMPA medium-range air-to-surface nuclear missiles for the French air force.[xxviii] These missiles can be launched from the Mirage 2000N fighter plane and the new Rafale fighter plane.
Together with Babcock Marine and Rolls-Royce, BAE Systems in 2007 started the Future Submarines project. The objective of this project is to develop a new class of nuclear-armed submarine for the British navy.[xxix] Between 1986 and 1999, BAE Systems (formerly known as Vickers Shipbuilding and Engineering Limited) developed the current Vanguard-class submarines, which are equipped with Trident II D5 nuclear missiles.[xxx]

3. Boeing

Future Fund's holdings in Boeing at 12 April 2011: $6,354,965

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Boeing, which is based in the US, is the world's largest aerospace company and a leading manufacturer of defence, space and security systems. Since 1958 Boeing has been responsible for the development and production of the US nuclear LGM-30 Minuteman missiles (versions I, II and III).[xxxi] These are nuclear, ground-to-ground intercontinental ballistic missiles (ICBMs).
As a member of the ICBM Prime Integration Team, Boeing is involved in the maintenance of the 500 Minuteman III ICBMs in the US nuclear arsenal at present. It is responsible for guidance, flight controls, trainers, secure codes, ground subsystems, weapons systems testing and systems engineering in this project led by Northrop Grumman, which will continue into 2012 and is likely be extended.[xxxii]

Boeing also produces the B-52 Stratofortress,[xxxiii] 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 with nuclear or precision-guided conventional ordnance.

4. EADS

Future Fund's holdings in EADS at 19 January 2012: $1,757,321

EADS is based in the Netherlands and engages in the manufacture and sale of commercial aircraft, military aircraft, satellites and defence systems. It is involved in the French nuclear weapons program. Its subsidiary Astrium develops and produces the M4 generation of ballistic missiles, which feature multiple nuclear warheads.[xxxiv]

Astrium also developed an enhanced version, the M45, with higher-performance TN75 nuclear warheads. Astrium is responsible for maintaining these missiles.[xxxv] In December 2004 Astrium entered into a contract to build the new M51 nuclear missile for French submarines. It is the lead contractor. 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.[xxxvi]
EADS also holds a 37.5 per cent share in MBDA, a joint venture with BAE Systems and Finmeccanica.[xxxvii] MBDA produced over 3000 missiles in 2010. It builds the ASMPA nuclear missiles for the French air force.

5. Goodrich Corporation

Future Fund's holdings in Goodrich Corporation at 19 January 2012: $1,286,207

Goodrich Corporation is a US-based company supplying systems and services to the aerospace and defense industries. It is a wholly owned subsidiary of United Technologies Corporation. Goodrich is a leading supplier of acoustic and structural products for the US defense market. It produces nearly one dozen different composites and advanced material systems for the US Navy's Virginia Class fast attack nuclear submarine.[xxxviii]

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It appears on the exclusion lists of a number of financial institutions owing to its involvement in the US nuclear weapons program.

6. Honeywell International

Future Fund's holdings in Honeywell International at 19 January 2012: $96,986,221
Honeywell International is a US company that invents and manufactures aerospace and defense technologies. Honeywell manages and operates the Kansas City Plant, a facility of the National Nuclear Security Administration, where around 85 per cent of the non-nuclear components (such as firing and arming systems, radars, guidance systems, reservoirs for tritium, setting foams and adhesives) for US nuclear weapons are produced.[xxxix]

Honeywell Technology Solutions Inc (HTSI) has a contract with the US Government's Defense Threat Reduction Agency. Honeywell also has a presence at White Sands Missile Range (WSMR), where it is responsible for maintaining an inventory of instrumentation to monitor and record data associated with simulated nuclear weapons and conventional weapons effects testing at WSMR. Activities include repair, calibration, maintenance, operations, software development, engineering, documentation and logistics support.[xl]

Honeywell is also involved, with General Dynamics and Raytheon, in a project that aims to stretch the lifecycle of the Trident II D5 nuclear missiles of the US navy.[xli] In December 2009 this contract was extended. Honeywell International is the most important subcontractor and will produce components for integrated circuits at its factory in Plymouth, the UK.

7. Jacobs Engineering

Future Fund's holdings in Jacobs Engineering at 19 January 2012: $586,237

Jacobs Engineering Group is a US-based company involved in aerospace and defence infrastructure. In December 2008, it acquired a one-third share in the joint venture AWE-ML, the company that manages the UK's Atomic Weapons Establishment (AWE).[xlii] The AWE provides and maintains the warheads for the UK's Trident nuclear arsenal.

The other partners in the joint venture are Lockheed Martin and Serco. AWE's involvement with the Trident missile system covers the entire life cycle of nuclear warheads, from initial concept, assessment and design, through to component manufacture and assembly, in-service support and finally decommissioning and disposal.[xliii] AWE-ML has a 25-year non-revocable contract, revised in 2003, to run the AWE.

8. Larsen & Toubro

Future Fund's holdings in Larsen & Toubro at 19 January 2012: $3,305,949

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Larsen & Toubro, based in India, is a technology, engineering and construction company. It is involved in designing and building the Advanced Technology Vessel, which is the future nuclear-armed submarine of the Indian navy. The project was initiated in 1970 and its objective is to build five nuclear submarines, each equipped with a dozen K-15 nuclear missiles. In 2008 the company started construction of the second submarine.[xliv]

9. Northrop Grumman

Future Fund's holdings in Northrop Grumman at 19 January 2012: $2,292,481

Northrop Grumman is a US-based company involved in aerospace, electronics, information systems and shipbuilding. After acquiring TRW Inc in 2002, Northrop Grumman inherited the leadership of the ICBM Prime Integration Team. This project was initiated in 1997 and has a value of US$6.5 billion. Northrop Grumman and its partners, including Boeing and Lockheed Martin, are responsible for the production and maintenance of the Minuteman III nuclear intercontinental ballistic ground-to-ground missiles.[xlv] Approximately 500 of the Minuteman III missiles form the core of the land-based US nuclear arsenal.[xlvi]

10. Rockwell Collins

Future Fund's holdings in Rockwell Collins at 19 January 2012: $15,429,979

Rockwell Collins is a US-based company primarily providing aviation and information technology systems and services to governmental agencies and aircraft manufacturers. It is involved in a project to extend the lifecycle of the Trident II nuclear weapons of the US navy. It also manufactures aircraft used to deliver US nuclear weapons.

It appears on the exclusion lists of a number of financial institutions owing to its nuclear-weapons-related work.

11. Rolls-Royce

Future Fund's holdings in Rolls-Royce at 19 January 2012: $1,766,436

Rolls-Royce plc, based in the UK, is a defence and aerospace company. (The manufacturer of Rolls-Royce automobiles is a subsidiary of BMW and not part of Rolls-Royce plc.) Together with Babcock Marine and BAE Systems, it started the Future Submarines project in 2007 to develop a new class of nuclear-armed submarine for the British navy.[xlvii]

Rolls-Royce has also been involved in the development and maintenance of the current fleet of submarines. It was initially responsible for developing its nuclear-powered propulsion system. In 2007 Rolls-Royce was awarded a 10-year contract worth £1 billion to support power plant systems for the British fleet of nuclear-powered submarines, which includes the nuclear-armed Vanguard-class.[xlviii]

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12. Safran

Future Fund's holdings in Safran at 19 January 2012: $713,731

Safran is a French aerospace, defence and security company. It is the result of a merger between the propulsion and aerospace equipment group Snecma and the defense conglomerate Sagem. It is involved with EADS, Thales and others in a contract concluded in December 2004 to build the new M51 nuclear missile for France's submarines, with an estimated value of €3 billion.[xlix] The M51 features multiple nuclear warheads, with far greater payload mass and volume than the M4 missile. The French nuclear submarine *Le Terrible* has been equipped with the M51 since late 2010. The missile will also enter operational service on board the other French new-generation submarines. Snecma is a preferred supplier of the propulsion system for the M51 missile project. Sagem developed the navigation systems for the M51.[l]

13. Serco

Future Fund's holdings in Serco at 19 January 2012: $119,253

Serco Group is a British company involved in a wide variety of sectors, including health, education, transport and defence. It owns a one-third share in the joint venture AWE-ML, the company that manages the UK's Atomic Weapons Establishment (AWE). The AWE provides and maintains the warheads for the country's Trident nuclear arsenal.

The other partners in the joint venture are Lockheed Martin and the Jacobs Engineering Group. AWE's involvement with Trident missile system covers the entire life cycle from initial concept, assessment and design, through to component manufacture and assembly, in-service support, and finally decommissioning and disposal.[li] AWE-ML has a 25-year non-revocable contract, revised in 2003, to run the AWE program.

14. Thales

Future Fund's holdings in Thales at 19 January 2012: $264,972

Thales is a French defence, security and aerospace company. It is involved with EADS, Safran and others in a contract concluded in December 2004 to build the new M51 nuclear missile for the new French submarines.[lii] The M51 features multiple warheads, with far greater payload mass and volume than the M4 missile. It also offers longer range than the M4, enabling submarines to expand their patrol zones.

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5. Nuclear weapons programs

Nine nations today possess more than 20,000 nuclear weapons, with a combined destructive force equal to around 150,000 Hiroshima bombs.[liii] Despite being legally obliged to disarm, all nuclear-armed nations are pursuing programs to modernise or build up their nuclear forces – with financial institutions like the Future Fund providing the support needed to make it happen.
In some nuclear-armed states, particularly the US, the UK, France and India, governments award contracts to corporations to carry out work on their nuclear arsenals. The corporations are responsible for designing new warheads, extending the lifetime of old ones, and building new nuclear missiles, heavy bombers and submarines.

The nine nuclear-armed nations are estimated to spend a combined total of more than US$100 billion annually on their nuclear forces,[liv] diverting vast public resources from health care, education, climate change mitigation, disaster relief and other services. The organisation Global Zero predicts that spending will exceed US$1 trillion over the next decade, with the cost "likely [to] go significantly higher as numerous modernization programs underway are ramped up".[lv]

US

The US spends more on its nuclear arsenal than all other nuclear-armed nations combined. Despite President Barack Obama's stated commitment to seek "the peace and security of a world without nuclear weapons",[lvi] the current administration is pursuing a long-term program to modernise each component of the US nuclear arsenal.

The US possesses approximately 8500 nuclear warheads, of which 2150 are ready for use, 2850 are held in reserve and 3500 are said to be awaiting dismantlement.[lvii] Its warheads are deliverable by land-based intercontinental ballistic missiles, ballistic missile submarines and heavy bomber planes. Hundreds of US nuclear weapons are set to launch automatically on warning of an enemy attack.[lviii] The US warhead "life-extension" program involves equipping existing warheads with "new, improved and significantly modified components".[lix] It is constructing three new nuclear weapons factories – in Oak Ridge, Los Alamos and Kansas City – with the capacity to produce 80 nuclear warheads a year. The estimated cost of building the factories is US$180 billion.[lx]

In addition to its nuclear warhead life-extension program, the US is developing new nuclear weapons delivery vehicles and modernising existing ones. For example, it is extending the service life of the Minuteman III intercontinental ballistic missiles, with a projected completion date of 2030. It also plans to replace its fleet of Ohio-class nuclear-armed ballistic missile submarines, with construction scheduled to begin in 2019.

In recent years, the US has conducted several "sub-critical" nuclear tests as part of its nuclear weapons modernisation program.[lxi] Unlike standard nuclear tests, they do not involve a chain reaction.

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Nonetheless, they allow the US to make qualitative improvements to its nuclear arsenal and are against the spirit of the Comprehensive Nuclear-Test-Ban Treaty.

Companies are involved in all aspects of the US nuclear weapons program, from designing and assembling warheads to building nuclear missiles and carrying out simulated nuclear tests. The US nuclear weapons industry has close ties with a number of major academic institutions – for example, the University of California, which, along with Bechtel, manages the Los Alamos and Lawrence Livermore nuclear weapons laboratories.[lxii]

In 2011 the US spent an estimated US$61.3 billion on its nuclear forces.[lxiii] Massive increases in spending are projected. According to the Ploughshares Fund, the total cost of implementing the Obama administration's modernisation plans over the coming decade will be US$700 billion – including US$100 billion to sustain and modernise delivery systems and US$92 billion to modernise and maintain nuclear warheads and warhead production facilities.[lxiv]

UK

The UK maintains a fleet of four nuclear-armed submarines, which are nearing the end of their operational lives. The decision on whether to replace them has been put off until after the next general election. Following major budget cuts to education and health care, the British government is under mounting pressure to abandon the costly proposal to build a new class of submarine, although significant outlays have already been made for the design phase of the project.

The British nuclear arsenal consists of up to 225 nuclear warheads, of which 160 are operationally deployed.[lxv] Its nuclear-armed submarines are equipped with Trident II missiles, which it leases from the US navy. The missiles are fitted with warheads designed and built at the Atomic Weapons Establishment in the UK.[lxvi] One nuclear-armed submarine is on patrol at any given time, equipped with 16 missiles carrying up to 48 nuclear warheads in total.

The current submarines are due to be retired from 2024. Pending construction of the proposed new submarines, the UK intends to extend the service lives of the existing fleet. Work on the UK's nuclear arsenal is carried out primarily at the Atomic Weapons Establishment, which is operated by a consortium of Jacobs Engineering, Lockheed Martin and Serco.

The UK Ministry of Defence is working in collaboration with BAE Systems, Rolls-Royce and Babcock International to develop the proposed new submarine that will replace the existing fleet.[lxvii] Work on the Trident missiles will be carried out in the US, while work on the warheads will be the responsibility of the AWE.

The cost of designing and constructing the new nuclear-armed submarines was initially estimated at US$40 billion, "even without missiles, warheads or running costs".[lxviii] The British Campaign for Nuclear Disarmament has forecast that, if the project is given parliamentary approval, the total cost of construction will be closer to US$160 billion.[lxix]

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France

France is nearing the end of its most recent nuclear force modernisation cycle. All four of its new nuclear-armed submarines are now complete and operational, and its new nuclear-capable fighter aircraft has entered service. French President Nicolas Sarkozy has affirmed his country's commitment to maintaining its nuclear arsenal for the foreseeable future.

France possesses approximately 300 nuclear weapons of varying yields, deliverable by air and sea. Most are deployed on Triomphant-class submarines, which are equipped with M45 and M51 ballistic missiles. The M45 is the main strike weapon of the French military and has a range of up to 4000km, while the M51 can reach between 6000 and 9000km.[lxx]

In 2010 France deployed the fourth and final Triomphant-class ballistic missile submarine. These new vessels are gradually being equipped with M51 ballistic nuclear missiles, which have a significantly greater range and yield capacity than the existing M45 missiles. Several companies are involved in the production of the M51 missiles, including EADS, Safran and Thales.

France is also modernising its air-based nuclear component. The Mirage 2000N is slowly being retired and replaced by the more advanced Rafale, both of which are capable of delivering nuclear weapons. By 2018 all French nuclear air delivery vehicles will be completely modernised. A new and improved cruise missile is being deployed with the Rafale, with a longer range and greater reliability than its predecessor.

French expenditure on nuclear weapons and their associated platforms is kept classified. However, it is estimated that in 2011 total spending was around US$6 billion, a small increase from 2010. Under a deal struck with the UK in 2010, French nuclear weapons facilities will be used for British nuclear weapons maintenance and computer simulations – a service for which France will charge in order to subsidise its own nuclear weapons program.[lxxi]

India

India is steadily increasing the size of its nuclear arsenal and enhancing its nuclear weapons delivery capabilities, with new nuclear-capable ballistic missiles and submarines under construction. Its production of weapons-grade plutonium is set to increase in coming years. India has no nuclear disarmament program in place and is outside the NPT.

It possesses between 80 and 100 nuclear weapons, of which 50 are fully operational and actively deployed.[lxxii] It has not disclosed any details about the size and composition of its nuclear arsenal. Many of its military platforms are dual-capable, meaning that they can be used to launch conventional weapons as well as nuclear weapons. This includes its jet fighter forces and the short-range ballistic missile.

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The largest area of growth in India's nuclear weapons program is in the area of delivery systems. In 2009 India launched its first ballistic missile submarine, the INS *Arihant*, which will be capable of carrying out a nuclear strike from sea. Four other submarines of the same class are also in development, with the involvement of Larsen & Toubro.[lxxiii]

India's ballistic missile capability is also going through a period of rapid expansion. The Agni I, with a range of 700km, is entering its last stages of construction and could be deployed in 2012. The Agni II was successfully tested in 2010 and is reported to have a range of 2000km. The Agni IV, which is being developed, will have a range of 5000km. An intercontinental version is also under consideration. The Indian military is researching advanced nuclear warhead technology with the aim of developing multiple-warhead ballistic missiles. This would allow it to increase the destructive capacity of its current and future ballistic missile capability. The projected deployment date is 2020.[lxxiv]

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6. Divestment case studies

Many financial institutions around the world have policies not to finance nuclear weapons companies. The most significant example of a government-owned institution divesting from nuclear weapons stocks is the Norwegian Government Pension Fund. The New Zealand Superannuation Fund has also excluded investments in certain companies owing to their nuclear weapons involvement.

1. Norway

In 2004 the Norwegian Government Pension Fund, following pressure from parliamentarians, media and non-government organisations, established ethical guidelines for its investments and appointed an advisory council on ethics to make recommendations on implementing them.

In 2005 the advisory council discussed the issues and released a recommendation regarding nuclear weapons. The pension fund then divested from the following companies due to their production of nuclear weapons: BAE Systems, Boeing, EADS, Finmeccanica, Honeywell International, Northrop Grumman, Safran and United Technologies.[lxxv] Other nuclear weapons companies such as Lockheed Martin, General Dynamics and Alliant Techsystems had already been excluded due to their involvement in the production of anti-personnel landmines and cluster munitions.[lxxvi]

According to Pia A. Gaarder, who was involved in the campaign to pressure the pension fund to divest, "The government needs the investments of the [fund] to be perceived as legitimate in the eyes of the Norwegian population. When they are not, as was clearly demonstrated in 2002, it became politically impossible for the government not to divest."[lxxvii]

2. New Zealand

In 2008 the New Zealand Superannuation Fund decided to divest from two companies involved in simulated nuclear weapons testing: Lockheed Martin and Honeywell International.[lxxviii] (Australia's Future Fund does not invest in Lockheed Martin owing to its involvement in cluster bomb production, but the Fund does invest heavily in Honeywell International.)

In a press statement, the New Zealand Superannuation Fund said: "We … believe that the simulated testing of nuclear explosive devices is critical to the development of those devices. We have therefore decided to exclude from the portfolio companies involved in such testing. This will require our fund managers to divest from holdings, totalling approximately $13 million, in two such companies."[lxxix]

3. Cluster munitions

The Future Fund has excluded a total of 10 companies involved in the production of cluster munitions and anti-personnel mines. A cluster munition is a canister weapon that contains multiple smaller explosives, which are dispersed over wide areas. An anti-personnel mine is a device that is buried

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beneath the ground and designed to maim or kill any person who makes contact with it. Both weapons have been banned by treaties due to their inability to distinguish between civilians and combatants.[lxxx]
Bloomberg News reported in May 2011 that the Future Fund's investments in the 10 companies had a market value of around $74 million at the end of 2010. It quoted a Future Fund spokesperson as saying: "Having initially excluded a number of companies on the basis of very clear evidence, during 2010 we undertook a rigorous process to identify and assess companies where evidence was less strong."
Among the excluded companies were two of its three biggest defence holdings –Lockheed Martin and General Dynamics. Others on the exclusion list were Alliant Techsystems, L-3 Communications, Raytheon and Singapore Technologies Engineering. In response to the divestment decision, the Treasurer, Wayne Swan, was reported as saying: "We don't direct the investment decisions of the Future Fund. Cluster bombs, my personal view of those, is that they are very destructive weapons which can cause enormous amounts of human misery."[lxxxi]

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7. Pathways forward

There are a number of potential pathways forward. These include a voluntary decision by the Future Fund to divest; a directive by the Treasurer, Finance Minister or Defence Minister that the Fund should divest; or legislation adopted by the Australian Parliament compelling the Fund to divest.

Voluntary divestment

The Future Fund could address nuclear weapons in the same way that it has addressed cluster munitions and anti-personnel mines – by undertaking a thorough examination of all of its investments and excluding those companies where there is evidence of involvement in nuclear weapons production. This appears to be the most straightforward and likely approach.

This would be consistent with the Future Fund's stated policy not to invest in any company where the economic activity contravenes international conventions to which Australia is a party. It would also be consistent with the Government's view that the Future Fund's investment decisions should be left entirely to the Board of Guardians.

Ministerial directive

Given that the Future Fund's nuclear weapons investments appear to be inconsistent with its stated investment policies, and the Board of Guardians are legally obliged to comply with those policies, it would be appropriate for the Finance Minister or Treasurer to instruct the Fund to dispose of the investments. This would not be a case of the Government interfering with investment decisions for political purposes, but rather a case of ensuring that the Fund is acting in compliance with its statute.

There is also an ongoing inquiry into whether the Defence Minister should have the power to veto certain investments related to weapons of mass destruction. *The Australian* reported the establishment of the Blick Inquiry in November 2011: "[Defence Minister Stephen] Smith wants to know whether he should have the power of veto over investments in companies associated with nuclear weapons – including, potentially, more than $135 million worth of investments by the Future Fund."[lxxxii]

Legislative approach

The Australian Parliament could compel the Future Fund to divest from nuclear weapons producers by passing legislation amending the Future Fund Act 2006 (Cth). In November 2011 the Australian Greens introduced into the Senate the Government Investment Funds Amendment (Ethical Investments) Bill 2011 – a proposed law to constrain the investments of the Future Fund "to those investments which are consistent with socially responsible investment practices".[lxxxiii]

Specifically, the legislation would proscribe investments by the Future Fund and related funds in any companies involved in the manufacture of tobacco, cluster munitions and nuclear arms.[lxxxiv] It would require the ministers responsible for the funds to develop a set of ethical investment guidelines that examine the ramifications of an investment beyond the financial returns, such as the impacts on the environment, the rights of employees, human health, and peace and security.

A similar legislative approach was taken in Norway following an extensive public campaign. The Norwegian parliament established an ethical council in 2004, which recommended that the Norwegian fund divest from producers of both nuclear weapons and cluster munitions.[lxxxv]

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Conclusion

The Future Fund's investments in nuclear weapons companies undermine the Australian Government's efforts to advance a nuclear-weapon-free world and appear to breach its own investment policies. It is unacceptable to provide indirect support to the manufacture and modernisation of weapons whose use has catastrophic humanitarian and environmental consequences and violates international law.

Just as the Future Fund has divested from the producers of other categories of particularly inhumane weapons – cluster munitions and anti-personnel mines – it should now exclude nuclear arms makers from its investment portfolio. This would send a powerful message to the companies that their involvement in nuclear weapons production is unacceptable.

As Nobel Peace Prize laureate Desmond Tutu wrote in March 2012, "Financial institutions should be called upon to do the right thing and assist, rather than impede, efforts to eliminate the threat of radioactive incineration by divesting from the immoral nuclear arms industry."[lxxxvi] The Australian public must rise up and demand that their money not be used to finance this illegitimate, earth-endangering industry.

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