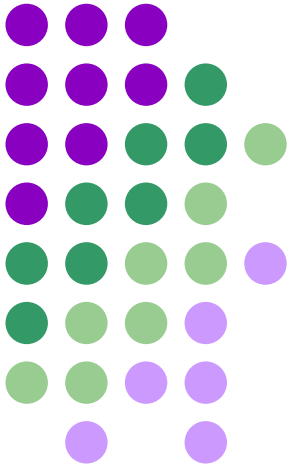
Arms conversion for a low carbon economy



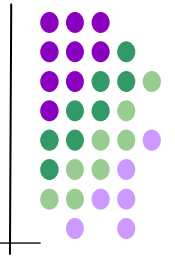
Dave Webb

Faculty of Technology

& School of Applied Global Ethics (SAGE)

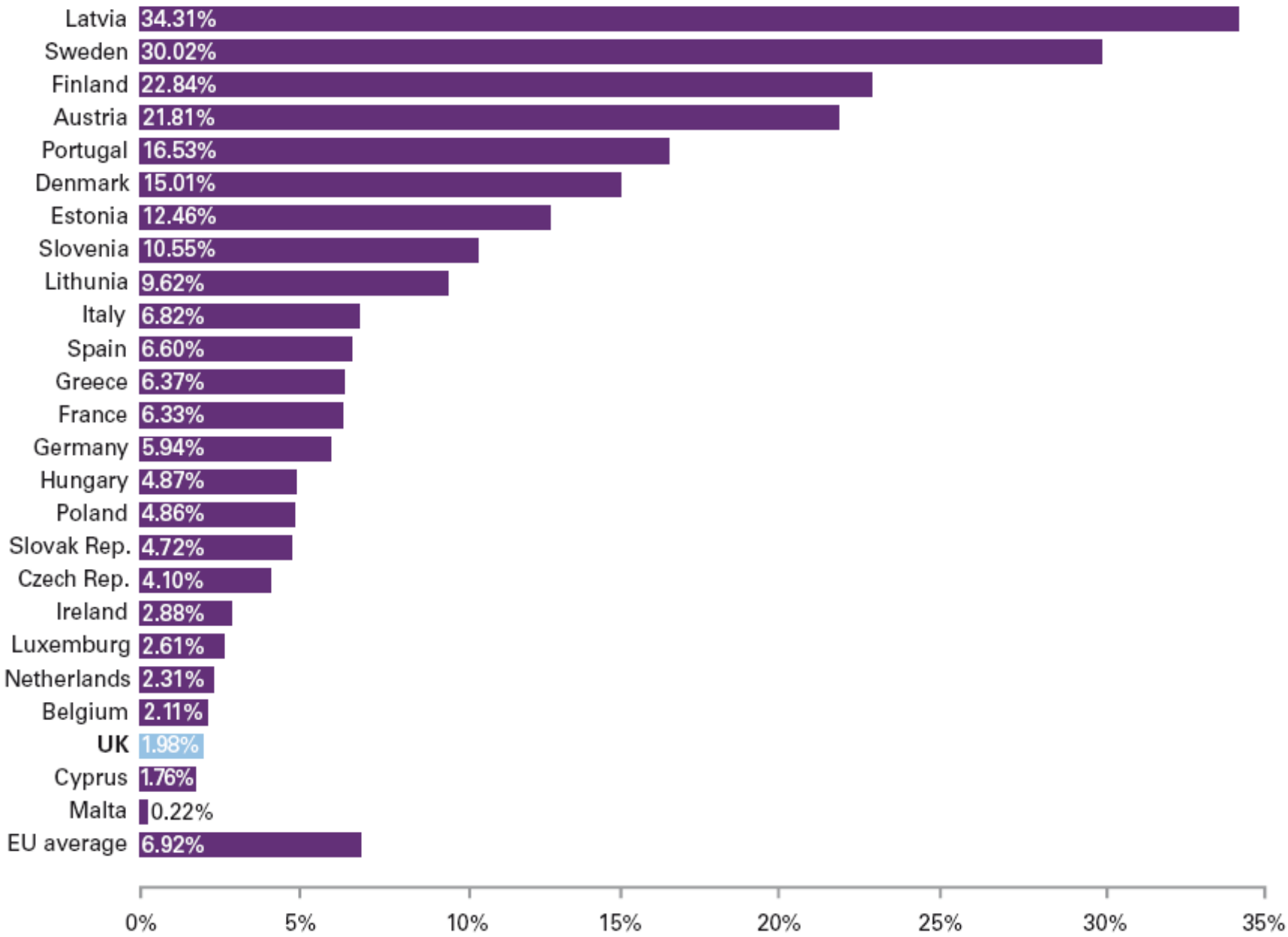
Leeds Metropolitan University

The Carbon Trust



- To meet 2020 targets (cut CO2 emissions by 26% from 1990 levels):
  - Offshore wind power and, potentially, Solid State Lighting (SSL) needed
  - Need to start deploying offshore wind now
  - Investment in innovation will reduce the cost and increase the likelihood of meeting the target
  - Buying in the technology when cost effective or fully commercialised is not an option as it will be too late.
- To meet 2050 targets (cut CO2 emissions by 80%):
  - Wave power is likely to be needed
  - UK support is likely to be needed to pull through this technology as:
    - The UK has ~50% of total European resources and is one of the key locations worldwide where high power wave fronts are situated close to a populous area
    - The UK is the base for a high proportion of the developers' worldwide
    - LHF ethanol, flow cells and fuel-cell micro combined heat and power (FCmCHP) to likely to commercialise without UK support because the main development efforts are occurring outside the UK

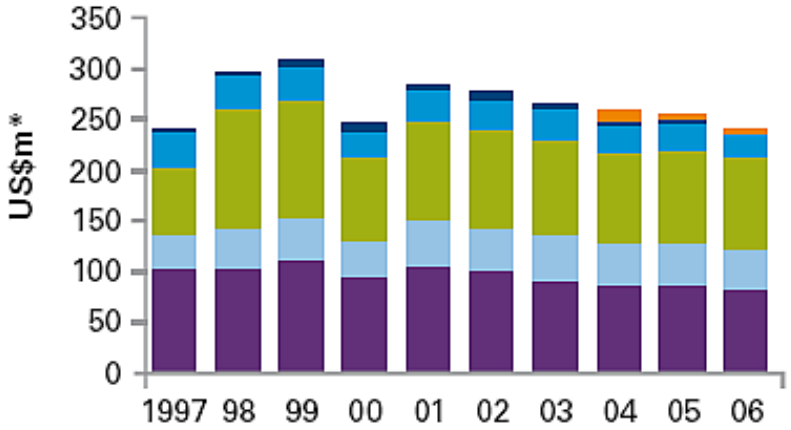
EU renewable energy as a percentage of primary energy, 2006



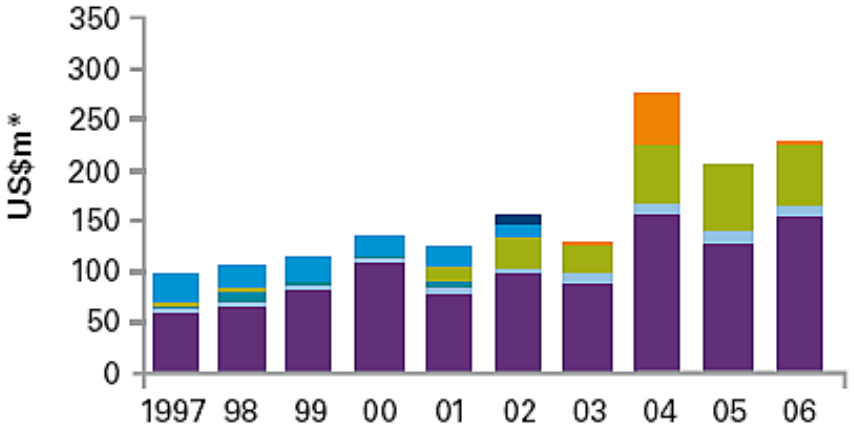
Source: EurObserv'ER.

Renewable energy RD&D funding in four OECD economies

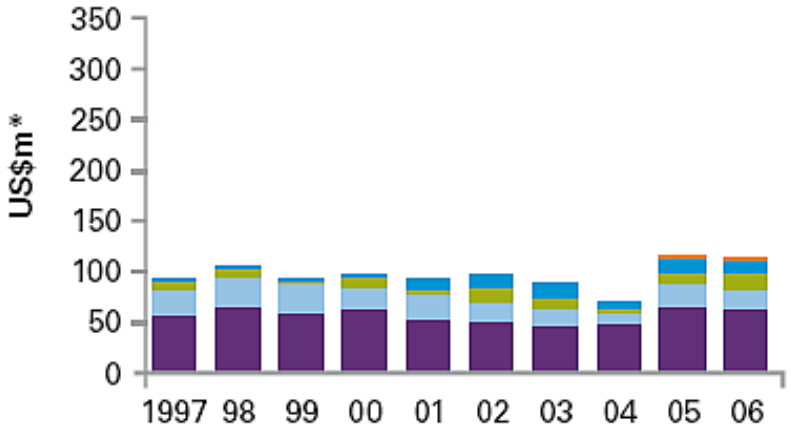
i. US public RD&D renewable energy funding (1997-06)



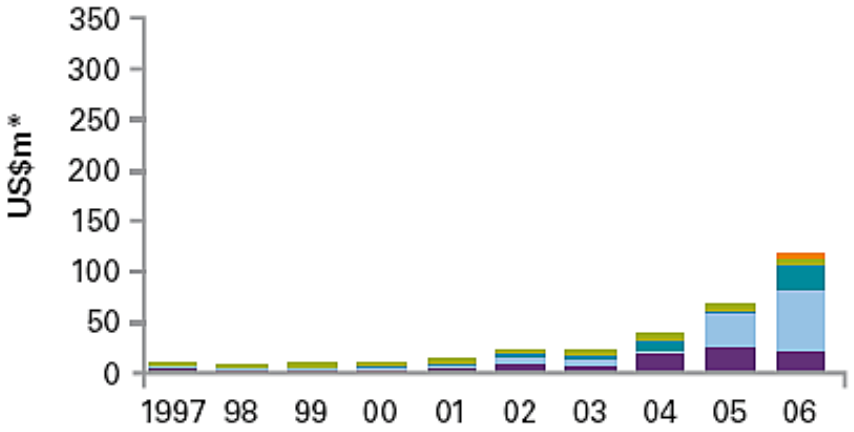
ii. Japan public RD&D renewable energy funding (1997-06)

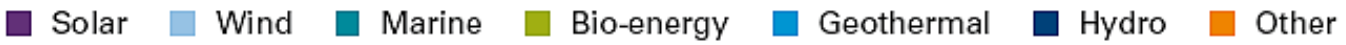


iii. German public RD&D renewable energy funding (1997-06)



iv. UK public RD&D renewable energy funding (1997-06)

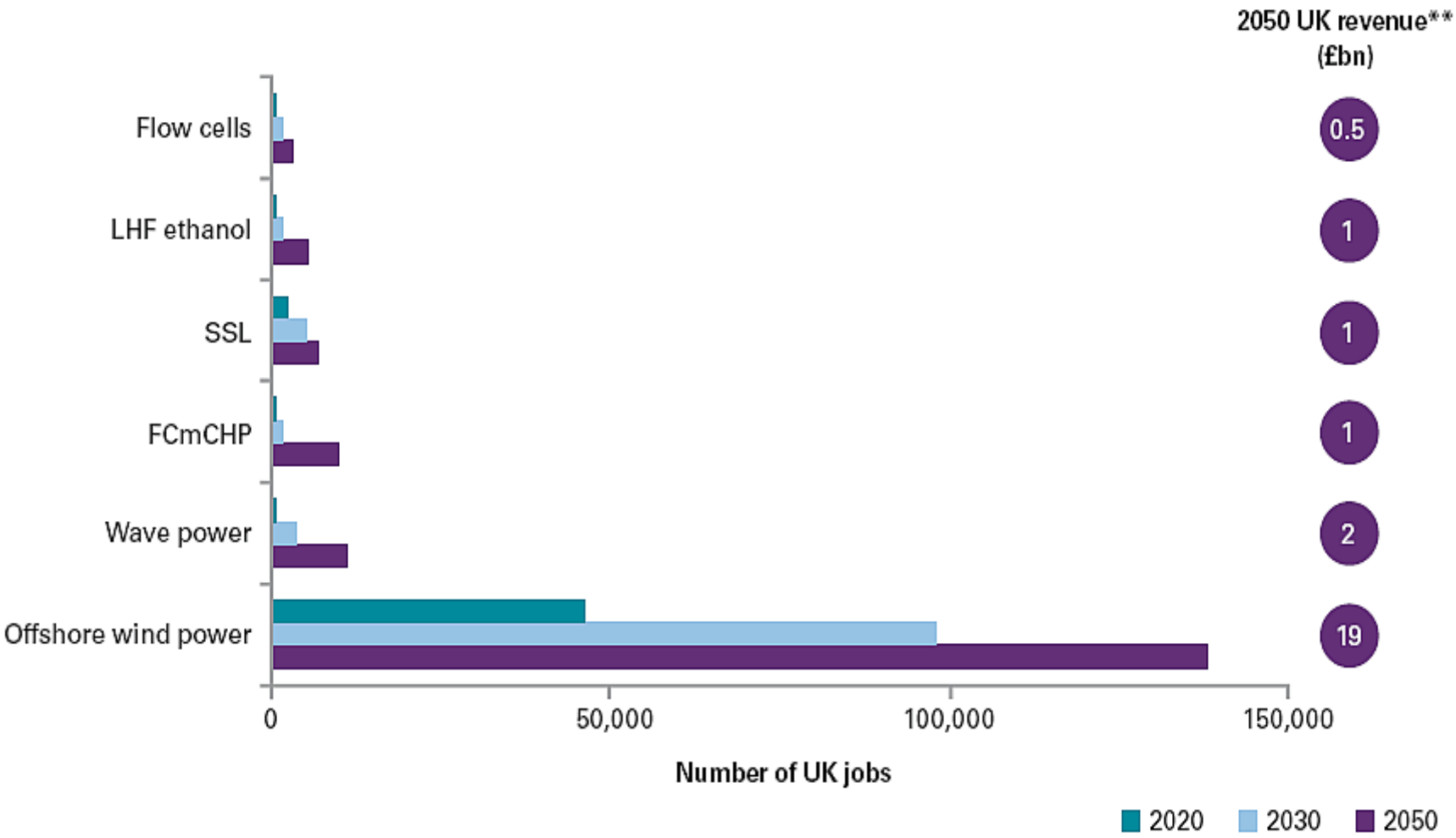




*2006 exchange rate.

Source: IEA.

*Estimated UK direct job creation by technology**



*Excludes displacement; mid deployment, high learning, high UK market share scenario.
**Revenue to UK based companies from the sale and operation of technology equipment, excludes sales of the output (e.g. electricity), at 2008 prices.

Source: Technical consultants; Carbon Trust analysis.

Global and UK technology developers, 2009

Technology	Number of developers globally	Proportion in the UK*
Wave power	~75	~25%
Flow cells	~20	~15%
LHF ethanol**	~20	~10%
Offshore wind power***	~10	~10%
FCmCHP	~30	~7.5%
Solid state lighting^	~5	~0%

*Developers with principal or significant RD&D or engineering facilities in the UK.

**Developers with facilities greater than 1 million l/year.

***Turbines only.

^Five major LED lighting manufacturers – device only (excludes luminaires).

Source: Technical consultants, Carbon Trust analysis.

Creating a Low Carbon Economy

Low Carbon Economy Summit, London, 26 June 2008

- *"By 2050 the overall added value of the low carbon energy sector could be as high as $3 trillion per year worldwide and it could employ more than 25 million people. So my goal is simple: I want Britain to achieve a disproportionately large share of these new global jobs."*
- *"Now this is how across the economy, and across all the policies that government is responsible for, Britain is attempting to build a low carbon future. But let us be clear, building that low carbon future is not just something to do with climate change, it is not just an energy security issue, it is not just a part of our economic policy. It is all of these things and it is more. It is nothing less than the basis for our future prosperity as a country.*"

Prime Minister Gordon Brown

http://www.number10.gov.uk/Page16141

Creating a Low Carbon Economy

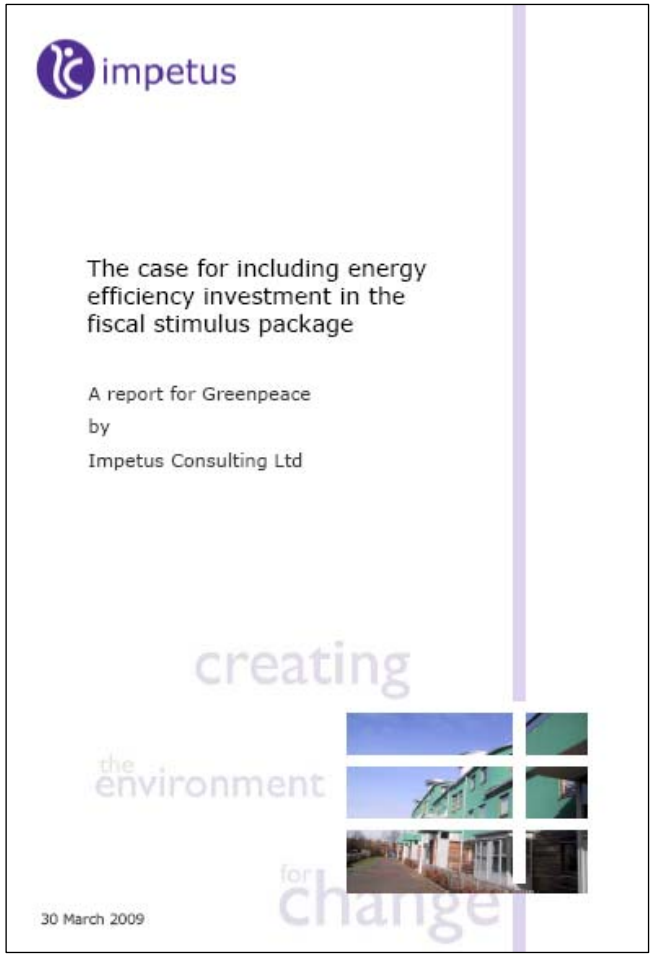
Low Carbon Industrial Summit, 6 March 2009

- *"So millions of the new jobs of the future can be low carbon jobs: green jobs that will inspire a new generation of school leavers about their future careers.*
- *But we are not developing low carbon industries and services for the long term alone.*
- *As I look round at the challenges and opportunities of our economy today, and the tasks we face ahead, I don't think we will have the strength of recovery we need unless it is a low carbon recovery.*
- *So the task we face is to win a very big share for Britain of a fast expanding global market for low carbon goods and services."*
- *"So let us set a challenge to our scientists: lead the world in this great human endeavour to create a clean environment for future generations."*

Prime Minister Gordon Brown

http://www.number10.gov.uk/Page18530

Case for Energy Efficiency Investment



- Using case studies of programmes in other countries
- Demonstrates that “an annual £5 billion investment in domestic energy efficiency would create around 55,000 jobs directly. Hundreds of thousands of jobs would be created indirectly.”

http://www.greenpeace.org.uk/files/EE_fiscal_stimulus_Impetus_Report.pdf

UK Government funded R&D 2008

- For renewables: £66m
  http://wds.iea.org/WDS/TableViewer/tableView.aspx
- For arms: £2,598m*
  Department for Business Innovation and Skills, Science, Engineering and Technology Statistics file: 48-08-I_on.xls - http://www.dius.gov.uk/science/science_funding/set_stats
- Total military expenditure: £37,407m*
  http://www.dasa.mod.uk/modintranet/UKDS/UKDS2008/c1/table101.html
- Renewable energy technologies require both skilled workers and investment

guardian.co.uk

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News › World news › Obama administration

Obama pledges billions for renewable energy projects

President says $129bn that has been allocated for environmental plans is off limits to Congress

Ewen MacAskill in Washington
guardian.co.uk, Monday 23 March 2009 18.54 GMT
Article history

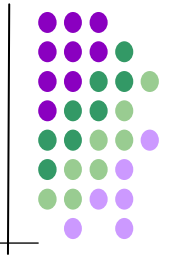
Barack Obama makes remarks about renewable energy in Washington.

The major international arms companies – 2007

Company	Arms sales US$m	Total sales	% arms sales	Employment
Boeing (USA)	30,480	66,387	46	159,300
BAE Systems (UK)	29,850	24,060	95	97,500
Lockheed Martin (USA)	29,400	28,120	70	140,000
Northrop Grumman (USA)	24,600	32,018	77	122,000
General Dynamics (USA)	21,520	27,240	79	83,500
Raytheon (USA)	19,540	21,301	92	72,100
BAE Systems Inc	14,910	14,908	100	51,300
EADS (Europe)	13,100	53,534	24	116,490

Source http://www.sipri.org/yearbook/2009/06/06A

The top ten largest national military budgets in 2008 ($bn)



Country	Spending	% of global expenditure	Spending per capita ($)	Change 1999-2008 (%)
USA	607	41.5	1,967	66.5
China	[84.9]	[5.8]	[63]	194
France	65.7	4.5	1,061	3.5
UK	65.3	4.5	1,070	20.7
Russia	[58.6]	[4.0]	[413]	173
Germany	46.8	3.2	568	-11.0
Japan	46.3	3.2	361	-1.7
Italy	40.6	2.8	689	0.4
Saudi Arabia	38.2	2.6	1,511	81.5
India	30.0	2.1	25	44.1
Source: http://www.sipri.org/yearbook/2009/files/SIPRIYB0905.pdf				

Organisations paid £50 million or more by the Ministry of Defence in 2007/2008

VAT exclusive at Current Prices (£ million)

Over £500 million (5 Organisations)		
AWE Management Ltd	EDS Defence Ltd	Westland Helicopters Ltd
BAE Systems (Operations) Ltd	QinetiQ Ltd	
£250 - £500 million (10 Organisations)		
BAE Systems Electronics Ltd	British Telecommunications PLC	NETMA
BAE Systems Land Systems (Munitions & Ordnance) Ltd	Debut Services Ltd[1]	Rolls Royce Power Engineering PLC
BAE Systems Land Systems (Weapons & Vehicles) Ltd	Defence Science & Technology Laboratory	
BAE Systems Surface Fleet Solutions	Devonport Royal Dockyard Ltd	
£100 - £250 million (26 Organisations)		
AMEC Turner Ltd	General Dynamics United Kingdom Ltd	Purple Foodservice Solutions Ltd
Aspire Defence Ltd	Kellogg Brown & Root Ltd	Raytheon Systems Ltd
Babcock Support Services Ltd	Man Truck & Bus UK Ltd	Rolls-Royce PLC
BAE Systems Integrated System Technologies Ltd	Marshall Of Cambridge Aerospace Ltd	Serco Ltd
Carillion Enterprise Ltd	MBDA UK Ltd	Thales Air Defence Ltd
Defence Support Group (DSG)[2]	Meteorological Office	Thales UK Ltd
Europaams SAS	Modern Housing Solutions (Prime) Ltd	The Boeing Company
Flagship Training Ltd	Paradigm Secure Communications Ltd	VT Land (Whitefleet Management) Ltd
Fleet Support Ltd	Pride (Serp) Ltd	
£50 - £100 million (25 Organisations)		
Aviation Training International Ltd	IBM UK Ltd	Royal & Sun Alliance Insurance PLC
Babcock Dyncorp Ltd	Landmarc Support Services Ltd	Selex Sensors and Airborne Systems Ltd
Babcock Marine (Clyde) Ltd	Lockheed Martin UK INSYS Ltd	Shell Marine Products Ltd
BAE Systems Marine Ltd	McDonnell Douglas Corporation	Sodexho Defence Services Ltd
BP International Ltd	Modus Services Ltd	Thales Naval Ltd
British Energy Direct Ltd	Northrop Grumman Overseas Service Corporation	Thales Underwater Systems Ltd
CEPSA	NP Aerospace Ltd	Ultra Electronics Ltd
Defence Aviation Repair Agency (DARA)[2]	Raytheon/Lockheed Martin Javelin Joint Venture	
HCR Ltd	RMPA Services PLC	

Regional employment dependent on direct MoD equipment expenditure as a proportion of regional manufacturing employment

	2004–5			2006-7		
	Manufacturing Employment	**MoD equipment Employment**	**%**	**Manufacturing Employment**	**MoD equipment Employment**	**%**
United Kingdom	2,961,000	80,000	2.7	3,527,800	80,000	2.3
England	2,488,000	73,000	2.8	3,004,400	76,000	2.5
East	127,000	6,000	4.7	318,400	5,000	1.6
East Midlands	296,000	2,000	0.7	324,300	3,000	0.9
London	203,000	3,000	0.9	264,800	2,000	0.8
North East	159,000	2,000	1.2	157,100	1,000	0.6
North West	340,000	14,000	4.1	429,500	15,000	3.5
South East	462,000	21,000	4.5	460,100	21,000	4.6
South West	248,000	21,000	8.5	293,600	23,000	7.8
West Midlands	344,000	3,000	0.8	415,500	4,000	1.0
Yorks & Humberside	309,000	1,000	0.3	341,100	1,000	0.3
Scotland	223,000	6,000	2.6	252,100	4,000	1.6
Wales	163,000	1,000	0.6	177,700	1,000	0.6
Northern Ireland	87,000	1,000	1.1	93,600	<1,000	1.0

Source: Nomis data on manufacturing employment, http://www.nomisweb.co.uk
see also: http://www.dasa.mod.uk/modintranet/UKDS/UKDS2008/c1/table111a.html

- The largest numbers of military industry jobs are in the low-unemployment areas not areas of high unemployment
- There are only a few places that could be described as having a residual dependency on arms employment


British American Security Information Council
real cost behind
dent Replacement
nd the Carriers
Trident, Jobs & Scotland's Economy
Trident Replacement is Destroying Jobs in Scotland
New research shows that replacing Britain's Trident nuclear submarine system will destroy jobs in Scotland rather than create them.
While supporters of Trident such as Iain Gray and Jackie Baillie continue to claim that 10,000 jobs will go if Trident is not replaced, the report by senior academics and trade unionists paints a very different picture.
According to Ministry of Defence figures(1), cancellation of Trident would cost less than 1600 civilian jobs in Scotland. Of these 270 are at the Dounreay Naval Test Reactor which is scheduled to close in 2014 whether or not Trident is renewed. On the other hand, if Trident is renewed, far more jobs will be lost in Scotland. This is because the money for the new system will not come out of the defence budget but out of existing public expenditure or new tax. Either way, it will cost thousands of jobs in Scotland: up to
3,000 in essential services if it comes out of existing budgets - already under intense pressure because of the recession and our huge national debt.
Soaring Costs
Indeed, the amount of money spent on Trident is escalating year on year - this year it will be £2.1 billion (£400m of this on replacing Trident and £1.7bn on maintenance of the existing system). That is twice as much as five years ago and maintenance costs now swallow 5-6% of the defence budget when it used to be 3%. This is already £400m higher than the estimates published in 2006. Soaring costs have led the Public Accounts Committee to publish a damning report stating 'the department's existing cost estimates do not provide an accurate baseline against which to measure progress' and pointing out that 'value for money will be hard to achieve'(2).
Impact on Scotland
The effect of the banking rescue on Scotland's economy will be profound and far-reaching. It will be felt particularly from 2010-11 onwards with expected reductions on Scottish public expenditure of £850m - at least 7% of the total - resulting in deep cuts in jobs and services.
British American Security Information Council
Oceans of Work
Arms Conversion Revisited
Dr Steven Schofield
January 2007
IN THE FIRING LINE
NVESTIGATION INTO
IDDEN COST OF THE
RCARRIER PROJECT
REPLACING TRIDENT
GREENPEACE
REPORT
Trident & Employment
The UK's industrial and technological network for nuclear weapons
Steven Schofield
CND
Published by the Campaign for Nuclear Disarmament, September 2007
UNISON
Funded by the General Political Fund
Making arms, wasting skills
Alternatives to militarism and arms production By Steven Schofield

UK Trident System

- 4 submarines based at Faslane (30 miles from Glasgow)
- Each carries 16 Trident missiles
- Each missile has average of 4 100KT warheads

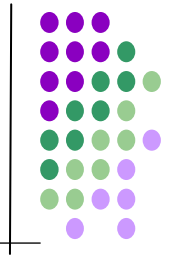
The Costs of Trident Replacement

- Cost of Trident Replacement Procurement
  - The Defence White Paper estimates the cost as £15-20 billion
  - However, taking inflation into account and increased costs of military equipment at 10% p.a. means it is more likely to be **£25 billion**
- Running costs of replacement system from 2020-2042 at £1.6-£2 billion p.a. (5-6% of annual Defence Budget as cited in the White Paper) : **£35-44 billion**
- Running costs of existing Trident 2007-2023: **£26-31** billion
- Total: 30 more years of UK nuclear weapons: up to **£100 billion**

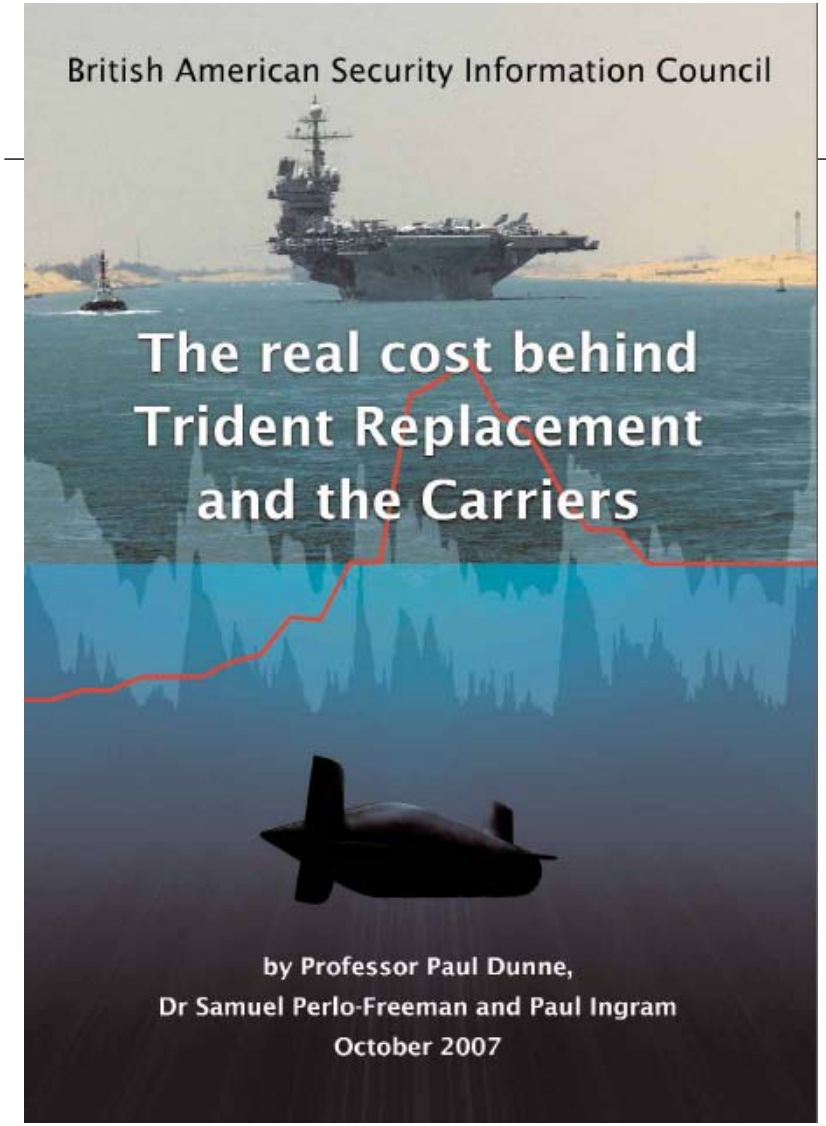
Additional costs

- The White Paper has also stated additional costs of: Joining the US Missile life extension programme: **£250 million**
- Future replacement of missile: **£1.5 billion**
- Atomic Weapons Establishment (AWE) investment (2005-2008): **£1.05 billion**

Hidden Costs



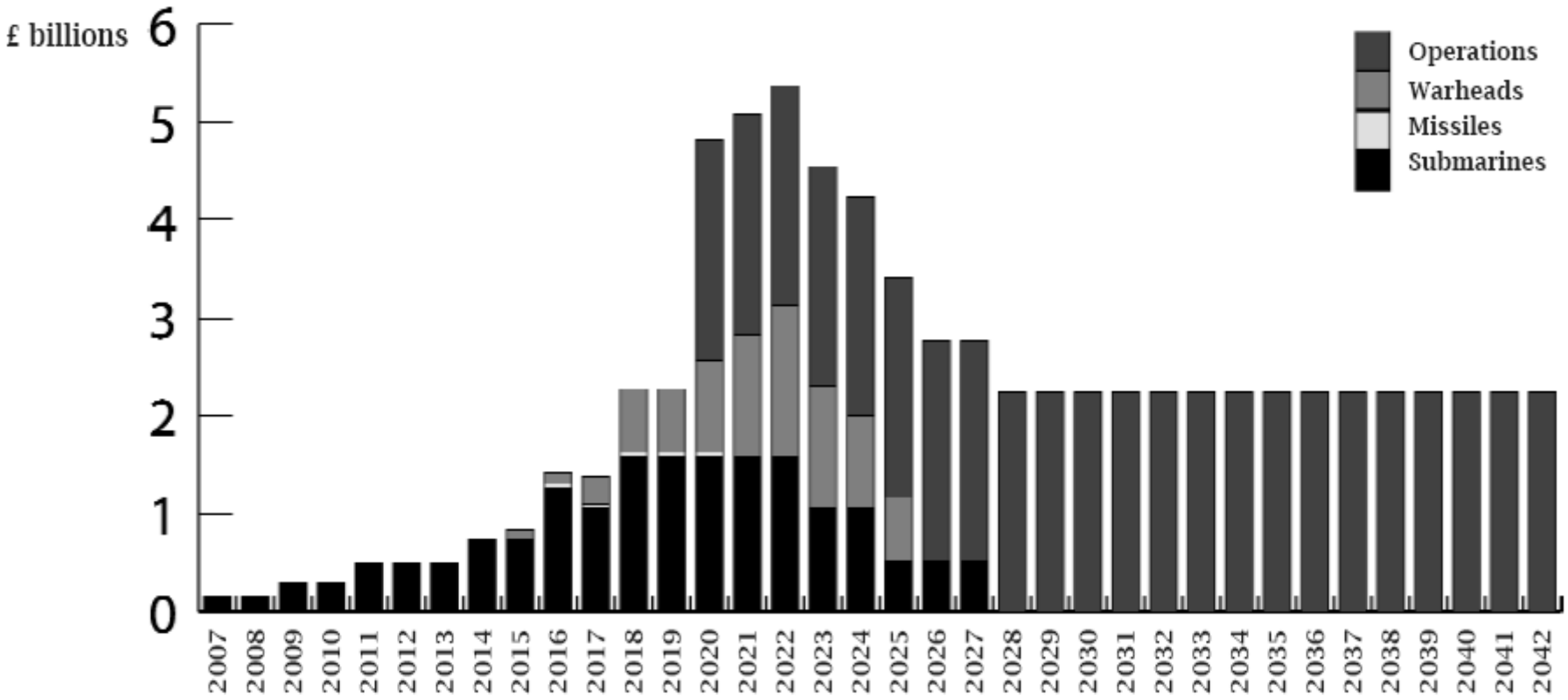
- **Future Investment in the Atomic Weapons Establishment, Aldermaston** will peak from the current 2.5% of the Defence Budget to 3% early in the next decade. If the operating costs remain the same this suggests then a 10 year investment would require **£5 billion** extra (of which only £1.05 billion has been accounted for).
- **Conventional Forces** - the Trident system relies upon hunter killer submarines at Faslane and Devonport for its protection. The annual operating cost for this role was **£125 million** in 1998 and the operating cost of additional forces with a contingent role was **£176 million**.
- **Nuclear Liabilities** - The total costs for the MoD's nuclear liabilities is nearly **£10 billion**. Decommissioning costs for both SSNs and SSBNs: **£1.75 billion**
- AWE nuclear liability costs including decommissioning of redundant facilities and dismantling of warheads: **over £3.5 billion**



Hypothetical budget

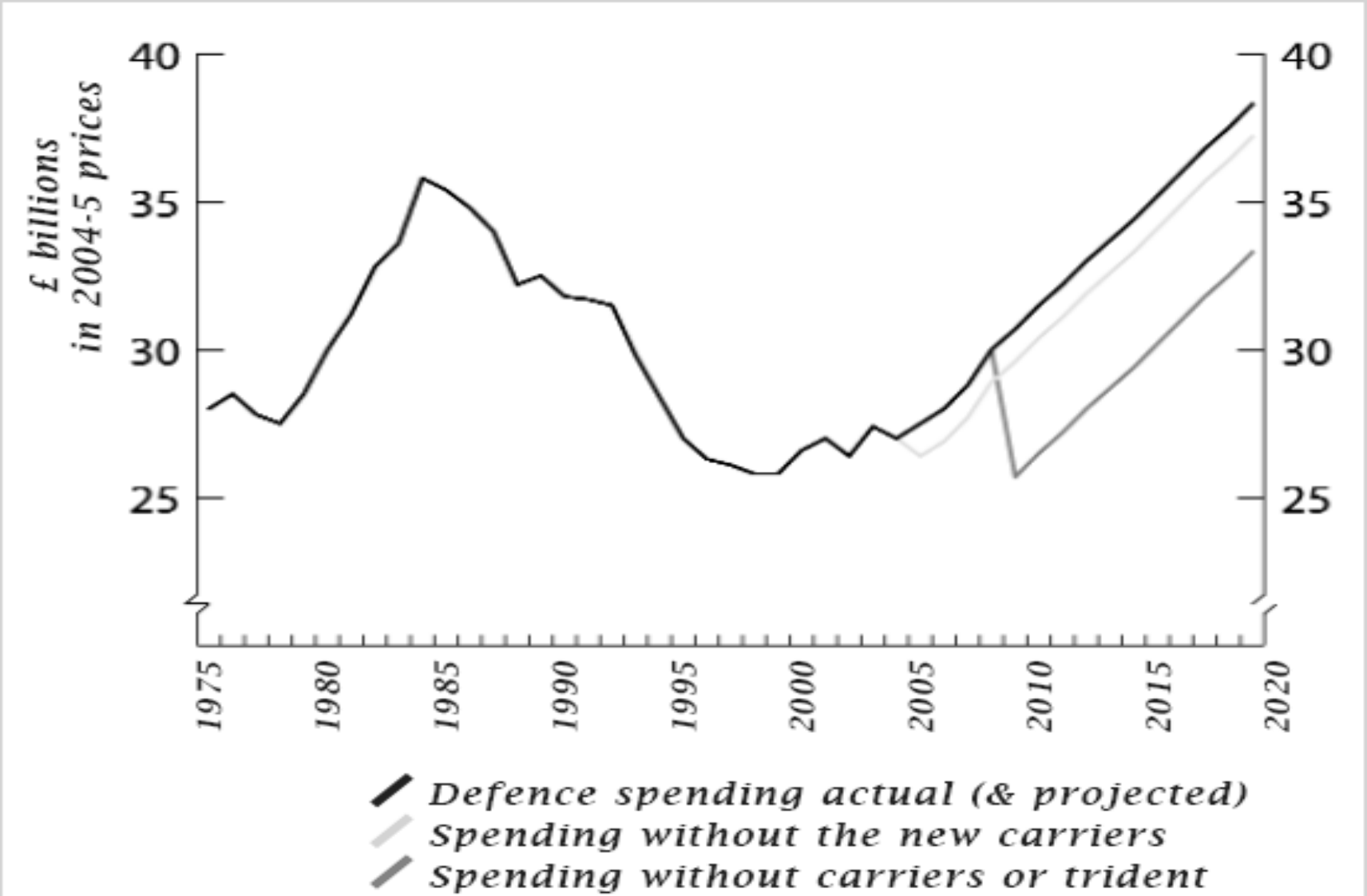
Total Net Present Value of cost of the programmes		£57bn
Equivalent annual spend over next 25 years		£3.5bn
Military spending		
Tackling 'overstretch' in the army		£500m
Peacekeeping (roughly equivalent to the cost of a major peace support operation in the Sudan)		£900m
Subtotal for military spending		**£1,400m**
Broader security spending		
Raising renewable energy R&D to level of nuclear R&D in late 80s		£218m
Fiscal and capital support for renewables		£800m
Measures to reduce oil use in transport		£654m
Funding a conflict prevention package for Sudan		£134m
5% increase in ODA		£215m
Increase in Global Partnership contribution		£60m
Subtotal for broader security spending		**£2,081m**
	Total	**£3,481m**

Spending Profile for Trident Replacement 2007 - 2042



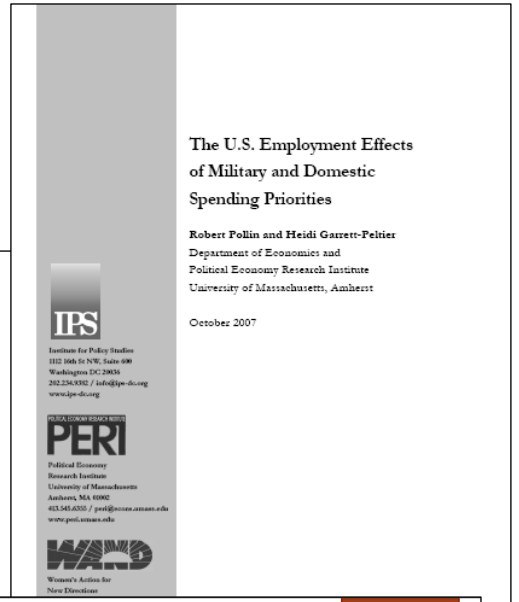
Source: "The Real Cost behind Trident Replacement and the Carriers" by P. Dunne, S. Perlo-Greeman and P. Ingram, BASIC, Oct 2007

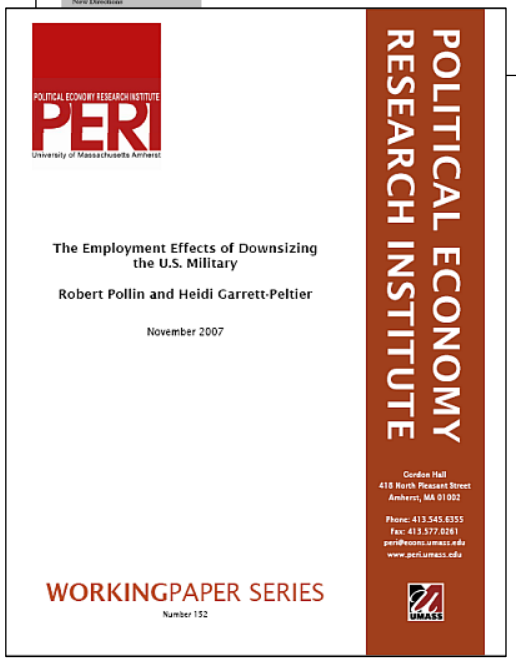
Defence spending scenarios



Overall Employment Effects of Spending $1 bllion for Alternative Spending Targets in U.S. Economy, 2005

	No. jobs created	No. jobs relative to defense spending	Average wages and benefits per worker	Average wages and benefits relative to defense	Total wages and benefits from employment (millions)	Total wages and benefits relative to defense
Defense	8,555	-	$65,986	-	$564.5 m	-
Tax cuts	10,779	+26.2%	$46,819	-29.1%	$504.6 m	-10.7%
Health care	12,883	+50.2%	$56,668	-14.2%	$730.1 m	+29.3%
Education	17,687	+106.7%	$74,024	+12.2%	$1,309.3 m	+131.9%
Mass transit	19,795	+131.4%	$44,462	-32.6%	$880.1 m	+55.9%
Home construction	12,804	+49.7%	$51,812	-21.5%	$693.7 m	+22.9%



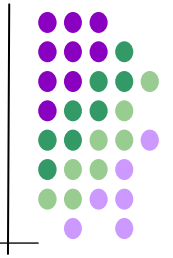


"The U.S. Employment Effects of Military and Domestic Spending Priorities" by Robert Pollin and Heidi Garrett-Peltier, Department of Economics and Political Economy Research Institute (PERI), University of Massachusetts-Amherst October 2007 - http://www.peri.umass.edu/fileadmin/pdf/other_publication_types/PERI_IPS_WAND_study.pdf

Percentage of Low and High Paying Jobs in Activities Linked to Spending Targets

	% new employment	% below $20,000/yr	% below $32,000/yr	% between $32-64,000/yr	% above $80,000/yr
Defense					
Federal government	44.1	5.3	28.0	61.3	4.7
Professional/business services	20.4	4.5	22.9	62.2	14.6
Manufacturing	14.5	4.0	7.3	85.8	5.8
Personal consumption expenditures					
Retail trade	12.9	40.0	70.6	27.3	1.4
Food services	8.9	68.1	95.3	4.3	0.3
Hospitals and nursing care	8.2	15.3	46.3	43.2	4.8
Education					
Educational services	82.1	11.7	31.8	59.1	1.2
Professional/business services	7.0	4.5	22.9	62.2	14.6
Health care					
Hospitals/nursing/care/ambulatory care	72.5	15.3	46.3	43.2	4.3
Professional/business services	7.0	4.5	22.9	62.2	4.8
Mass transit					
Transportation	76.4	5.8	36.5	60.2	1.0
Professional/business services	10.6	4.5	22.9	62.2	4.8
Weatherization & Infrastructure repair					
Construction	66.8	8.6	26.9	60.1	1.8
Professional/business services	9.6	4.5	22.9	62.2	4.8

Summary of economic effects

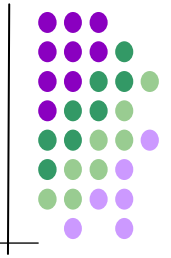


Scenario	Cut in exports	Annual cost to govt. (Chalmers)	Adjustment cost	Initial job loss	Eventual new jobs
Chalmers et. al. *	50%	£40-100m	£2-2.5bn	49,000	67,000
Carriers	n/a	0	-£1.1bn	20,000	30,000
Trident	n/a	0	-£4.2bn	65,000	105,000

** "The Economic Costs and Benefits of UK Defence Exports" by M. Chalmers, N.V. Davies, K. Hartley, and C. Willknson, Centre for Defence Economics, University of York, November 2001 - http://www.rusi.org/downloads/assets/defence_exports_nov01_York_2.pdf*

Source: "The Real Cost behind Trident Replacement and the Carriers" by P. Dunne, S. Perlo-Greeman and P. Ingram, BASIC, Oct 2007

Economic Crisis



- *"The updated Trident missile system should be the first to go. Replacement and operating costs for a nuclear strike capacity we could never use may rise to £76 billion. Even the more conservative £26 billion budget would put £1,000 into every British classroom for the next 26 years as well as paying every nurse an extra £1,000 a year for the same time span. So junk the refit programme now."*

Mary Riddell in the Daily Telegraph
16th October 2008

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MoD equipment plan 'unaffordable'

The way the Ministry of Defence buys equipment is "unaffordable", with an estimated budget overrun of £35bn, a report has said.

James Arbuthnot, Conservative Chairman of the Defence Select Committee

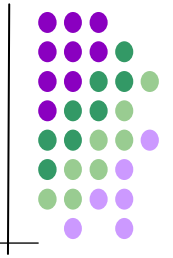
The review, commissioned by the MoD, said too many types of equipment were being ordered for too large a range of tasks at too high a specification.

It found programmes are, on average, five years late into service and cost an extra £300m as a result.

The MoD accepted some of the findings and is working on "implementing them".

http://news.bbc.co.uk/1/hi/uk/8308634.stm

UK Government

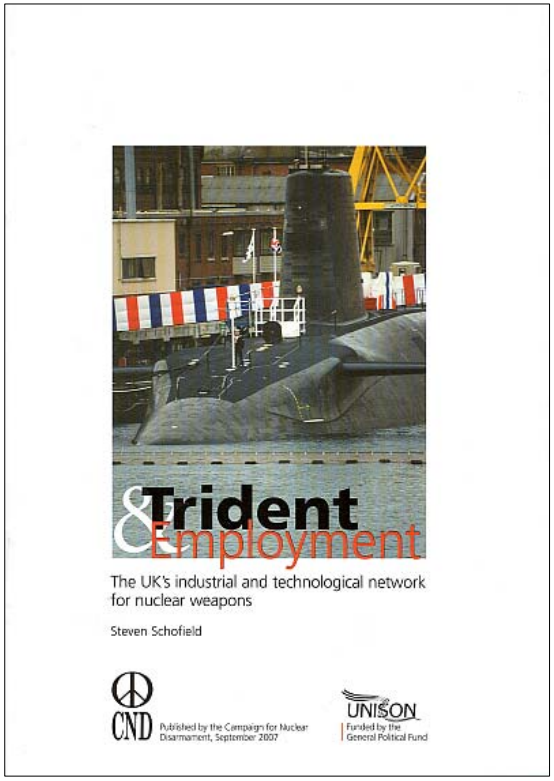


- "... to use your money for maximum impact you need to spend it on goods and services which are labour-intensive rather than capital intensive in their manufacture so that the benefits flow through into pay packets rather than into rewards for providers of capital – banks and shareholders and so forth who would inevitably have a very high propensity to save and a low propensity to consume. Ideally you need these wages to flow through to people who are relatively low-paid. This is not the case with defence; defence is capital-intensive rather than labour-intensive."

Quentin Davies MP, Defence Equipment Minister responding to a question by the Defence Committee about military spending as a way of stimulating the economy, 16 December 2008

http://www.parliament.the-stationery-office.com/pa/cm200809/cmselect/cmdfence/107/8121608.htm

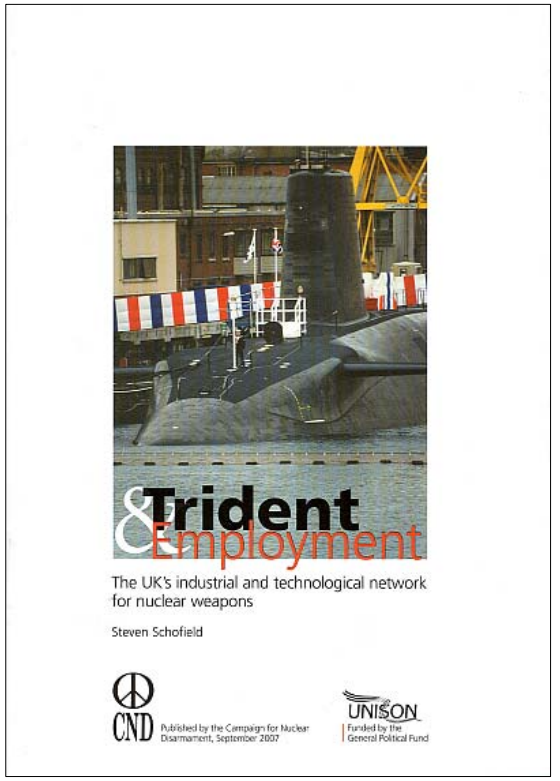
A Brief History of Trident and Jobs



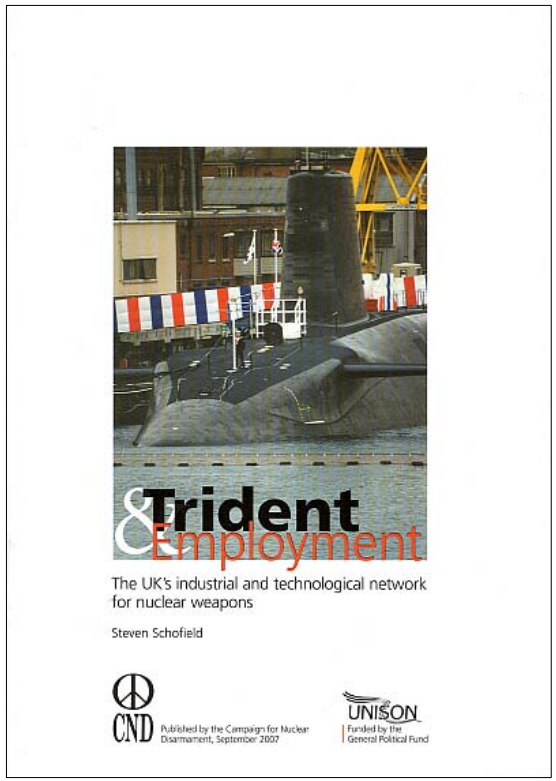
- The associated private sector companies have all carried out substantial rationalisation of employment in order to cut costs
- E.g. at Barrow-in-Furness employment has declined from 12,500 in 1990 to 3,400 in 2006.
- Overall employment in the network has fallen by nearly 60% from 26,300 in 1990 to 11,300 in 2006
- This also reflects the decline in military-related employment in the UK, which according to MoD figures, fell from 510,000 in 1991/2 to 260,000 in 2003/4.
- If Trident replacement goes ahead it is estimated the employment would drop by 35-40% less and costs rise by 25%-100%

Original Trident employment estimates
(for £12 billion investment)

- Government original estimate (1980):
  - 25,000 direct jobs
  - 20,000 indirect
- Actual jobs created (1995):
  - 14,500 direct jobs
  - 12,000 indirect jobs
- Lifetime employment estimate (1984)
  - 9,000 direct jobs
  - 7,000 indirect jobs
- Actual lifetime employment (1995)
  - 7,500 direct jobs
  - 6,000 indirect jobs



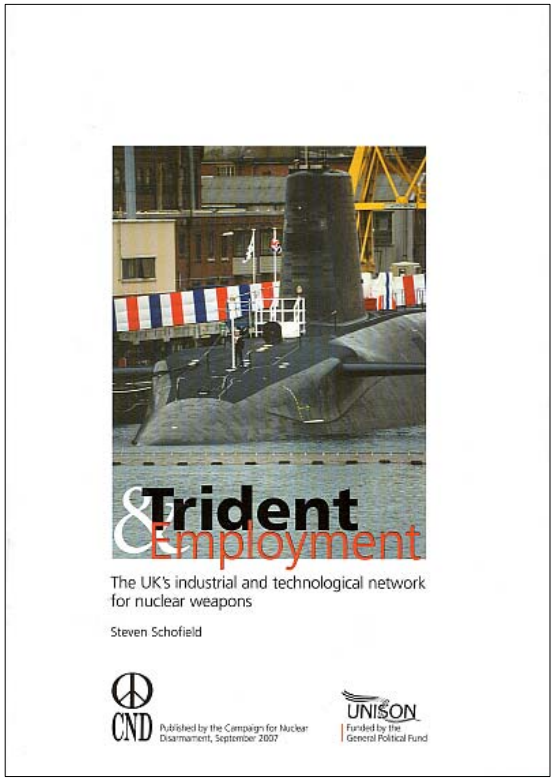
Casualties



- 2 Trident submarines built at Barrow and 2 at Cammell Laird
- Barrow privatised (by VSEL) in 1986 and Cammell Laird shrank and eventually closed
- Rosyth shipyard lost refit contract to Devonport)
- Cammell Laird shipyard – eventually closed with loss of 1200 jobs
- Barrow lost over 9,000 jobs and Devonport lost 5,300 from 1980s to 2006
- AWE and Faslane also suffered 3,300 and 1,800 job losses
- Total extent of job losses – 60%

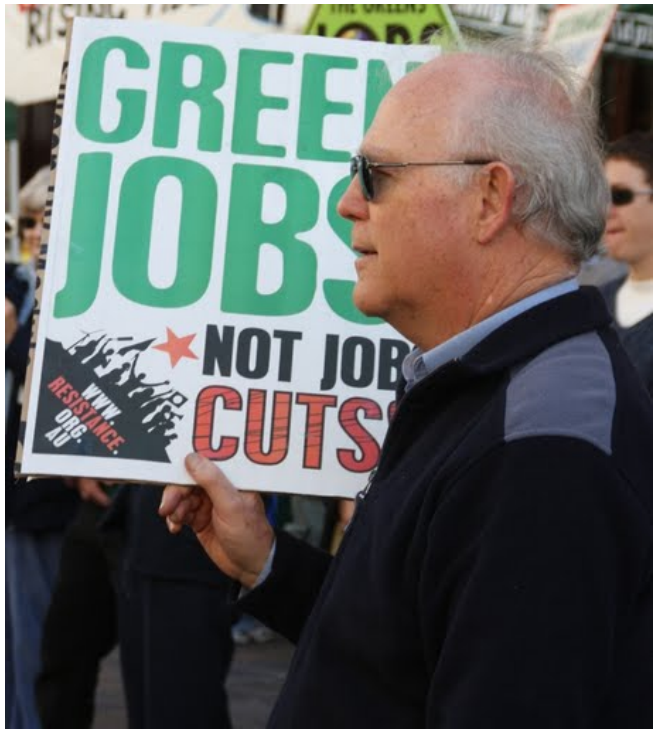
Resistance to Change

- Highly specialised workforce
- Committed to standards and procedures required by MoD
- Working to specific technical requirements which are not generally applicable to other industrial areas of work
- Jobs directly and indirectly dependent on government policy

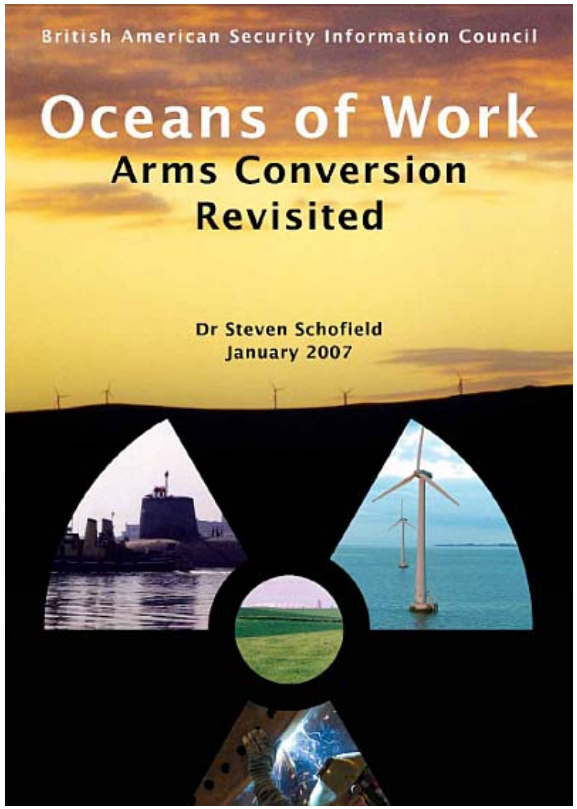


Socially Useful Production - The Lucas Aerospace Plan

- 1976 – the Lucas Aerospace Company was about to sack 20% of its 18,000-strong workforce
- The Combine Shop Stewards' Committee approached their members for technically viable means of using the existing equipment and human expertise to make socially useful products instead of weapons
- They produced a 6 volume plan for useful alternative work in the Lucas factories, including
  - Already aware of the problems of burning carbon fuels, they invented a hybrid battery-driven car with a small supplementary internal combustion engine
  - A wide range of alternative energy technologies such as wind turbines and universal power packs

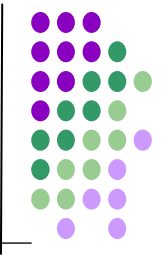


Barrow Arms Conversion Project



- As a response to 1980 government's decision to replace Polaris with Trident
- Trade unions concerned about the dependency of Barrow shipyard on military work
- Research was to identify ideas and new opportunities to use the skills base and facilities of the company

Barrow Arms Conversion Project



- Range of products were identified including renewable energy systems wave power, off shore wind and tidal barriers.
- Some based on the company's own desings such as the Constant Speed Generator Drive and the Oscillating Water Column wave power machine.
- Proposed to set up a government funded marine technology R&D centre in Barrow to coordinate a programme of offshore renewable energy and underwater exploration initiatives

Fundamental dilemma of arms conversion:

- The mismatch between prospects for new directions and reality of specialist arms production and tradition
- The shift from the character and methods of military-industrial production to civil work considered too risky
- However, conversion has occurred:
  - at times of post conflict demobilisation
  - after the closure of (U.S.) military bases
  - at the end of the Cold War

Some other problems

- “The issue for Vestas was not subsidies, but how it could get enough orders. Despite a 67% rise in offshore wind generation last year and a 29% increase in onshore wind, they do not yet have sufficient orders. We need to grow the market and central to that, as Vestas has said, is planning…. We are unlikely to be a centre for onshore wind production if applications are consistently turned down. So we have to win a political argument. ”
- *Ed Milliband, The Guardian Letters, Friday 24 July 2009*


Vestas hires thousands of workers in China after Isle of Wight closure

The Overseas Reach Of the BAE Investigation

Sweden
Investigation of allegations that BAE and Saab paid public officials in four countries to promote sale of Sweden's Gripen fighter

Central Europe
Multiple investigations of the BAE-Saab partnership

Britain
Aborted investigation of more than $2 billion in possible payments to Saudi royal family; continuing investigations of suspected bribes in South Africa, Tanzania and Central Europe

Romania
British inquiry into BAE sale of naval vessels

Switzerland
Money-laundering investigation of BAE involving allegations that secret accounts were used to pay Saudis and officials in more than a half-dozen countries

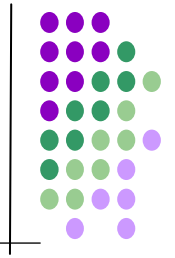
SERIOUS FRAUD OFFICE

Saudi Arabia
U.S. investigation of billions in possible payments by BAE to the Saudi royal family

Concerns related to the expansion of military use of skilled employees

- SGR submission to the Defence Select Committee in November 2006 on the Future of the Strategic Nuclear Deterrent: the UK manufacturing and skills base:
- “SGR believes that three very important factors related to the issue of military skills are rarely raised in these discussions and should be. They are:
  - the extent to which the military use of science and technology resources (both skills and funds) can and does compete with urgent civilian uses;
  - the low level of employment generated per unit of investment in military programmes compared with civilian programmes;
  - the extent to which military involvement with science and technology can adversely affect the public image of science and technology and so undermine recruitment and retention.”

In Conclusion



- A move away from an industrial base centred on large corporations focused on large scale high tech specialist business prone to sudden change would release more jobs and more resources for projects to combat genuine threats such as climate change.
- An extensive in depth study of the possibilities and economic advantages of arms conversion projects across a range of industries is needed.
- Ways to help support and network SMEs who can contribute to projects such as those in the renewable energy industry.