



Ministry of Defence

**MOD Annual Report and
Accounts 2012-13**

Sustainability Report

July 2013

Introduction

1. Sustainable Development (SD) is a vital part of the MOD's business at home and around the world. The MOD is seeking to reduce its impact on the environment, reduce its consumption of natural resources and be adaptable to climate change. Our strategy is to ensure that Defence capability is delivered in a more resilient, effective, efficient and responsible way by embedding SD principles as an integral part of all Defence business.

2. MOD's SD strategy sets out how MOD plans to become increasingly sustainable between 2011 and 2030, the strategy is published at <https://www.gov.uk/government/publications/sustainable-development-strategy>. A summary of performance is in table 1 and 2 below and detail is shown in the accompanying data tables.

3. The current coalition government introduced the Greening Government Commitments (GGC) in 2011. The GGC targets assist delivery of the Government's vision of having the greenest ever operations and procurement with greater transparency on performance. The GGC targets seek to make significant reductions of greenhouse gases, reduce waste, reduce water consumption and make procurement more sustainable. The GGC targets follow on from previous SD targets, which targeted achievement by March 2011.

Performance Summary

Sustainability Performance Overview		Annual Performance			GGC Target
		2010/11	2011/12	2012/13	
GGC greenhouse gas emissions target (Scopes 1, 2 & Scope 3 including UK Business travel) (000 tonnes CO ₂ e)		1,442	1,286	1,280e	1,080 tCO ₂ e
Fuel (000 tonnes CO ₂ e)		3,217	3,069	3,069 e	No GGC target
International commercial air travel (domestic air travel included in GGC total above) (000 tonnes CO ₂ e)		37	51	48	No GGC target
GGC estate energy	Consumption kWh 000	4,330,224	3,773,828	3,638,953	No GGC target
	Expenditure £ 000	280,563 e	294,676 e	243,266 e	No GGC target
GGC waste	Tonnes 000	190	197	161	139 t
GGC water	Consumption m ₃ 000	24,550	24,659	22,724	23,225 m ₃
	Expenditure £ 000	98,667	107,369	104,804	No GGC target

Table 1 - Summary of Performance

e = estimated data

Normalised Performance	Departmental Total Spend £ 000	Greenhouse Gas – 000 t CO ₂ e	Normalisation
10/11	38,116,370	4,700	0.00012
11/12	37,176,648	4,400	0.00012
12/13	35,210,412	4,400 e	0.00012

Table 2 - Summary of normalised performance

Mainstreaming Sustainable Development in MOD

4. Since the publication of the MOD SD Strategy in 2011, MOD has taken steps to broaden sustainability principles into Defence business, consistent with the Government's drive to mainstream SD. The requirements of the MOD SD Strategy are embedded in the Defence Plan, enabling inclusion in the annual Departmental Planning Round, which drives and informs all areas of Defence. Progress is monitored through the Department's Holding to Account process. A key target is that all key Defence decision-making processes include a requirement to assess and manage environmental, social and economic threats, impacts and opportunities. The aim is to make sustainability "business as usual".
5. Business areas are also required to develop and implement their own mainstreaming sustainability plans by March 2014 and to conduct Sustainability Appraisals on the options they submit as part of the annual Departmental Planning Round and to report the outcome. All projects subject to the Investment Approvals Committee must also consider SD.
6. Responsibility for SD in MOD sits with the Department's Permanent Secretary, delegated to the Chief Executive of the Defence Infrastructure Organisation (DIO) as process owner. A dedicated SD team supports the Chief Executive DIO in this role, as does a network of SD champions at senior official level.
7. MOD promotes sustainability through the annual Sanctuary and Energy Awards Schemes, which recognise innovative achievements from projects, individuals and teams. All award winners are featured in MOD's Sanctuary Magazine as well as examples and articles about the range of other SD activities across the estate. SD commitments are included in MOD's Business Plan and progress against them reported in the Annual Report and Accounts.

Greenhouse Gas Emissions incl Operational Energy

8. Indications are that the MOD will meet its Greening Government Commitments (GGC) target by the end of March 2015. The Department has so far achieved a 12% reduction against the emissions target. Good progress has been made in delivering the next phase of the Invest-to-Save programme with savings in excess of target demonstrated for the year one investment of £10M. Implementation of the year two (£40M) programme is well underway and the majority of the year three programme (£55M) has been submitted for delivery in FY13/14. All Regional Prime Contracts now have functioning energy bureaux, which are delivering improvements in energy use at the MOD's largest consuming sites in the UK.
9. Engagement has begun across key areas of the MOD to address behavioural management, which will be further developed once Area Utility Managers are in place. The renewable energy strategy for the estate is awaiting final approval, however MOD's electricity supply to its largest sites is now 100% 'green' (a mixture of renewable and Combined Heat and Power generated power).

Waste

10. The MOD has a target to reduce its waste by 25% against a 2009/10 baseline as part of the GGC. Performance to date has been mixed and the estimated performance for 2012/13 is a 13% reduction against the baseline. Waste volumes are erratic due to

Strategic Defence and Security Review initiatives (reducing storage capacity, equipment fleet replacement and base closures) and the return of assets from Afghanistan for sale. For these reasons, it has not been possible to develop and implement a progressive planned reduction in waste to meet the 25% reduction target. There is a risk that MOD will not reduce waste and a much higher risk that waste will not reduce sufficiently to achieve the 25% target by 2015.

11. The MOD continues to work towards becoming a zero waste to landfill organisation. This is a challenge, not just because of the effects of the Defence Reform initiatives above, but also due to the diverse and geographic spread of activities across thousands of MOD sites including naval bases, garrisons, airfields and training camps. Much of our waste is also managed through existing long-term legacy contracts. As these are renewed, we are moving to more streamlined waste management contracts and processes.

Use of Resources

12. Our industry partners manage approximately 85% of MOD's water supply in the UK (by volume). Demand reductions of almost 30% were achieved over the 7-year period from 2004/05 to 2011/12, from leakage control and spend to save water conservation initiatives. These savings were achieved by transferring leakage risk to industry partners and ensuring that MOD only pays for the water used.

13. For 2012/13, we have achieved a 9% reduction in consumption (or 2.25M m³), and have exceeded the GGC 7% reduction target two years early. This reduction was achieved from estate rationalisation, new efficient facilities, active leakage control, improved water awareness, water equipment controls, such as reduced flow urinal cisterns and more efficient showers and toilets. Our performance meeting this target early is a significant achievement. The department is not complacent and we will continue to improve. Upcoming plans to reduce water include development of smart metering and conducting building water supply survey and analysis. This will enable tracking of real-time consumption and monitoring of usage profiles to highlight issues.

Climate Change Adaptation

14. MOD has been actively involved with developing proposals for Defra's 2013 National Adaptation Programme. Defra recognises that MOD has a clear-cut adaptation policy and that we are progressing well with work on climate change adaptation across the Defence estate. More detail can be found in Annex E of the MOD Annual Report and Accounts 2012-13.

Biodiversity and Natural Environment

15. MOD has continued the proactive management of its protected sites and has exceeded the Natural England reporting target, with 99% of Sites of Special Scientific Interest (SSSI) in favourable or unfavourable recovering condition in England. Across the rest of the UK, SSSI performance is Scotland 94%, Wales 76%, and Northern Ireland 100%. MOD continues to use its Environmental Management systems, integrated management plans and sustainability appraisals to address biodiversity and natural environment impacts and opportunities.

Sustainable Procurement including Food

16. Sustainable Procurement is a key element in the planning and delivery of military capability. In-year progress was delayed due to resource constraints and re-organization: the MOD Sustainable Procurement Team was disestablished and policy responsibility transferred within Defence Equipment and Support with a much-reduced resource.

17. MOD continued to sponsor the Defence Science and Technology Laboratory's (DSTL) Resilience Research Programme, which focuses on energy (supply and demand), materials security including Rare Earth Elements, adaptation to climate change, emissions, and decision-making tools. The outputs are used to inform capability planning processes and decisions, and further acquisition guidance was issued on the Acquisition Operating Framework on managing the risks of materials security. On broader engagement, the MOD worked with Other Government Departments and stakeholders to identify and understand the global impact of climate change and resource security, and their effects on UK interests and security. For instance, MOD is a key member of an inter-Departmental group focused on resource security. In addition to sustainable procurement activity, MOD's Climate and Energy Security Envoy continued to act on behalf of Government, engaging in a range of activities to further domestic and international understanding of these issues and of the actions necessary to reduce the risks to global security.

18. Building on the Sustainable Procurement Awareness On-Line Training course launched in the previous year, MOD designed a more advanced Sustainable Procurement training workshop, which introduces techniques available to the acquisition community on addressing sustainability risks in equipment projects. Both are free at point of delivery to MOD staff through the Defence Academy.

19. Data on compliance with mandated Government Buying Standards (GBS) remains incomplete. A further Defence Internal Audit project was commissioned to better understand the scope for making performance management improvements. Regarding food procurement, the majority of UK based MOD personnel are catered for under regional or multi-activity contracts, or catering, retail and leisure contracts. Contractors are obliged to source on the open market consistent with meeting EU competition rules and quality standards, and GBS. MOD food provision, in terms of the operational arena and in circumstances of extreme training conditions, is exempt from those GBS, which may adversely affect the nutritional status and well-being of personnel. In these circumstances it is recognized that that the personnel are operating under very different circumstances to those which the GBS criteria were developed to meet.

20. Targets are still being agreed with key suppliers on reducing greenhouse gas emissions, and water and waste consumption: this is managed through the joint MOD-Industry Sustainable Procurement Working Group.

Sustainable Construction

21. All new builds and major refurbishments are subject to MOD's Defence Related Environmental Assessment Method (DREAM) or Building Research Establishment's Environmental Assessment Methodology (BREEAM) assessment. DREAM is a MOD developed tool that is specific to the defence estate and defence projects allowing the MOD to assess the environmental impacts of its construction activities. In 2012/13, 77% of new builds and 84% of major refurbishments achieved target rating.

22. A review of DREAM assessments for Projects that did not meet the target rating identified two common reasons:-

- The scope of the project meant that insufficient credits were available to achieve the target rating within value for money criteria (e.g. energy credits not available for an indoor firing range)
- Assessments started late in the project delivery process missing the opportunity to influence decision making on the environmental performance of the building.

23. Suppliers Association members signed a voluntary Waste Charter in 2008/09, agreeing to halve waste to landfill by the end of 2012. In 2007/08 54% of construction waste was diverted from landfill and an MOD target was put in place to raise this to 80% diverted from landfill by 2012. Whilst the final performance is not yet available for 2012/13, indications are that this target has been exceeded with construction waste diverted from landfill standing at over 95%. Greening Government Commitments require MOD to manage construction waste to best practice standards, MOD is committed to achieving this standard.

People

24. The MOD conducts Sustainability Appraisals (SA) of all its major plans, programmes and projects (including the relocation of any civil estate offices). This ensures that the impact on staff, as well as the wider environmental and socio-economic impacts and opportunities can be assessed, e.g. a tiered level of appraisals have been undertaken in support of the Basing Optimisation Programme to “develop a more coherent and cost effective solution” for basing arrangements. In the past, MOD has only reported on the number of SAs completed for civil estate office relocations. From 2014/15, it is anticipated that DIO will be able to report on the number of SAs completed for all plans, projects and programmes more effectively.

25. The health of the department’s civilian staff is central to their attendance and performance at work and their contribution to Defence outputs. One of our Civilian Workforce Sub Strategies is to continue to improve the productivity of the workforce, including health and attendance at work. In addition, PUS recently appointed a Health & Wellbeing Champion at senior level who is responsible for supporting and encouraging progress on particular aspects of the health and wellbeing agenda. The department also strives to ensure that employees have a healthy work life balance by providing a diverse range of family policies; providing the right to request flexible working, tackling work-related stress and addressing the long hours culture.

26. The health and wellbeing of Service Personnel is promoted through the Service Personnel Strategy and the Defence Health Strategy. Chief of Defence Personnel is committed to work with the Surgeon General to optimise Defence health services and advise the single-Services on health matters in order to maximise the numbers of personnel fit for task.

27. The health and wellbeing of our personnel, including those who have served (our veterans) and families is further promoted through the Armed Forces Covenant, the principles of which were first set out in the Armed Force Covenant, published in May 2011, which stated:

‘Those who serve in the Armed Forces, whether Regular or Reserve, those who have served in the past, and their families, should face no disadvantage

compared to other citizens in the provision of public and commercial services. Special consideration is appropriate in some cases, especially for those who have given most such as the injured and bereaved’.

28. The Armed Forces Covenant Annual Report of 2012 covers a wide range of initiatives to support the health needs of the Armed Forces Community. These include the integration of mental health assessments into routine Service medicals, IVF treatment for those who suffer infertility as a result of injuries in Service and prosthetic provision from the NHS at the same high standard as that provided by the MOD. There has been further development of the Defence Recovery Capability and the Care Quality Commission acknowledged the high quality of service provided by the Defence Medical Services generally. The Cabinet Sub-Committee on the Armed Forces Covenant has also re-affirmed the Government’s commitment that Veterans accessing NHS services in England will be given priority treatment for Service-related conditions with similar arrangements in Scotland and Wales. The report identifies that more work is to be done implementing recommendations from the Care Quality Commission review and in establishing a unified MOD Defence Primary Healthcare Service. The Government is also committed to looking at what more can be done on reserves’ mental health.”

Environmental Management System

29. An Environmental Management System (EMS) is a structured framework for managing an organisation's significant impacts on the environment. EMS are used to manage and improve environmental performance and help compliance with environmental legislation and MOD regulations. An EMS can also help generate financial savings for the Department through helping instigate efficient practices. MOD is committed to ensuring all sites are covered by an appropriate EMS by 2015; currently the Department is on track to meet that commitment.

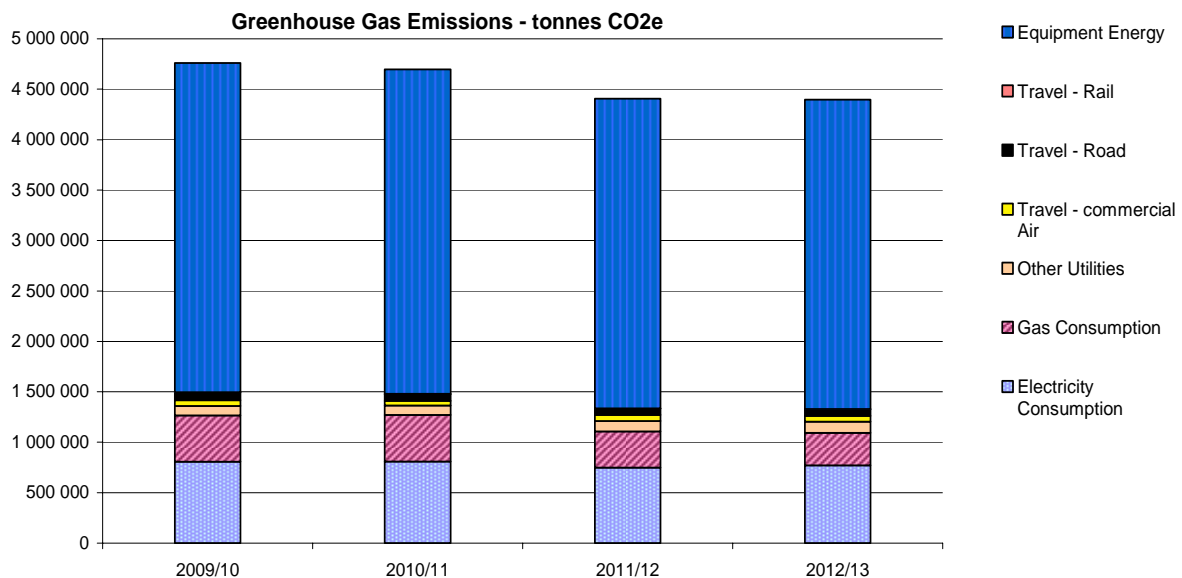
Governance

30. Sustainability performance is managed through the Department’s normal management processes, including the MOD’s Business Plan and Defence Plan. The Chief Executive Defence Infrastructure Organisation is the owner of the SD Strategy. Business unit SD Champions are responsible for delivery and assurance in their area. Defence Internal Audit assures the processes used to collect the data.

Sustainable Development Performance Data ¹

GREENHOUSE GAS EMISSIONS		2009-10	2010-11	2011-12	2012-13	Note
Non-Financial Indicators tCO ₂ e 000	Total gross emissions for scopes 1, 2 & 3	4,760	4,696	4,406	4,398	2
	Total net emissions for scopes 1, 2 & 3	4,748	4,685	4,331	3,627	2
	Total gross emissions scope 1	3,842	3,796	3,557	3,526	2
	Total gross emissions scope 2 & 3	917	900	849	871	2
Related Energy Consumption KWh 000	Electricity: Non-renewable	1,460,770	1,464,106	1,282,421	0	3
	Electricity: Renewable	20,440	20,486	142,491	1,481,564	
	Gas	2,482,017	2,475,352	1,952,488	1,740,426	
	LPG	80,070	80,403	82,000	79,391	
	Other	290,598	289,877	314,428	337,572	
Related Equipment Energy Consumption Litres 000	Aviation fuel	827800	792,400	767,100	767,100	4
	Diesel	340500	354,300	339,300	339,300	4
	Gas oil	74300	79,700	74,900	74,900	4
	Petrol	7000	4,600	5,800	5,800	4
Financial Indicators £ 000	Expenditure on energy	195,715	280,563	294,676	243,266	5
	CRC license expenditure (2012 onwards)	-	-	1	16,000	
	Expenditure on GCOF offsets	220	78	12	see note 6	
	Expenditure on official business travel	198,747	165,467	161,632	161,632	7
	Expenditure on equipment energy (fuel)	481,934	627,850	635,354	758,809	
Normalisation	Total scopes 1, 2 & 3 - tCO ₂ e 000	4,760	4,696	4,406	4,398	2
	Defence total Spend £000	37,994,285	38,116,370	37,176,648	35,210,412	
	Normalisation - Scope 1 & Scope 2 emissions '000 / budget '000	0.00013	0.00012	0.00012	0.00012	

Graphical Analysis



PERFORMANCE COMMENTARY (INCL TARGETS)

The Greening Government Commitments require a 25% reduction by March 2015. A 12% reduction has so far been achieved.

CONTROLLABLE IMPACTS COMMENTARY

The main impacts are from electricity & fuel consumption. Strategies have been prepared to reduce these impacts through efficiency programmes which include using more efficient technologies, beneficial estate utilisation & rationalisation. We are developing & implementing plans with the Carbon Trust to reduce estate carbon emissions.

OVERVIEW OF INFLUENCED IMPACTS

We are actively working with industry partners to develop energy efficiency opportunities across a range of technologies & through our procurement specifications. We are currently retro-fitting energy services into current Facility Management contracts as a forerunner to embedded energy management capability into the next generation of estate contracts. We are working with key suppliers to encourage them to reduce their own emissions.

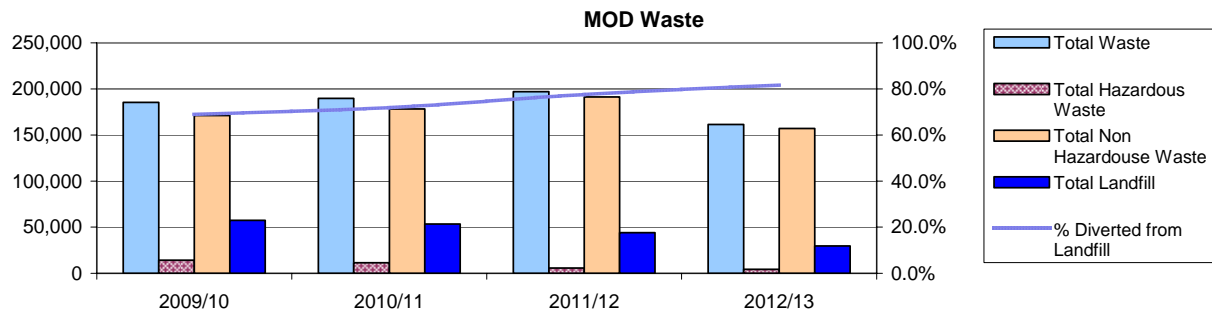
COMMERCIAL AIR TRAVEL	2009-10	2010-11	2011-12	2012-13	
Number of UK Domestic Air Flights - in 000	66	53	57	61	2

COMMENTARY

The Greening Government Commitments requires MOD to reduce by 20% the number of UK domestic commercial flights by March 2015 against a 2009/10 baseline. An 8.7% reduction has been achieved.

WASTE		2009-10	2010-11	2011-12	2012-13	Note	
Non-Financial Indicators tonnes 000	Total waste	185	190	197	161		
	Hazardous waste	14	11	6	4		
	Non hazardous waste	Landfill	55	48	43	29	
		Reused/Recycled	91	95	122	101	
		Composted	8	9	9	8	
		Incinerated with energy recovery	10	18	12	18	
Incinerated without energy recovery	8	8	5	2			
Financial Indicators	Total disposal cost (see notes)	NK	NK	NK	NK		
Normalisation	Department total spend £000	37,994,285	38,116,370	37,176,648	35,210,412		
	Normalisation - waste arisings tonnes / total spend '000	0.000005	0.000005	0.000005	0.000005		

Graphical Analysis



PERFORMANCE COMMENTARY (INCL TARGETS)

MOD is required to reduce the volume of its waste by 25% against a 2009/10 baseline. Performance to date has been mixed and currently stands at -13% for 2012/13. Waste volumes are erratic due to Strategic Defence and Security Review (SDSR) initiatives (reducing storage capacity, equipment fleet replacement, base closures) and Afghanistan run down generating increased waste volumes. For these reasons it has not been possible to develop and implement a progressive planned reduction in waste to meet the 25% reduction target. There is a risk that MOD will not reduce waste and a much higher risk that waste will not reduce sufficiently to achieve the 25% target.

The Department is unable to report the disposal cost for waste. Waste in most cases is part of a larger facilities management contract or a service delivered by a PFI (private finance initiative) partner. As part of the Defence Reform programme, we are looking to improve the next generation of infrastructure management contracts to support the improvement of waste management including the requirements for accurate weighed data and costs.

CONTROLLABLE IMPACTS COMMENTARY

Our main impacts are from general waste management at our sites. Used military equipment and construction waste are also significant.

OVERVIEW OF INFLUENCED IMPACTS

Much of our waste is still managed through existing long-term legacy contracts although we are planning to move to more streamlined waste management contracts and processes when these lapse, and work is continuing towards this goal.

CONSTRUCTION WASTE	2009-10	2010-11	2011-12	2012-13
Percentage of Construction waste diverted from landfill	74%	75%	81%	92%

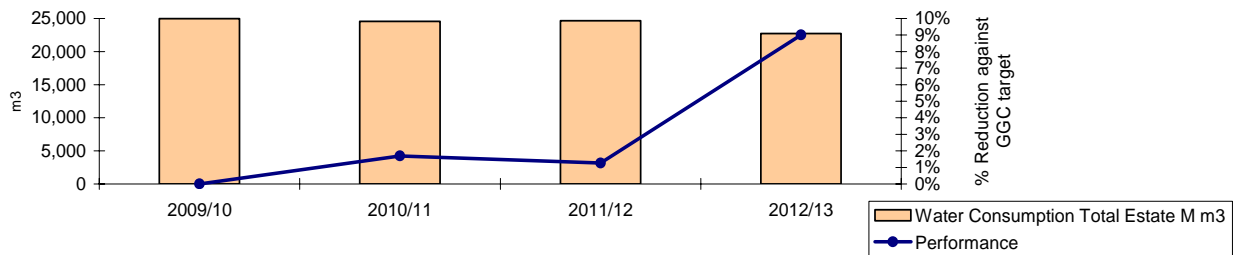
COMMENTARY

The Greening Government Commitments require MOD to manage construction waste to best practice standards. The Government target is to halve landfill by the end of 2012. In 07/08, the baseline year, 54% of MOD construction waste was diverted from landfill. The MOD target is to divert 80% of construction waste from landfill - the MOD has previously met and has now exceeded this target. The target was set as a percentage because waste varies from year to year dependant on the number and size of projects funded in that particular year. The waste diverted from landfill (woods, aggregate, metals, glass etc) is either re-used on site, recycled or re-used off site and does not go to landfill.

FINITE RESOURCE CONSUMPTION - Water		2009-10	2010-11	2011-12	2012-13	Note
Non-Financial Indicators M ³ 000	Water consumption (office estate)	206	186	193	172	
	Per FTE	12.4	11.8	12.3	11.8	
	Water consumption (office & non office estate)	24,974	24,550	24,659	22,724	
Financial Indicators £ 000	Water supply costs (whole estate)	100,236	98,667	107,369	104,804	
Normalisation	Department total spend £000	37,994,285	38,116,370	37,176,648	35,210,412	
	Normalisation - emissions m3 '000 / budget '000	0.00066	0.00064	0.00066	0.00065	

Graphical Analysis

Finite Resources - Water



PERFORMANCE COMMENTARY (INCL TARGETS)

The MOD has achieved water savings approaching 30% over the 7 year period from 2004/05 to 2011/12, following leakage control and spend to save water conservation initiatives. The MOD has a further target of 7% by Mar 2015 against a 2009/10 baseline as part of the Greening Government Commitments, however this has effectively been achieved as total water performance for 2012/13 is a 9% saving against the baseline. There has been a 17% reduction in office water consumption since the baseline year (FY 09/10).

CONTROLLABLE IMPACTS COMMENTARY

Major savings have previously been made through leakage reduction and spend to save projects. Reductions over the last two years are attributed to estate rationalisation, new build of more efficient facilities, further active leakage control, improved water awareness, introduction of equipment controls, such as reduced flow urinal cisterns and more efficient showers and toilets. This is being done in partnership with current service providers. Many of our office sites are not owned by MOD, therefore to improve water efficiency at these sites MOD is looking at improved utilisation through staff education and awareness.

OVERVIEW OF INFLUENCED IMPACTS

Aquatrine (Aquatrine PFI see explanatory notes) industry partner contractors manage approximately 85% of MOD UK water supply (by volume). We are working with our key suppliers to encourage them to reduce their use of water.

Notes:

1. This table must be read in conjunction with the explanatory notes document
2. Air travel data - due to data improvements this data has been revised for all years
3. All purchased electricity is from a renewable source.
4. Equipment energy (motive fuel) data for 2012-13 is not available in time for this report - the previous year figures have been restated
5. This data has been estimated
6. Offsets for 2012-13 will be purchased during 2013-14
7. Expenditure on business travel 2012-13 is not available in time for this report - the previous year figures have been restated
8. 'NK' is where data is Not Known

Annual Reports and Accounts 2012/13 – Sustainability Report Explanatory Notes

1. The data in these tables are not National Statistics because they have not been assessed as such by the UK Statistics Authority.
2. The data contained in this report is based on the baselines agreed for Greening Government Commitments (GGC). The GGC targets are for UK data. The MOD has tried to include as much of the UK data as possible and for some data sets, we have included data from our overseas estate.
3. Definition of emission scopes:
 - a. Scope 1 emissions occur from sources owned or controlled by the organisation. Examples include emissions as a result of combustion in boilers owned or controlled by the organisation. This includes emissions from organisation-owned fleet vehicles.
 - b. Scope 2 emissions result from energy consumed which is supplied by another party (e.g. electricity supply in buildings or outstations), and purchased heat, steam and cooling.
 - c. Scope 3 relate to official business travel directly paid for by an organisation (i.e. not business travel re-charged by contractors).
4. DEFRA conversion rates have been used to account for carbon
5. Carbon data in this report is shown as CO₂e; this is the six greenhouse gases covered by the Kyoto Protocol. They are: Carbon Dioxide (CO₂); Methane (CH₄); Nitrous Oxide (N₂O); Hydro fluorocarbons (HFCs); Perfluorocarbons (PFCs) & Sulphur Hexafluoride (SF₆)
6. GGC and HM Treasury reporting rules allow Departments to leave out bodies that fall below the de-minimis criteria. The department has been granted exemption not to include Non Departmental Public Bodies and other MOD funded bodies.
7. The MOD is large and complex with around 400 main sites and around 4000 sites in total. A site may contain a single building or dozens of buildings. MOD's Sustainable Development (SD) baselines include as much of the estate as possible but for reasons that include insufficient manpower and old contracts that do not provide the data required our baselines covers from around 75% to 90% of the Defence estate. The finance data covers spend for a budget item and this may exceed the scope of the SD data being reported.
8. SD data for: (1) travel, (2) waste and (2) water includes data from MOD's Trading Fund Agencies i.e. Defence Support Group, Defence Science and Technology Laboratory and United Kingdom Hydrographic Office.
9. Estate Energy
 - a. The Department of Energy and Climate Change agreed that the 25% Greenhouse Gas target should apply to the 398 core establishments which MOD has decided to retain for the long term. Achievement against the target will include 6% savings, which will be achieved from decarbonisation of the National Grid.
 - b. The 398 sites are located in the UK and overseas. These core sites account for around 80% of MOD's energy consumption.
 - c. MOD's Trading Fund Agencies are not included in the 398 core sites.
 - d. Estate energy data is not weather corrected.
 - e. Energy costs are calculated from an indicative costs for each energy type multiplied by the KWh consumed.

10. Operational Energy

- a. Operational Energy is fuel consumed by vehicles, ships, aircraft and generators in the UK and overseas. However, fuel used to provide energy at MOD sites (excluding operational sites i.e. Afghanistan) is reported under estate energy.
- b. It is not possible to obtain a complete account of fuel issued for charter flights and so consumption has been estimated using calculated distances for each journey and average burn rates for each aircraft used. These calculations have been validated by comparisons with data on fuel issued where available, to ensure a reasonable level of accuracy.
- c. The fuel consumption of fixed and rotary wing aircraft has been calculated using average burn rates and flying hours, provided by Air Command.
- d. There were a number of gaps in the fuel data for 2010/11. In particular, there was incomplete data for ground and aviation fuel by Defence Fuels Group. Here, estimates of fuel consumption have been based either on the 2010/11 data that was available, or on information from previous years.

11. UK Business Travel

- a. The GGC target is for administrative business travel by Departments. We have defined business admin travel as business journeys on behalf of MOD. Greenhouse gas emissions from other travel i.e. operations, support for operations, training for operations, welfare etc have been removed where possible.
- b. Road travel consists of administrative businesses car journeys in either (1) a leased fleet vehicle; (2) personnel using their own personal car (grey fleet); and (3) hire cars
 - i. Leased fleet vehicles: This data includes some non-business administrative use because it not possible to separate out all journeys. Calculation of the lease fleet emissions are estimated based on an average mileage of 18,000 miles per car (from sampled data) multiplied by the average CO2 emissions of all the vehicles in the fleet.
 - ii. Grey Fleet includes travel by civilian and Armed Forces personnel using their own cars. Emissions are calculated using an "average" car from the DEFRA GHG conversion factors and the motor mileage distance claimed.
 - iii. Hire car fleet emissions are based on an estimated journey of 250 miles per hire (based on sampled data) and DEFRA Greenhouse Gas Conversion (GHG) factors for the size of vehicle hired. If a vehicle type is unavailable any upgrade is not recorded.
- c. Rail travel. We monitor rail travel mileage booked centrally using the mandated contract. The emissions data is calculated for all journeys but we are able to exclude travel related to armed forces recruitment. The cost of rail travel includes all rail travel regardless of reason for travel.
- d. The travel data is from live databases. The data is correct on the date the report was made and cannot be replicated.
- e. The data given is for commercial air travel, it does not include:
 - i. Military aircraft or
 - ii. Charter aircraft i.e. used for troop transport.
- f. The travel data includes travel by MOD civilians, Armed Forces personnel and the Trading Fund Agencies (Defence Science and Technology Laboratory; UK Hydrographic Office and Defence Support Group).

- g. The number of UK domestic flights includes journey that start and finish in the UK. Domestic flights for onward connection to international flights have not been included.
- h. The 2012-13 expenditure data for travel was not available in time for this report. For all MOD travel, the following notes apply:
 - i. excludes Trading Fund Agencies.
 - ii. includes travel that is beyond the scope of GGC Business Administrative Travel, i.e. when tickets are purchased for, compassionate travel.
 - iii. the expenditure includes international air travel.

12. Waste

- a. Waste data shown is against the agreed GGC baseline, this is around 75% of MOD known waste. The 25% excluded is unreliable data because:
 - i. the waste contractor does not provide weighed waste data. The current contracts were signed before weighed waste data was required
 - ii. sites have insufficient manpower to monitor waste and estimate tonnage based on volume.
- b. The waste data is from weighed waste data and volumetric conversion factors. Volumetric conversion estimates the weight of the waste based on the type of waste and size of the skip.
- c. The Department is not able to report the expenditure for waste. Long-term contracts were let several years ago with industry partners to provide a range of estate services under one contract (either Private Finance Initiatives (PFI) or multi activity contracts). It has not been possible to isolate the cost of waste from the other tasks services by the contractor.
- d. The waste data excludes the scrapping and recycling of ships. Ship recycling is not a regular occurrence and their large tonnage would adversely slew figures in either the baseline or the reporting year.
- e. The 10/11 waste data excludes the disposal of the Nimrod aircraft fleet. This was a one-off exceptional disposal. We have included disposals that are part of fleet upgrade/replacement.
- f. Waste data covers the UK, Trading Fund Agencies and sites in Germany.

13. Finite Resources

- a. Water is provided by Aquatrine, an MOD-wide Water and Wastewater PFI project delivered through three separate contracts known as 'Packages'. Package A covers the Midlands, Wales and South West England, Package B covers Scotland, and Package C covers the North and East of England. Aquatrine provides water to over 4000 site groups, which is approximately 90% of the Department's consumption.
- b. The Department's office estate (administrative buildings that are not part of a military establishment) is relatively small, being 13 sites. The full Time Equivalent (FTE) is the number of personnel established at these sites and does not include (1) on site contractors and (2) visitors (MOD/Armed Forces personnel based elsewhere, public and other contractors).

14. Government Carbon Offsetting Facility (GCOF)

- a. The Government is committed to offsetting all emissions arising from official and Ministerial air travel. To meet this commitment, a Government Carbon Offsetting

Facility (GCOF) was developed in November 2007 to help central government departments offset their travel emissions in a simple, cost-effective way.

- b. The Department offsets commercial air travel by civilian and Armed Forces personnel assigned to MOD's Centre budget area. This budget group includes several sites across the UK. The air travel offset includes UK domestic, short haul and long haul air travel.