

# **The Scottish Civil Estate: Efficiency and Sustainability 2010/11**

A baseline report on the  
performance and environmental sustainability  
of the Scottish civil estate

Laid before the Scottish Parliament by the Scottish Ministers  
October 2011  
SG/2011/180

## INTRODUCTION

### Overview

This is the first annual report on the efficiency and sustainability of the Scottish civil estate (hereafter referred to as the “civil estate”) and has been produced in accordance with the provisions of the Climate Change (Scotland) Act 2009 (Appendix III).

Specifically Scottish Ministers are required to lay before the Scottish Parliament a report containing an assessment of the progress made in the year towards improving the efficiency and the contribution to sustainability of buildings that are part of the civil estate in Scotland.

A further obligation is to explain the purchase or leasing by Scottish Ministers of any building within the financial year that does not fall within the top quartile of energy performance.

As this report is the first of its kind, it provides the baseline performance, as of 31 March 2011, against which future reports will be compared. Therefore, although comparisons cannot be made with previous years to demonstrate progress, this report does include a number of case studies which illustrate how the sustainability and efficiency of the Scottish civil estate is being improved.

#### **The Scottish Civil Estate**

The civil estate comprises many of the properties that make up the estates of the core Scottish Government and its eleven executive agencies, which during the period of this report were:

- Accountant in Bankruptcy
- Disclosure Scotland
- HM Inspectorate of Education
- Historic Scotland
- National Archives of Scotland
- Scottish Housing Regulator
- Scottish Prison Service
- Scottish Public Pensions Agency
- Social Work Inspection Agency
- Student Awards Agency for Scotland
- Transport Scotland

Buildings that fall within the civil estate are listed at Appendix I.

## Context

The Scottish Government and its executive agencies are a complex multi-faceted group of organisations with executive and administrative functions.

In order to enable these functions the civil estate comprises a diverse range of properties that range from standard administrative offices to highly specialised operations such as fisheries and agricultural research stations, laboratories and archives.

The main focus of this report is the administrative component of the civil estate and in particular those offices where the core Scottish Government or its executive agencies is the main occupier and can exert control over the building's environmental controls and equipment. This component of the civil estate comprises 44 core administrative offices, which accommodate about 7,616 full-time equivalent staff, with a net internal area of 115,986 m<sup>2</sup>. (Efficiency and sustainability performance of the wider civil estate, including both offices and specialist operations, is summarised in Appendix II).

The civil estate is a mix of freehold and leasehold properties. The three main administrative buildings in Edinburgh, St Andrew's House, Saughton House and Victoria Quay are owned and comprise 57,447 m<sup>2</sup>, approximately half of the area of the 44 administrative buildings.

Over recent years a process of rationalisation has radically reshaped the estate with a number of large buildings in Edinburgh at Waterloo Place, James Craig Walk and Greenside Place being either sold or their leases surrendered. Other buildings have seen a significant rationalisation of space.

- A recent rationalisation of space within the Scottish Government's Saughton House allowed the relocation of its rural staff from Pentland House. As a result, space vacated in Pentland House has been occupied by NHS Lothian, allowing them to bring forward disposal of an inefficient building and to convert other space to clinical use.
- The rationalisation of space at Saughton House also created space for the Scottish Court Service to occupy and as a result they were able to relinquish accommodation at Hayweight House, Edinburgh.
- Following rationalisation within Glasgow, Scottish Enterprise reduced their space in 5 Atlantic Quay, enabling the Scottish Government to move into the building and vacate Meridian Court. Following a comprehensive refurbishment, including the installation of active chilled beams to replace the existing inefficient air conditioning system, Meridian Court has been reoccupied by NHS National Services Scotland (NSS). This move allowed NHS NSS to relinquish five leases. Reuse of the remaining space at Meridian Court is being pursued.

Additional properties have come into the civil estate from other bodies such as Science and Advice for Scottish Agriculture (SASA), the Marine Directorate (formerly the Scottish Fisheries Protection Agency and Fisheries Research Scotland), Communities Scotland and the Scottish Building Standards Agency.

These acquisitions have doubled the number of properties within the estate and, while many of these offices are relatively small, their addition has increased the complexity and running costs of the civil estate. Some of these buildings are unsuited to delivering modern government business and where this is the case opportunities will be explored for the disposal of less efficient properties.

### **Objectives of Estate Management**

The Scottish Government's objective is to continue to reshape the civil estate so that it fulfils modern operational requirements effectively, economically and sustainably.

In 2008 the Cabinet Secretary for Finance and Sustainable Growth, John Swinney, published his Asset Management report which provided a property management framework. Since then changes in the sustainability agenda and reductions in the size of the Scottish Government have led to the development of a strategy to reduce the size of the core estate (and related costs) by 25% during the life of the current Parliament. Many of the agencies whose properties are covered by this report are also formulating strategies to deal with the sustainability agenda and reductions in public spending.

The aims of civil estate management are to improve:

- **Efficiency** – through using existing space more effectively and simultaneously reducing the size of the estate. The Scottish Government and its agencies will be able to operate with a smaller estate due to its reducing size and the introduction of modern working practices which require less space for particular tasks; and
- **Sustainability** – by reducing carbon dioxide emissions, water consumption, and waste, and improving energy performance.

### **Measuring Performance**

The efficiency and sustainability of the civil estate is measured using a number of Key Performance Indicators (KPIs) taken from the Office of Government Commerce's (OGC) electronic Property Information Mapping Service (ePIMS). These KPIs enable measurement and reporting on:

- the overall area of the civil estate (m<sup>2</sup>) and the total cost of the estate,
- workspace efficiency in offices expressed as £/FTE, calculated based on the £/m<sup>2</sup> (rent, rates and other occupation costs), Net Internal Areas (NIA) and the number of employees based in the buildings,
- the use of occupied space expressed as m<sup>2</sup>/FTE, based on the space allocation per workspace and the ratio of FTEs to each workspace,
- compliance with the commitment to procure buildings in the top quartile of energy performance, and
- sustainability performance against targets for waste recycling and water consumption.

This report provides a snapshot of the present (as at 31 March 2011), which will act as a baseline against which the coming years' performance can be assessed and progress measured.

### **Flexibility of the Estate**

The offices held on leasehold offer opportunities for flexibility with six main office building leases coming up for renewal over the next six years comprising 32,159 m<sup>2</sup> (around 28% of the administrative estate).

Vacant space that arises in the owned estate is normally put up for sale, such as Jeanfield House, Perth. Where vacant space arises in leased accommodation efforts are made to backfill it with other public sector bodies in order to reduce the running costs of the core Scottish Government estate, and to remove the need for those bodies to lease fresh space from the private sector. As leases end in 2014-2017 it is expected that the opportunity will be taken to vacate some of these buildings as, in the medium term, the Scottish Government will not require as much office space as in the past.

## EFFICIENCY – BASELINE KPIs (as of 31 March 2011)

KPI	Measure	Performance 2010/11
<b>Cost Efficiency</b>		
Cost per FTE	£/FTE	3447
Cost per m <sup>2</sup>	£/ m <sup>2</sup>	242
Rent per m <sup>2</sup>	£/ m <sup>2</sup>	77
Rates per m <sup>2</sup>	£/ m <sup>2</sup>	56
Other costs per m <sup>2</sup>	£/ m <sup>2</sup>	110
<b>Space Efficiency</b>		
m <sup>2</sup> per FTE	m <sup>2</sup> /FTE	14.4
m <sup>2</sup> per workstation	m <sup>2</sup>	13.6
Workstation per FTE		1.06

### Cost Efficiency

The overriding aim of public sector accommodation is to allow Scottish civil servants to deliver a high standard of service to the public and our stakeholders. In this respect one of the vital indicators is the cost per FTE (full-time equivalent) employee which can be analysed into the cost per m<sup>2</sup> and the number of m<sup>2</sup> per FTE. Average cost per FTE for the civil estate at the end of the last financial year was £3447.

The cost based on floor space (cost per m<sup>2</sup>) enables an organisation to consider the suitability and efficiency of a single building. If properties exceed the average costs the reasons for this can be investigated. Sometimes specific operational requirements demand more generous space allowances. Alternatively, this may indicate inefficiencies in building operation or workspace layouts, or may be a consequence of changes in levels of staffing.

The average cost per m<sup>2</sup> as at 31 March 2011 was £242.

### Space Efficiency

This is a crucial aspect of building performance that is necessary to ensure the efficient use of office accommodation. The net internal area (NIA) for the Scottish civil estate was 115,986 m<sup>2</sup>.

The best measure of office layouts is the m<sup>2</sup> per workstation. The average across the Scottish civil estate is 13.6 m<sup>2</sup>.

Space usage was 14.4m<sup>2</sup> per FTE which is above the Scottish Government benchmark of 10 m<sup>2</sup> per FTE for existing space and 8 m<sup>2</sup> for newly built office space.

Currently St Andrew's House, Edinburgh and Atlantic Quay, Glasgow are near the target benchmarks and near capacity. As staff numbers drop, facility managers consolidate released space to create either empty owned buildings for disposal, or floor space with a sufficient floor plate to allow reuse by other bodies.

For operational reasons some of the buildings in the non-office part of the civil estate, such as Marine Laboratories and the archive storage of National Archives of Scotland, require more generous space allowances.

Another indicator of the efficiency of use of properties across the estate is revealed by the KPI of workstations per FTE. The Scottish civil estate has achieved 1.06 against this KPI.

## SUSTAINABILITY - BASELINE KPIs 2010-11 (as of 31 March 2011)

KPI	Measure	Performance 2010/11
<b>Waste and water</b>		
Water consumption per FTE	m <sup>3</sup> /FTE	7.2
% waste recycled	%	64
<b>Energy</b>		
Energy consumption per m <sup>2</sup>	(kWh/ m <sup>2</sup> )	286
Energy consumption per FTE	(kWh/FTE)	4126
Energy Cost per m <sup>2</sup>	(£/m <sup>2</sup> )	16
Energy cost per FTE	(£/FTE)	246

m<sup>2</sup> = Occupied Net Internal Area

### Reducing water consumption

Reducing the civil estate's use of water is important for reasons of environmental sustainability and financial expenditure. Charges are levied against both the water that is consumed and the water that is returned to the sewers as waste for treatment and reuse. Conserving water also has indirect downstream advantages in reducing the energy requirements of Scotland's water treatment facilities.

The Scottish Government derives its data on mains water consumption from automated meter reading technologies, from computerised monitoring and targeting systems, from direct meter readings and from water supplier invoices. Ongoing monitoring helps measure the effectiveness of water saving activities and informs building managers of abnormal conditions that might otherwise go unnoticed.

The opportunities afforded by building construction or refurbishments can be used to consider the introduction of water saving technologies. Examples of work undertaken across the civil estate include reduced capacity and dual flush cisterns, aerating taps and showerheads and motion sensors for cisterns and taps.

Staff involvement in sustainable water has been encouraged. This can help generate local water saving ideas, from the promotion of simple best practice with automatic taps, to the encouragement of the prompt reporting of faults such as leaks or excessive flushing.

Mean water consumption relative to occupancy across the civil estate at 31 March 2011 was 7.2 m<sup>3</sup>/FTE.



## **Waste**

Management and recycling of waste materials is an important aspect of reducing our environmental footprint. Waste includes paper, plastic, glass, metal, wood, compostable food and clinical or biological waste, general waste that is not easily separable, and waste that requires specific control, such as batteries, cooking oil, toner cartridges and electrical equipment.

The civil estate, while geographically dispersed, has consistently performed at a high level with respect to waste reduction and maintaining recycling levels at around 64%.

## **Energy**

The mean energy consumption per square metre for the civil estate as at 31 March 2011 was 286 kWh/m<sup>2</sup>. Buildings with highly specialised operations, and energy consumption requirements, including fisheries and agricultural research stations and laboratories, archives etc. are not included in the main analysis of energy consumption which focuses on the administrative estate. (Data for the broader civil estate, including specialist buildings, is presented in Appendix II.)

The mean energy consumption relative to occupancy for the civil estate, as at 31 March 2011, was 4126 kWh/FTE. The civil estate's mean energy cost relative to occupancy was £246 per FTE, and the energy cost relative to total floor area of the administrative buildings for the same period was £16 per m<sup>2</sup>.

Reducing the energy consumption of buildings can be achieved through a range of measures including smarter design and on-site microgeneration, improved insulation, the introduction of lower-energy appliances, and higher efficiency ventilation and heating and cooling systems, all of which may be implemented during refits and refurbishments. The following pages provide examples of improvements in energy efficiency at three properties within the civil estate.

## Energy efficiency and sustainability improvements in Historic Scotland



Historic Scotland has begun a programme of energy efficiency improvements across its estate to lower carbon emissions and reduce costs. This includes the organisation's main office at Longmore House in Edinburgh, a former hospital dating from the 1880s, converted to office accommodation in the 1990s. As one of Historic Scotland's highest energy using sites, a series of actions including insulation, draught-proofing, replacement of water heaters and improvements to heating and lighting was initiated in March 2011.

Sheep's wool loft insulation was installed into Longmore House following a thermographic survey of the roof which highlighted high heat loss from specific areas. Sheep's wool has excellent environmental and sustainability credentials as it is a safe, natural material with a long-life with breathable characteristics that compliment the requirements of historic buildings.

This work forms part of Historic Scotland's Carbon Management Plan which details energy use throughout the Agency's property portfolio and outlines a series of measures designed to improve energy efficiency. Historic Scotland aims to reduce its carbon emissions by 25% across its operations over a period of five years from 2008/09 levels.

In addition, Historic Scotland is installing automated utilities meters across its entire estate which will allow remote on-line analyses of electricity and gas usage in order to monitor improvements to properties.

## Saughton House Solar Hot Water



The Scottish Government has carried out an option appraisal of its existing building stock. The evaluation considered improvements to building fabric, insulation levels and central boiler plant. The analysis concluded that the provision of Solar Hot Water at Saughton House, Edinburgh would be one of the most cost effective solutions which would offer the greatest carbon and energy savings.

It was also a measure which could readily be incorporated into an existing building. The use of a packaged plant solution made installation relatively straightforward and facilitated incorporation into the building's existing structure and services.

Roof mounted panels to each of the building wings pre-heat the domestic hot water supply for use in the toilet facilities. Since installation the system has been found to operate well and to require minimal maintenance.

It was estimated that the system would provide 50-60% of the annual domestic hot water demand for the building and that there would be an annual saving of £845 per annum for each toilet block, with a CO<sub>2</sub> emission saving of 1,040 kg/CO<sub>2</sub> per year. The system is currently being monitored to compare actual output with these predicted values.

The solar panels have an expected lifespan of 20-25 years which will give the benefit of solar hot water for two decades after the predicted five-year payback period has been reached.

## **Victoria Quay – Replacement Lighting System**

During 2006, the Scottish Government commissioned a feasibility study to review the replacement of general open plan office lighting and controls at Victoria Quay, Edinburgh. The study was seen as an opportunity to significantly reduce the building's energy consumption and carbon emissions by replacing inefficient light fittings and enhancing the control regime.

After considering various options, a PC based lighting control system with low maintenance, energy efficient, high frequency luminaires was installed. This system enabled web based user controls to be employed and allowed for an increase in energy efficiency by making best use of ambient daylight levels – 'daylight harvesting'.

The following savings were estimated from the preferred solution:

- Open Plan Office– 18% saving.
- General lighting – 4% saving.
- Daylight harvesting – 15% saving.

The project was completed in April 2010 with an expected payback period of up to 4.5 years. The following benefits are now being realised:

- the new office lighting system delivers increased visual performance and is now fully compliant with CIBSE Guidelines,
- the control system provides both individual and central control,
- natural daylight can be harvested,
- an inefficient and non-operational system has been replaced with associated reductions in energy consumption and carbon emissions,
- an increased lamp life expectancy of 90% with an associated reduced environmental impact.

The forecasted longer term benefits are:

- enhanced user experience,
- reduced maintenance through the use of longer-life lamps,
- reduced impact on the environment through less frequent lamp replacement,
- energy savings – circa 33% of electricity consumption (lighting load).

## **Sustainability and utilities procurement**

On 1 October 2009 a new national electricity supply contract was launched with Scottish Power and Scottish and Southern Energy. The contract, which runs until 31<sup>st</sup> March 2013, is available to the whole of the public sector in Scotland and has been almost universally adopted.

The contract provides enough green electricity to cover the entire requirement with 2 Terawatt hours (TWhrs) being provided by Whitelee (Europe's largest onshore wind farm). Green electricity provided by Scottish Power (the larger of the two contracts) does not attract any premium.

Users of the contract have access to Automatic Meter Reading (AMR) technology at very competitive prices which enables them to manage their carbon footprints. Over 6000 AMR installations have been made to date. AMRs, along with smart building programs, significantly improve the quality of data available. This helps building managers baseline their building's performance and helps direct work to reduce energy costs, consumption and carbon footprints.

The contract facilitates improvements in environmental performance through access to energy reduction technologies and energy management advice from the appointed suppliers.

## **BUILDING ACQUISITIONS DURING 2010-11**

Section 75 of the Climate Change (Scotland) Act 2009 requires any building acquired during the reporting year to be in the top quartile of energy performance and if they are not the reasons must be reported on. There were no building acquisitions in the period 1 April 2010 – 31 March 2011.

## **THE FUTURE**

The second report on the Scottish civil estate efficiency and sustainability will be presented to the Scottish Parliament in October 2012. That report should reflect a continuing decline in staff numbers. Thus it is expected that total energy and water consumption will reduce over the coming years.

Reduction in staff numbers and costs will, however, result in short-term increases in KPIs such as floor space per FTE and workstations per FTE. This is because the space vacated by leavers has to be consolidated into reconfigured and refurbished space that can be disposed off, or alternatively backfilled by other bodies. Inevitably there will be a lag between employees leaving and this reconfiguration and rationalisation of space. As more efficient ways of working are introduced this should free up further space. Work will continue in disposing of or reusing existing identified vacant space.

In 2011-2012 the Scottish Government will put in place a new Facilities Management contract which will be available to other Scottish government agencies and NDPBs . This should drive further improvements in building management, space saving and property data collection. Progress on implementation and impact of the new contract will be described in the 2011/12 report on the Scottish civil estate in October 2012.

## APPENDIX I – The Scottish civil estate

### Civil estate – administrative offices

28 CUNZIE STREET ANSTRUTHER	EUROPA BUILDING GLASGOW
52/66 NEWMARKET STREET AYR	MERIDIAN COURT GLASGOW
BALIVANICH BENBECULA	CADZOW COURT HAMILTON
DOUGLAS CENTRE BUCKIE	REX HOUSE HAMILTON
CALTON HOUSE EDINBURGH	LONGMAN HOUSE. INVERNESS
CROFT-AN-RIGH EDINBURGH	THAINSTONE COURT INVERURIE
GOVERNOR'S HOUSE EDINBURGH	PENNYBURN ROAD KILWINNING
GYLEVIEW HOUSE EDINBURGH	UNIT 4B KINLOCHLEVEN
LONGMORE HOUSE EDINBURGH	TANKERNESS LANE KIRKWALL
MERCURY HOUSE EDINBURGH	ALEXANDRA BUILDINGS LERWICK
PENTLAND HOUSE EDINBURGH	DENHOLM HOUSE LIVINGSTON
SAUGHTON HOUSE EDINBURGH	HARBOUR BUILDINGS MALLIAG
ST ANDREW'S HOUSE EDINBURGH	CAMERON HOUSE OBAN
THISTLE HOUSE EDINBURGH	CUSTOMS HOUSE OBAN
VICTORIA QUAY EDINBURGH	ST JAMES HOUSE PAISLEY
23 WALKER STREET EDINBURGH	STRATHEARN HOUSE PERTH
32 REIDHAVEN STREET ELGIN	SCORRYBRECK PORTREE
CALLENDAR BUSINESS. PARK FALKIRK	ST OLA HOUSE SCRABSTER
119-121 SHORE STREET FRASERBURGH	KEITH STREET STORNOWAY
TWEEDBANK GALASHIELS	STATION STREET STRANRAER
TWEEDSIDE PARK 7 GALASHIELS	STRATHBEG HOUSE THURSO
5 ATLANTIC QUAY GLASGOW	WEST SHORE STREET ULLAPOOL



## Civil estate – specialist buildings

MARINE LABORATORY ABERDEEN	UNIT 6B TOWER STREET (STORE) EDINBURGH
FISH CULTIVATION UNIT ACHNASHEEN	WEST REGISTER HOUSE EDINBURGH
SPS CENTRAL STORES BATHGATE	SPS COLLEGE FALKIRK
GENERAL REGISTER HOUSE EDINBURGH	FIRE SERVICES COLLEGE GULLANE
LEITH WALK STORE EDINBURGH	FRESHWATER LABORATORY MONTROSE
MOTOR TRANSPORT UNIT BONNINGTON EDINBURGH	FISH REARING UNIT PERTH
SASA EDINBURGH	FRESHWATER FISH LABORATORY PITLOCHRY
THOMAS THOMSON HOUSE EDINBURGH	

## Properties that do not form part of the Scottish civil estate

A building that does not use energy for heating or cooling the whole or any part of its interior, eg. garages, water pumping stations etc.
A building that is not used for the purposes of Scottish Central Government Administration eg. Prison Officers' Club.
A building that is not of a description of buildings for which the Scottish Ministers have responsibilities in relation to efficiency and sustainability, eg where Ministers are not the property holder in their own right and are not responsible for the control of the main environmental systems, eg Highlander House, Endeavour House and Buchanan House.
Historic Scotland: Monuments in Care, workshops, stores, depots, tourist or visitor centres, eg. Skara Brae Visitor Centre, Blackness Castle Depot and Holyrood House Garden Workshops.
Scottish Prison Service: Operational estate - prisons, staff college & central store.

## APPENDIX II – Performance summary

KEY PERFORMANCE INDICATORS	SG & Executive Agencies	SG & Executive Agencies
	Offices Only	Offices & Specialist
Cost Per FTE (£)	3447	3949
Cost per m <sup>2</sup> (£)	242	215
m <sup>2</sup> per FTE (m <sup>2</sup> )	14.4	21.1
Rent per m <sup>2</sup> (£)	77	58
Rates per m <sup>2</sup> (£/m <sup>2</sup> )	56	47
Other Costs per m <sup>2</sup> (£/m <sup>2</sup> )	110	105
m <sup>2</sup> per Workstation (m <sup>2</sup> )	13.6	18.7
Workstations per FTE	1.06	1.06
Water consumption per m <sup>2</sup> (m <sup>3</sup> /m <sup>2</sup> )	7.2	12.8
% of total waste recycled	64	61
Energy consumption per m <sup>2</sup> (kWh/m <sup>2</sup> )	286	281
Energy Consumption per FTE (kWh/FTE)	4126	5938
Energy Cost per m <sup>2</sup> (£/m <sup>2</sup> )	16	17
Energy Cost per FTE (£/FTE)	246	379
Key FTE = Full Time Equivalent m <sup>2</sup> = Occupied Net Internal Area		

## **APPENDIX III - Climate Change (Scotland) Act 2009**

### The Scottish civil estate

#### **75 Energy performance of buildings procured for the Scottish civil estate**

(1) The Scottish Ministers must, in so far as reasonably practicable, ensure that the energy performance of any building that becomes part of the civil estate in Scotland falls within the top quartile of energy performance.

(2) For the purposes of subsection (1), a building becomes part of the civil estate if it is procured or constructed by or on behalf of the Scottish Ministers.

(3) The Scottish Ministers may, by regulations, provide that the duty under subsection (1) does not apply in respect of specified buildings or categories of buildings.

#### **76 Report on the Scottish civil estate**

(1) The Scottish Ministers must, in respect of each financial year beginning with 2010–2011, lay before the Scottish Parliament a report containing an assessment of the progress made in the year towards improving—

(a) the efficiency; and

(b) the contribution to sustainability,

of buildings that are part of the civil estate in Scotland.

(2) If the energy performance of a building mentioned in subsection (3) does not fall within the top quartile of energy performance, the report must state the reasons why the building has become part of the civil estate.

(3) That building is a building—

(a) to which section 75 applies; and

(b) which becomes part of the civil estate in the financial year to which the report relates.

(4) The report under this section must be laid before the Parliament no later than 31 October next following the end of the financial year to which the report relates.

#### **77 Scottish civil estate: supplementary**

(1) For the purposes of this section and sections 75 and 76—

(a) “building” means a building that uses energy for heating or cooling the whole or any part of its interior; and

(b) a building is part of the civil estate in Scotland if it—

(i) is used for the purposes of Scottish central government administration; and

(ii) is of a description of buildings for which the Scottish Ministers have responsibilities in relation to efficiency and sustainability.

(2) The Scottish Ministers may, by order, provide—

(a) for buildings of a description specified in the order to be treated as being, or as not being, part of the civil estate;

(b) for uses specified in the order to be treated as being, or as not being, uses for the purposes of Scottish central government administration.