

Environment Scrutiny Panel – questions in advance of hearing on 9th July 2013

1. What actions (including investments) have already been taken to minimise energy use and improve energy efficiency in (a) buildings owned, occupied and/or managed by the States and other public bodies; (b) road vehicles owned, operated and/or used by the States and other public bodies; (c) procurement of goods and services by the States and other public bodies; (d) any other significant uses of energy where the States has direct control, for example through conditions on licenses or grants?

The Invest to Save work stream was agreed by the CMB in Feb 2011 for the following elements of the Energy and Water Management Project:

- 10% saving in energy and water consumption (by 2013 against a 2010 benchmark) adopted as a States of Jersey target.
- Eco-Active States programme developed and launched on 4 April 2011 – Eco-Active States declaration adopted at CMB in February 2011 (see EAS annual report 2012 attached).



EAS Report
2012.pdf

- Optimisation of commercial arrangements with energy and water suppliers.

The launch of the Eco-Active States scheme provides a structured environmental management system that encourages behaviour change and compliance with local environmental legislation. This programme focuses on resource efficiency in all properties in terms of energy and water consumption, sustainable travel, waste reduction and recycling and sustainable procurement (see specific responses to parts (b) and (c) of this question), which includes the incorporation of environmental specifications into framework contracts.

Investing in technology to minimise the consumption of energy and water in the future has economic benefits also, as the future costs of energy and water are likely to rise in the future. The States of Jersey is the largest customer of Jersey Electricity plc, spending over £6 million per annum on electricity which equates to 60% of the annual energy bill for the States of Jersey. An additional £2 million is spent on oil per annum for space heating and is 20% of the total energy bill, plus £1 million, for the usage of gas - 10% of the total energy bill and £1 million on water, equalling 10% of the energy bill. There is clearly significant scope for achieving real financial savings and environmental improvements.

An application for the funding of corporate-led savings projects totalling £500,000 (in addition to those that will already be funded by Departments) was made in 2011 which has supported the corporate Energy and Water Management Project.

This 'Invest to Save' project funding has allowed investment in a programme of energy efficiency upgrades which are outlined below. Full details of the programme are available from Jersey Property Holdings (JPH)/ Corporate Procurement. Some of the projects undertaken are outlined below:

Lighting

High wattage lighting (i.e. down lighters) is being replaced with low wattage LED spotlights. The old style high wattage 70 watt spotlights have been replaced with the latest LED technology that consumes 12 watts. LED lighting has been fitted in approximately 25 properties and resulted in £25,000 of savings per annum with a financial payback of approximately 5 years.

The replacement lamps have been provided by local suppliers and have come with a 3 year warranty and a life expectancy of at least 5 years. This longer life expectancy and warranty has a benefit to the user and the maintenance provider as the requirement to frequently change out the old type of lamps will be greatly reduced. This will provide an additional cost saving on reactive and material costs.

Building Management Systems

Resources have been invested into the Building Management System (BMS) that controls the heating, cooling and ventilation in 28 of our buildings. These updated systems give the maintenance provider more control of the heating and cooling systems in the buildings which will save energy/unit consumption and generate financial and energy savings. The BMS enables JPH to ensure that the optimum start and stop times have been configured for the building to the most efficient settings to reduce energy consumption.

The new BMS provides a standardised system with improved control, usability, consistency and remote monitoring.

The ability to change any settings is restricted to the maintenance provider (JPH) at present to ensure that JPH can minimise operator involvement. JPH want all changes to be logged through the system so they can then view trends etc. early enough to make changes. The creation of a single BMS Network through the States IT network has centralised monitoring. It is possible to provide the building users, maintenance provider (JPH), budget holders, ECOs and Finance Directors with remote access (if required) to log in from their desktop pc to view the performance of their building in a 'Live' environment.

All of the installation/upgrade works have been undertaken through local companies and JPH continue to work with the relevant company to ensure the States are maximising the benefits of the systems.

Utility Metering

In 2011, JPH engaged with JE Plc. to purchase monthly electricity consumption figures for the 75+ Maximum Demand tariff properties, at a cost of £14,000 per annum. This data allowed JPH to analyse the data and produce property consumption profiles which provides data on trends in energy use and identified over consumption.

Building Energy Dashboards

The maximum demand consumption data received from JE Plc. has been analysed to produce property specific 'Energy Dashboards' which are disseminated on a monthly basis to building managers, ECOs, Finance Directors and senior managers.

The dashboards provide a graph of the monthly electrical usage against the 10% savings target. The dashboard is a visual reference that highlights the monthly position and is being used by the Departments, Finance Directors, ECOs and Green teams to allow them to manage and monitor the progress of behavioural changes of occupants against actual consumption figures.

Night Time Load Study

JPH commissioned a night-time electrical load study at Haute Vallee School during October and November 2011. This study identified the energy consumption during the hours of building non-usage.

The outcome highlighted that the majority of the night-time load was due to the IT systems running 24/7 within the building. It was also identified that some plant and equipment was running out of hours for no operational reason. These items were changed through the BMS system and resulted in instant savings of £3,000 for the property per annum.

The study also highlighted the need for awareness raising and behaviour change to maintain energy savings.

Point of Use Water Heaters

There were an estimated 150 point of use water heaters throughout the States property portfolio. These units operate 24/7 by topping up the hot water with the activation of the immersion element which consumes a large amount of electricity when the units are not in use.

The Energy team calculated that it was feasible to install time clocks in these properties and an investment of £15,000 from the invest to save fund was made to implement a phased installation programme in 2011/ 2012. A total of 140 have been installed to date with a small number to complete in 2013/2014.

The reduction in unit operation through the implementation of the time clocks also has a long-term benefit with reduced maintenance costs and unit replacement. The final savings have not been quantified at present. However they are likely to be in the region of £4,500 per annum in replacement units and an annual consumption saving of approximately £7,500 for the time clock installation.

Specific responses

(b) A decision taken by the States Finance Advisory Board (FAB) in 2011 gave responsibility for all States vehicle purchase and management to Jersey Fleet Management (JFM), the vehicle fleet management States Trading Operation within TTS, with effect from 2012.

This action has facilitated a coordinated approach to fleet management within the States for the first time. As a result, vehicle replacement plans have been drawn up with all Departments to ensure that the JFM owned and operated fleet is updated on a frequency that balances the economic life with the need for continual improvements in energy use, emission levels and safety developments.

Whilst the majority of the States fleet has been operated on this basis for many years there have been situations in some Departments where the financial pressure on capital replacement budgets has resulted in vehicles being kept for much longer than originally intended, and therefore not enjoying the current fuel efficiency and emission gains found in more 'modern' vehicles.

A small number of States vehicles recently added to JFM's responsibilities under this policy change do not meet the minimum 'Euro 3' emission standard (this effectively means cars/vans manufactured prior to 2000 and trucks manufactured before 2002) and they are being looked at for replacement as a priority. In most cases they are specialist, high cost/low mileage vehicles which do not have a significant impact on the overall fleet energy use nor emission levels but are essential to the Island's well-being, an example being a back-up emergency services vehicle.

The number and use of vehicles are obviously relevant factors and before the replacement of existing vehicles JFM challenge the need for the vehicle, requiring the user Department to consider any alternatives. It also requires a business case, signed at a senior management level, before procuring an additional vehicle for a client Department.

Of the 725 vehicles currently road registered and insured by the States, 155 relate to lease-hire cars. This sub-fleet are leased locally on a contract managed by JFM and tendered on a three-yearly basis, most recently in 2012 for the period 2013-2015 inclusive. These cars are operated by most States Departments and are used for business use. The overall lease-hire car fleet size has itself been reduced by approximately 30% in recent years.

For the 2013-2015 contract, two tender specifications were drawn up and tendered through the States Corporate Procurement's e-Tendering Portal. One was for conventional internal combustion engine cars meeting or exceeding a CO₂ emission standard of 110g/km, (145 cars currently on lease), whilst the second was for a trial of 10 electric vehicles leased for a three-year evaluation of the practical application and running costs of these alternative fuelled vehicles. Of the main fleet of Peugeot cars that have been supplied under this contract, 98% better the 110 g/km target with 90% bettering 100 g/km. The 10 electric Peugeot i-On cars have zero CO₂ emissions.

Whilst the figures above relate to emission figures, the energy efficiency of the current fleet can be taken as being as good as it can be given current available engine technology when balanced against value for money and budget constraints.

With regard to the running costs of the electric cars on trial, initial charge point meter readings indicate that the fuel cost of the electricity used is about 1/3 of that expected from a diesel equivalent. However there is still a significant cost penalty in the purchase/lease cost of these cars at present.

Due to the lack of responsibility for Parish owned/operated vehicles JFM are not in a position to comment on the situation with regard to 'other public bodies'.

The Fleet / Electrical vehicle tender for TTS specified in the tender documents that the suppliers only provided vehicles to match the TTS specification for CO₂ emissions. Electric vehicles had to be EC WVTA, NCAP rated and OLEV certified.

The TTS Bus Contract aims to promote bus travel and increase passenger capacity, in line with the States Sustainable Transport Policy. Getting people out of their cars on to the buses

provides potentially the biggest reduction in the Island's personal transport energy needs. The contribution to reducing traffic to be provided by improvements to the bus service is expected to be 7- 8% and this will make an important contribution to the States' carbon targets.

The new bus fleet requires all engines to be Euro 5 standard which is the highest standard provided in the EU for exhaust emissions. In addition there is a plan to introduce telematics included within the vehicle to assist the company to monitor and influence driving standards to ensure that the vehicles are driven in a smooth and efficient manner, to the benefit of the environment and passengers alike.

(c) The Managed Print project which is 50% complete in terms of deployment reduces the States of Jersey fleet from 2,636 machines to less than 900 from an average age of 7 years. The rationalisation of the fleet alone reduces energy consumption, however the new standardised fleet is more energy efficient, operates with a sleep mode and complies with the WEEE Directive, so the disposal of the current fleet is managed to lessen the impact on the environment. The project also reduces paper consumption (managed by software) and requires the supplier to recycle toner cartridges.

The following statistics identify the savings recorded for 20% of the fleet deployed (Jan 2012 to 1st July 2013)

- Sheets of paper not printed :- 85,957 (saved £670)
- Trees Saved: - 1.08
- Co2 Not emitted: - 386 kg
- Equivalent Bulb Hour: - 24,354 hrs (The manufacturing energy saved from not producing paper represented as the energy consumed by a standard light bulb in hours).

Management information is captured and contract managed by Corporate Procurement. An example report is attached.



Unreleased jobs
paper saving -...

Pre Qualification questionnaires (PQQ) utilised for Housing direct suppliers to the Eco Active Team for advice on how to become an Eco Active accredited business. The Plant Hire project evaluated suppliers on their strategy and commitment to reducing vehicle emissions, designed to drive up standards within the local plant market over time

The Travel contract was awarded to a supplier who could identify the carbon output of the States of Jersey travellers. This information is passed to the Eco Active team when required. An example is attached.



Acrobat Document -
Adobe Reade...

ISD (Computer) Hardware procured is in accordance with the latest regulations for energy management.

The Social Security Special Items tender (procurement of white goods) required goods to have an energy efficiency rating of A-B.

Waterless urinal procurement was carried out in conjunction with the Eco Active team.

Corporate Procurement supported the Eco Active team to convert paper usage from standard to recycled. This resulted in a cost increase.

2. What has been achieved to date in terms of reducing energy use, carbon emissions and energy costs?

The CSR target set by the Transformation Board was a 10% reduction in energy and water expenditure by 2013. In 2013, £550,000 was removed from the Departmental budgets for energy saving procurement initiatives to contribute to the corporate CSR procurement target..

In terms of energy consumption, a reduction of 11% has been achieved to date in the buildings that are on the maximum demand tariff as evidenced by the dashboards.

Carbon reduction cannot be fully quantified until the end of 2013 when all the data is available and the appropriate carbon factors are applied.

With specific regard to the current States Lease-hire car fleet of 155 vehicles as described in the answer to question 1(b), the carbon emission reduction has been in the order of 35% compared with 5 years ago due to the specification of low emission vehicles, a reduction in total annual mileage covered and the use of a limited number of electric vehicles. This will equate to an estimated reduction of 58,000 kg of CO₂ in 2013.

Also see Managed Print 1(c).

3. What further actions and investments are planned, and what targets have been set, for the future?

The capital programme has been approved in detail for 2013 and in principle for 2014-2015 and includes the following:

- Continued improvement in metering and monitoring of States property's energy consumption, allowing for better profiling and solution planning.
- Improvement in the properties' heating and cooling systems to ensure the most efficient systems are being installed.
- Continued installation of lower wattage LED lighting across 15+ buildings by 2015 to replace the higher wattage lights / lamps.
- Replacement of low efficiency boilers in 10 properties by 2015 with new higher efficiency boilers.
- Installation on new build Capital projects of renewable technology, rain water harvesting, solar panels etc. e.g. St Martin's School, Prison extension.
- Rolling programme of investment into property upgrades through the usage of the Backlog Maintenance budget e.g. replacement windows, plant and equipment and infrastructure.

4. How these actions and investments will be funded?

Initially an application for the funding of corporate-led savings projects totalling £500,000 (in addition to those that will already be funded by Departments) was made and approved which has supported this Project.

Going forward, further bids can be made for funding if a suitable Business Case has been produced and approved by the Project Board.

Payback for all of the initiatives is currently set between 3-5 years, which does limit the type of initiatives that can be implemented on the property portfolio. This pay back period will need to be revisited if further energy savings are to be achieved, in particular, for renewable energy installations which have a far longer payback period than the 3-5 years currently required. This restricts the progression of utilising this type of technology retrospectively in the States' property portfolio. However, this rule does not apply to new Capital build projects.

5. Who is responsible for energy and carbon management in these activities?

Departmental budget holders have ultimate responsibility for the expenditure in connection with Energy. They are supported in realising these savings by the various initiatives e.g. Invest to Save, Eco-Active States, general budget expenditure and through bids to the CSR team.

Advice and support to the various initiatives is available through the Eco-Active States programme, JPH Maintenance and the JPH Energy Manager.

Carbon Management has not been part of the Energy work stream to date.

6. How targets and budgets are set, actions and decisions are taken, and how progress is monitored and reported?

The energy reduction target was set by the CSR programme at 10% against the 2010 benchmark. This target has applied across the board regardless of building age or type to all Departments. This means it has been easier for some buildings to achieve savings compared to others.

Prioritisation of projects arise from communications between ECOs, Energy Managers, and Maintenance Teams looking at buildings within the property portfolio and identifying projects that can potentially save energy consumption and money.

Project success is monitored using the BMS and the monthly energy dashboard data as this indicates the trend of energy use. Energy use patterns can increase due to the plant and equipment requirement of a specific facility e.g. Health care facilities require higher specification for plant and equipment. This can increase energy consumption, but this needs to be managed and identified to ensure all budget holders are aware of the increase and the reason why it has occurred.

JPH have a process of continual improvement based on customer feedback to improve the Energy 'Dashboards' in terms of both layout and data visibility. This will ensure that all recipients understand the information and its impact within the Department.

JPH currently only receive data consumption information on 70+ maximum demand properties. The roll-out of the JE plc smart meters programme will provide improved access to data and monitoring for all SoJ properties i.e. those not on maximum demand tariff.

The UK Government adopted mandatory sustainability reporting for central departments from financial year 2011-12 as part of the Greening Government Initiative. The 2013 Jersey Financial Reporting Manual is currently being drafted based on the UK version for 2011-12, and this process will consider the applicability of this to the public sector in Jersey, including consultation with the C&AG.