Report to Joint Airport Working Group
October 2013

Gloucestershire Airport Green Policy
Third Annual Review

BACKGROUND

Gloucestershire Airport Green Policy was developed as a result of a condition placed on the approval of the business case for the Runway Safety Project (RSP). The subsequent Policy was approved by both shareholding councils in April 2009 and included a commitment to review the progress made in implementing the Policy on an annual basis. This fourth review covers the period 1st April 20112 to 31st March 2013 and, in some cases, the calendar year 2012. , but due to some delays in obtaining the necessary information, and the nature of the information provided, the narrative also includes progress in some areas up to August2013

SUMMARY

In 2012, the Joint Airport Working Group requested that all Airport Green Policy targets and parameters be collated as a specific appendix for future reviews. The report below is an extract of this new appendix, which appears in Issue 3 of the Airport Green Policy.

The key parameters for the fourth annual review are as follows, and are explained in detail below: -

- Total aircraft movement 74 000, up 10%
- Ground operations - CO2 emission increase of 15.7% to 302 Tonnes, due predominantly to harsh winter.
- Aircraft emissions – CO2 emissions decrease of 16.6% to 2649 Tonnes due principally to fleet modernisation.
- Out-of-hours activity reduced by 180flights, well within agreed parameters.
- Noise complaints increased overall to 417, although 2 complainants generated 321 (77%) of these. Underlying trend downward
- Recycling activity massively increased – cardboard 50%, plastic 100%, paper 650%

NARRATIVE

2012 Update

The Green Policy has been revised to update the text and incorporate previous committee recommendations at this, the fourth annual review. The document, and indeed the policy, continues to evolve. Significant progress has been made in key areas, with pleasing progress in aircraft CO_2 emissions, despite a 10% increase in aircraft movements. Fleet modernisation and more accurate DEFRA emission calculation methodology have delivered improved emission performance while out-of-hours activity and waste recycling have also seen notable betterment.

The harsh winter in this reporting period, however, significantly impacted on energy usage and served to highlight the inefficiency of the Airport's electric heating. It will be difficult to achieve better heating performance without significant infrastructural investment but schemes are currently under consideration for photovoltaic cell generation in the car parking area and on other Airport buildings. The installation of 'smart' metering technology across the Airport site is nearly complete and Severn Trent are continuing to roll out their water metering programme across the site.

Following completion of the Runway Safety Project, the Airport ecology, particularly in the new footpath area around the RESA continues to improve. The Airport is engaged in a joint project with Churchdown Parish Council and other stakeholders to develop a number of circular 'Airport walks', focussing on the ecology of the immediate area. This community engagement, combined with the unique environment of a 'controlled access' area should make for some interesting and diverse habitats in the years to come.

The RESA area has seeded naturally and the newly planted hawthorn hedges are beginning to establish, although the Airport must continue to maintain a low bird hazard environment through deterrent techniques. Within and since the reporting period, the Airport has also hosted a number of sporting events, including 1 mile, 4km and 10km running races, a cycling endurance event and even an outdoor Shakespeare play. These non-aviation and 'low carbon' activities will continue to develop community involvement.

Noise complaints have reduced in real terms, although the statistics are somewhat skewed by two complainants whose reports account for more than 77% of the annual total. Again, fleet modernisation is thought to account for a significant proportion of the reduction with modern light aircraft and high performance business jets being noticeably quieter than the aircraft they have replaced.

Out-of-hours activity remains at a low level, well within the agreed Green Policy parameters. The JAWG and Consultative Committee agreed to a variation of the scheme to facilitate certain types of flight within 30 minutes of published opening and closing times although the Airport has not yet implemented any operational changes to take advantage of this increased weekday flexibility as demand remains low.

Progress is being made in rolling out the Green Policy to other Airport tenants. At least one has installed a waste oil heating system, thereby recycling their own aircraft used engine oil, another has installed PV cells on their business premises.

Sales of the new unleaded grade of AVGAS fuel have more than doubled since the new grade was introduced and a 'product recovery system' for Avgas and Jet A1 fuels now ensures that the majority of quality control samples are recycled into stock after removal of contaminants and settling.

Work is ongoing with the Environment Agency to review and update the discharge consent held for the Airport's sewage system, which has continued to meet permitted levels throughout the reporting period.

26.1 Ground Operations

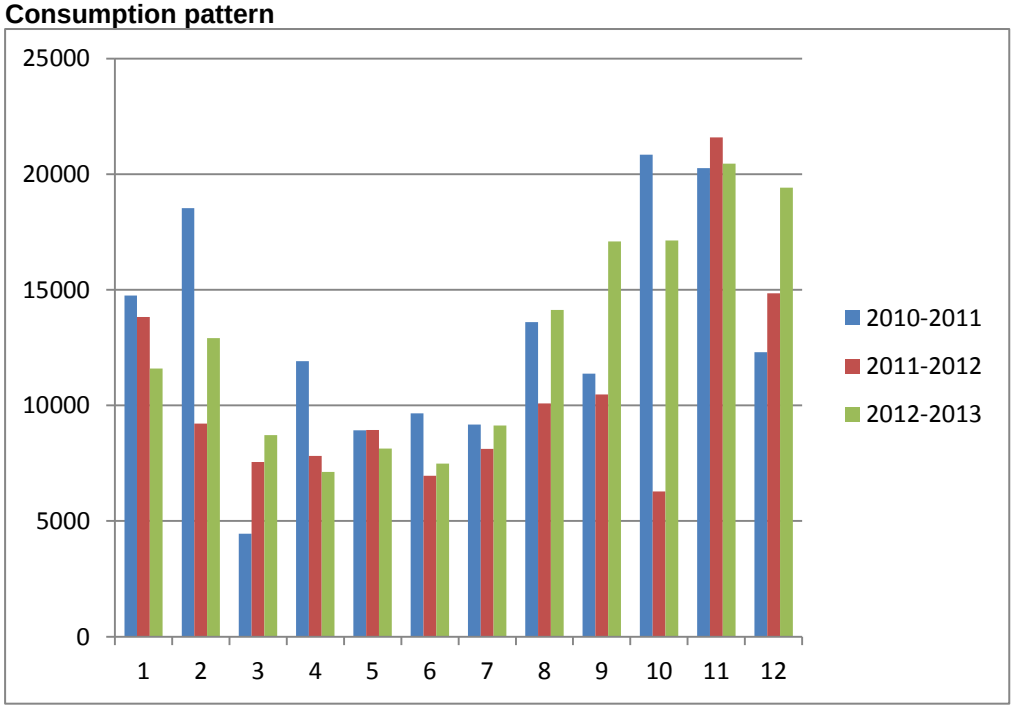
26.2 An annual reduction target of 10% was set for the first two years for the reduction of CO_2 emissions from ground-based operations following the recommendations of Severn Wye Energy Agency.The three principle Airport buildings are considered separately for energy use: -

26.3 **SE1 Terminal Building and main hangar**

The building

SE1 and the Main Terminal have the highest concentration of computers, printers, and other office equipment on the airport site. Along with this it is also heated by an electric heater system that is relatively inefficient compare with the modern equivalent. Despite this, it is an area where staff education can contribute to energy reductions along with initiatives such as reducing lighting levels throughout the building.

Consumption pattern



Analysis
Following 'benchmarking' in 2010, annual energy use has been calculated as follows:

Year (Apr-Mar)	KW/h used	% Change/Year
2010-2011	155781	
2011-2012	125731	-19%
2012-2013	153307	+22%
Overall % Chg		-1.6%

The positive work done since 2009 in education and installtion of more efficient lighting was undone by significantly increased heating use during the exceptioanlly cold winter of 2012 into 2013. This highlights the inefficiency of the building's reliance on electrical heating. Nevertheless, the overall trend is marginally down.

Further Initiatives
Continuing staff education, Major investment in the heating and lighting systems is required to continue the downward trend. Further investigation of the feasibility of photovoltaic generation is ongoing.

26.4 **Fire Station & hangar SE27**

The building
Fire Station and hangar SE27 is the Airport Fire Service headquarters. It contains office space, rest/meal area and bays for the services fire appliances. As with other areas of the airport it is heated by relatively inefficient electric heaters and the storage bays are lit with an equally dated lighting system.

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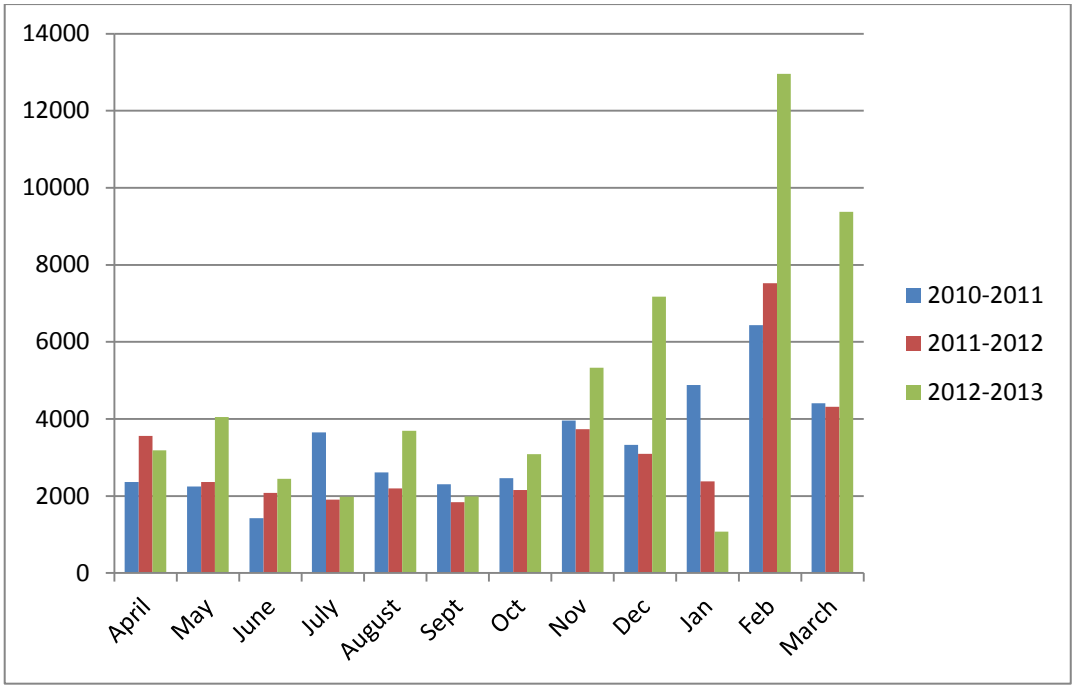
Consumption pattern
(Graph overleaf)



Analysis
Following 'benchmarking' in 2009/10, the energy use is determined as follows: -

Year	Total KW/h	% Change/Year
2010-2011	33416	
2011-2012	35053	+4.8
2012-2013	66049	+93.4
Overall % Chg		+97.1

Utilisation had been relatively stable, however the cold winter again resulted in a significant increase in energy consumption, particularly as additional electrically powered 'warm air' heaters were temporarily used in the Fire Station bays to prevent the emergency vehicle water lines from freezing.

This building is also used to charge the Airport's two electric vehicles (tugs) and future 'everyday' consumption is likely to remain at a higher level than the benchmark.

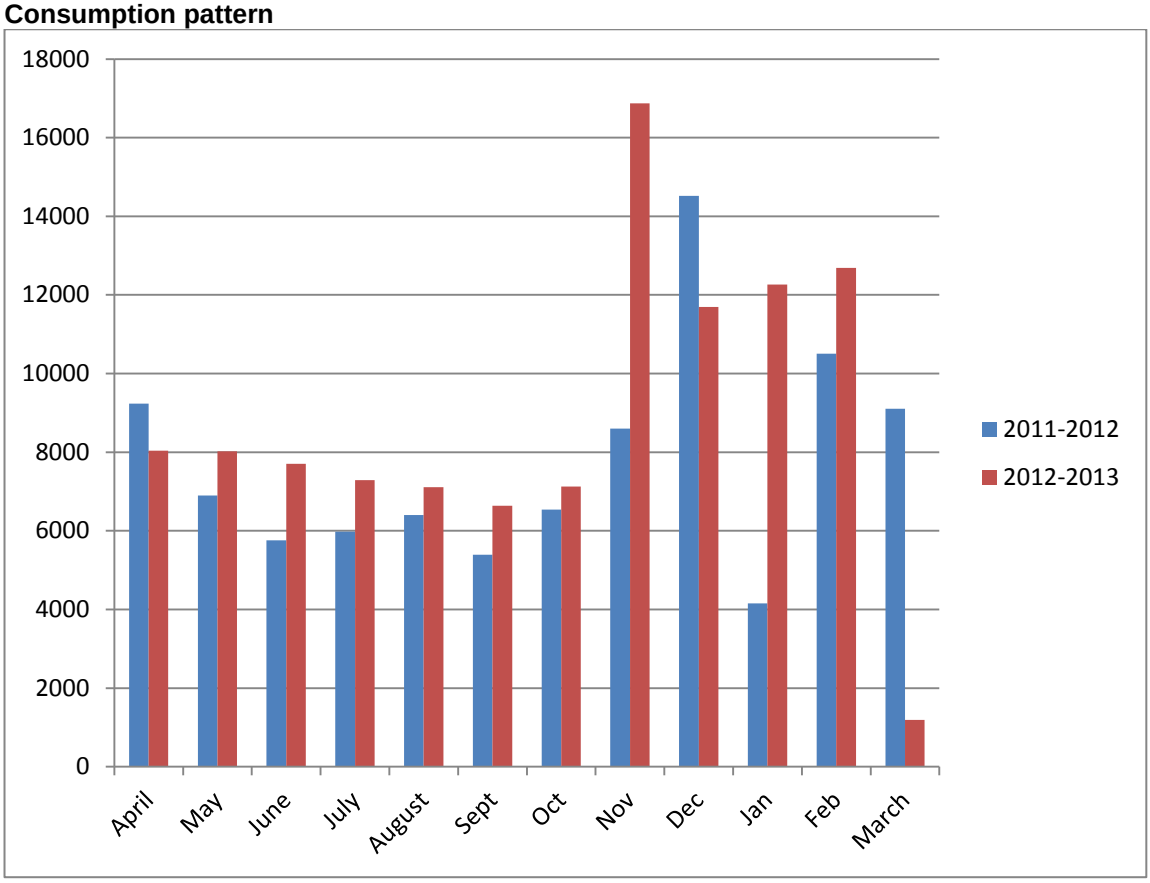
Further Initiatives:
As stated in previous years, energy reductions could be achieved with major investment in replacement of the lighting and heating systems with more energy efficient units

26.5 **Control Tower**

The building

The Control Tower not only is the centre for controlling airport movements but is also the source of power for all of the safety significant navigational equipment, radar and runway lighting. It contains a main viewing area (VCR), office space, and kitchen area. The percentage of domestic usage is relatively low, compared with the consumption of the navigational and ATC equipment.

Consumption pattern



Analysis
Following 'benchmarking' in 2010/11, the energy use is determined as follows: -

Year	Total	% Change
2011-2012	93080	
2012-2013	106654	+14.5

The energy use in the building is clearly consistent with seasonal temperature variation, again highlighting the inefficiency and dependence on electrical heating. The changes completed to the Airport's runway lighting system as part of the runway safety project, should deliver a small saving in future years.

Further Initiatives:
Investment in a new heating system alongside updating lighting would help to reduce energy levels. However, the buildings age and layout make any initiative's effects limited. Larger savings would be difficult due to the equipment contained within the building and its importance to airport operations.

26.6 **Vehicle use**
Vehicle fleet utilisation is shown at Appendix F. Most significantly since the 2012 review, the Airport has acquired a further electric tug, which will further reduce diesel fuel use.

26.7 **Ground emission totals**

Collating the data for ground-based emissions gives the following summary: -

Period 2009 – 2013

2009/10

Source	**Volume**	**Kg/CO_2**
Electricity =	299807 KWh	(157,278)
Diesel =	51,834 ltrs	(138272)
Petrol =	117 ltrs	(270)

Tonnes CO_2 = 295.82

2010/11

Electricity =	280200 KWh	(146,992)
Diesel =	49,883 ltrs	(133,067)
Petrol =	117 ltrs	(270)

Tonnes CO_2 = 280.33

2011/12

Electricity =	246490 KWh	(129,308)
Diesel =	49,608 ltrs	(132,334)
Petrol =	117 ltrs	(270)

Tonnes CO_2 = 261.91

2012/13

Electricity =	326,010 KWh	(170,829)
Diesel =	49,243 ltrs	(130,986)
Petrol =	127 ltrs	(292)

Tonnes $CO_{2=}$ 302.11

26.8 **Conclusion**

The extreme winter of 2012/13 resulted in a significant increase in energy use at the Airport. This, in turn, reversed the overall downward trend in energy usage since benchmarks in the Green Policy process became available. This highlights the Company's dependence on electrical heating.

26.9 **Aircraft emissions**

Using the methodology defined earlier in this document, Gloucestershire Airport undertakes to ensure that CO_2 emissions from aircraft operations do not exceed a ceiling of 4000 Tonnes CO_2 in the course of normal Airport operations.

The calculations for 2012 are as follows: -

Total Jet A1 emissions	1539.481 Tonnes
Total Avgas emissions	1110.400 Tonnes
Total	**2649.866 Tonnes**

The 2012 data shows a marked reduction, more than 527 Tonnes, or 16.6% lower than the previous year. There are some key factors influencing this reduction.

DEFRA has now published guidance for calculating air travel emissions, primarily from an airline passenger perspective. It does however, now specify a 'distance' factor of 8%, rather than the 10% previously used in the calculations.

Specifically, two of the resident business jets at the Airport have been upgraded in the reporting period, both with significantly more efficient aircraft. Furthermore, the Isle of Man, Belfast and Jersey services have been operated by a Let 410 aircraft, replacing the Dornier 228, again with a notable difference in fuel burn.

Avgas emissions have also reduced by more than 100 tonnes. This is largely due to the largest flying school, Aeros Flight Training, introducing 3 modern Tecnam aircraft to their fleet.

26.10 **Operational Controls**

The ceiling for total annual aircraft movements (excluding emergency, Police and Air Ambulance-related flights), measured by calendar year is set at 95 000.

The ceiling for out-of-hours flights (excluding emergency, Police and Air Ambulance-related flights, or those arriving early or late due to operational reasons) is set as not more than 1.5% of the annual total.

Not more than 100 flights per annum (excluding emergency, Police and Air Ambulance-related flights) will be permitted during the hours of 2300 – 0600.

26.11 **2012 figures**

Total number of flights in 2012	73778
Total number of flights out-of-hours	539
Percentage of out-of-hours	0.73%

	Number	**% of total flights**
Total number of exempt flights	125	0.17
Manx2 flights delayed/early due to operational reasons	28	
Total number of 'qualifying' flights	386	0.52
Total number of 'qualifying' flights between 23-0600	9	0.01

		% of out of hours flights
Qualifying flights within 5 minutes of opening time	42	10.9
Qualifying flights within 30 minutes of opening time	126	32.6
Qualifying flights within 1 hour of opening time	235	60.9
Qualifying flights within 2 hours of opening time	363	94.0

26.12 **2011 figures**

Annual total mvt	67022	
Total out of hours	669	1.0%
Total emergency related	103	
Qualifying out of hours	566	0.84%
Total 23-0600	8	
Within 5 mins	84	
Within +/- 30 mins	340	
Within +/- 1 hour	464	
Within +/- 2 hours	538	

26.13 **Conclusion**

The percentage and number of out-of hours flights reduced in 2012 and no Green Policy parameters were exceeded.

26.14 **Noise complaints**

A total of 417 complaints were received during 2012. This equates to 0.56% of the total annual movements. Two individuals, however, generated 321 of these (178 & 143). One, in particular, has elected to file two complaints for every out of hours flight; one of the grounds of it being out of hours, and one on the grounds of noise.

This represents an increase on 2011 data (280 complaints, 0.41%) but a reduction on the 2010 peak (587 complaints, 0.87%)

If reports from the two most prolific complainants are temporarily excluded from the datasets, the underlying trend is downward.

26.15 **Waste management**

A baseline for waste in relevant categories was established in 2011 as follows: -

Cardboard	12 x 1100ltr bin
Plastic	72Kg
Paper	187Kg

Significant progress was made during 2012 with the recycling scheme rolled out to all Airport tenants. Consequently, recycling rose substantially.

2012 Recycling

Cardboard	18 x 1100ltr bin
Plastic	142Kg
Paper	1500Kg