



SUSTAINABLE DEVELOPMENT ADVISORY PANEL - 7TH MARCH 2013

SUBJECT: FLEET MANAGEMENT ISSUES

REPORT BY: CHIEF EXECUTIVE

1. PURPOSE OF REPORT

- 1.0.1 This report has been prepared to advise the panel of the progress made since the last report in January 2011 highlighting processes that have been undertaken within Fleet Management with regards to Transport and Sustainable Development.

2. BACKGROUND

- 2.0.1 There has been little change in the statistics for Greenhouse Gases, and Transport still accounts for around 21% of Greenhouse gases, the remaining 79% is derived from other sources such as, Energy, Industry, Forestry, Agriculture etc.

- 2.0.2 From the 21% Allocated to Transport, this can be further broken down as follows, [statistics obtained from Freight Transport Association via Department for Transport]

aviation	-	2%
Buses	-	2%
Cars	-	59%
HGV	-	20%
Rail	-	2%
Shipping	-	4%
Vans	-	11%

Overall, this would equate to Commercial Transport accounting for approximately 7% of the overall greenhouse gasses emitted.

- 2.0.3 Fleet Management is aware of the necessity to ensure it is doing all it can to demonstrate a more efficient, cost effective and environmentally friendly fleet, and with the support of its users research, demonstrate and evaluate any new technologies that are available and suitable for Local Authority Use.

3. ALTERNATIVE FUELS / TECHNOLOGIES

- 3.0.1 There are many types of alternative fuels, and various technologies available in the Market Place such as Liquefied Petroleum Gas (LPG); Natural Gas, Compressed or Liquefied natural gas (CNG or LNG); Hydrogen Cells; Bio-Diesel; Fuel Cells (Hybrid and Electric Vehicles) a more detailed description is provided as APPENDIX A, to this report.

3.0.2 However, to date, the most commonly used fuels on commercial vehicles still remain Petrol Diesel and LPG.

3.0.3 APPENDIX B includes a table that shows emission levels for all three types of fuel.

3.1 Emissions and the European Standards

3.1.1 European Emission Standards define the acceptable limits for exhaust emissions of new vehicles sold in the European Union member states. The standards are defined in a series of European directives staging the progressive introduction of increasingly stringent standards.

3.1.2 Currently emissions of Nitrogen Oxides (NOx) Hydro Carbon (HC) Non-methane Hydro Carbons (NMHC) Carbon Monoxide (CO) and Particulate Matter (PM) are regulated for most vehicle types.

3.1.3 Euro Emission Standard was first introduced in 1993 and since then further standards have been introduced as indicated below.

Euro 1 - 1993
Euro 2 - 1996
Euro 3 - 2001
Euro 4 - 2006
Euro 5 - 2009
Euro 6 - to be phased in from January 2013 with full implementation planned for September 2014.

3.1.4 Below is a chart showing the standards becoming more stringent. This is an example of emissions from a Heavy Goods Vehicle / Bus.

Emissions Standard	Year Standard Intro	Nitrogen Oxidens (Nox)	Hydro-carbon (HC)	Non Methane Hydrocarbons (NMHC)	Carbon Monoxide (CO2)	Particulate Matter (PM)
Euro1	1993	8.0	1.1		4.5	0.36
Euro2	1996	7.0	1.1		4.5	0.25
Euro3	2001	5.0	0.66		2.5	0.10
Euro4	2006	3.5	0.66		1.5	0.02
Euro5	2009	2.0	0.25		1.5	0.02
Euro6	2014	0.4	0.13		1.5	0.01

Note: Whilst Euro6 vehicles have improved emissions; it is currently anticipated that there will be a negative impact on fuel efficiency in the region of -8%.

[Source: www.dieselnet.com/standards/eu/hd.php]

As you can see, emissions from the Standard Diesel Engine have reduced and the vehicles have become considerably cleaner since 1993.

3.2 AGE PROFILE OF CAERPHILLY COUNCIL'S FLEET AND LOW EMISSION ZONE STANDARD

3.2.1. In order to reduce vehicle downtime, reduce maintenance costs and ensure front line services are maintained, Caerphilly Council endeavours to keep the majority of its front line vehicles less than 5 years old. Front Line Vehicles are those that are continually operated for the purpose of providing major services such as Refuse Collections; Gritting; Road Sweeping etc

3.2.2. Below is a chart showing the comparison of age of Fleet since the last report:

Age Profile of Fleet	Age Profile 2010		Age Profile Dec2012	
	Heavy Vehicles	Light Vehicles	Heavy Vehicles	Light Vehicles
Up to 1 year old	24	6	31	90
1 to 2 years old	17	95	38	52
2 to 3 years old	13	94	8	71
3 to 4 years old	14	120	8	10
4 to 5 years old	14	31	7	53
5 to 6 years old	12	25	17	40
6 to 10 years old	19	26	5	68
11 years and over	3	0	2	1
Total	116	397	116	385
	513		511	

During 2010 one of our Hire Companies ceased trading which meant a considerable number of vehicles had to be returned, and new vehicles sourced, this totally changed the age profile of the Fleet, so comparisons between 2010 and 2012 are not what would generally be expected.

This data is then shown as Euro Standards

Change in Fleet Profile between 2010 and Dec 2012	Euro Stand	Percentage	
		2010 %	2012 %
2009 – date	Euro 5	27.68 % 142	61.35% 308
2007 - 2009	Euro 4	46.98 % 241	23.31% 117
2001 - 2006	Euro 3	24.76 % 127	24.76% 73
Before 2001	Euro 2	0.39% 2	0.39% 4

- 3.2.3 As you can see, almost 85% of the Authority's vehicles are operating with Euro4 and Euro 5 Engines.
- 3.2.4 January 2012 saw a change in London's Low Emission Zone from which now states lorries, buses, coaches and heavy specialist vehicles need to meet Euro 4 standard; and large Vans and Minibuses need to meet Euro3 standards.
- 3.2.5 Whilst not impacted by the LEZ only 6 (5.22%) Heavy Vehicles and 39 (10.08%) Vans and Minibuses would not reach the new standards.
- 3.2.6 With regards to the Vans and Minibuses that do not meet Euro3 standard, a large number form part of Social Services Fleet of Specially Adapted Vehicles which is subject to a CMT report for replacement strategy to be approved/implemented. Should approval be given vans and minibuses not reaching the standard would reduce to 11.95%

4. OTHER ACTION BY CCBC TO IMPROVE ITS CARBON FOOTPRINT

- 4.0.1 In addition to demonstrating sustainability by a Vehicle Replacement Policy, Caerphilly Council continues to research the following areas: -

4.1 Electric Vehicles

- 4.1.1. The Authority continues to demonstrate electric vehicles and in recent months has demonstrated the Peugeot; Nissan; and Renault Range: users trialling these vehicles are Refuse & Cleansing Services; Building Cleaning and Highways Operation Group.
- 4.1.2 The general consensus on this type vehicle is they do not travel the range specified; this may be as a result of the terrain of Caerphilly Borough and that they are a little sluggish when going up hills and users express problems with the charging mechanisms.
- 4.1.3. As technology improves, it is likely this type of vehicle will become more reliable and we will therefore continue to demonstrate electric vehicles.

4.2 Hybrid Vehicles

- 4.2.1. Hybrid Cars such as the Toyota Prius and Honda Civic have been demonstrated in the Authority, however as these are cars they form a very small percentage of the Council's Fleet. Also both vehicles only operate electrically if travelling below 20mph and therefore, for a considerable amount of time, these vehicles operate on a Petrol engine which dispenses more emissions than the new diesel engine.
- 4.2.2 DAF Trucks have now launched Hybrid Technology in their Heavier Range of vehicles and our Cleansing Services Section demonstrated this. Whilst operationally it has a better driving range than the electric vehicles, the additional technology meant that vehicles would have to be purchased with a higher Gross Vehicle Weight, for example 12 Tonne vehicle would be required instead of a 7.5 Tonne vehicle to obtain the same payload.

Vehicles with a Gross Vehicle Weight in excess of 7.5 Tonne will also have driving licence implications.

Additionally, the purchase price of this type of vehicle currently is almost twice the price of a standard diesel engine vehicle.

4.3 Legislative and Policy Changes

4.3.1 Legislative and Policy Changes have also led way to improving standards and sustainability through Driver Awareness. The two main areas are: -

4.3.2 Graduated Fixed Penalties

Enforcing Bodies now have the powers to stop, and issue at the roadside, Graduated Fixed Penalties for specific defects found around the vehicle. Item such as defective tyres & exhaust emissions will result in a Fixed Penalty Fine and in some cases, points on the driving licence. Such penalties deter drivers from risking vehicles with poor tyre tread; tyre presses and exhaust problems, all of which have an impact on the environment.

4.3.3 Driver Certificate of Professional Competence CPC

The Driver CPC is a legislative requirement for all drivers who use vehicles in excess o 3.5 tonnes. Legislation requires them to undertake 35 hours of training by September 2014. This affects approximately 300 drivers within the authority.

To date 21 hours training has been completed; Training is broken down into 7-hour sessions and currently all legislative training has been undertaken as follows

Module 1: Operators Licence Compliance & Defect Reporting
Module 2: Driving Hours and the Implications of Overloading
Module 3: Health and Safety

Module 4 is to be approved by the Joint Approval Unit for Periodic Training and this is designed around Safe and Fuel Efficient Driving (SAFED) and Defensive Driving. It is anticipated that this will take place in classroom and in-cab to demonstrate the benefits and financial savings that can be achieved by small changes in driving behaviour. It is anticipated this module will be approved around April 2013, and all drivers will complete training by end of 2013.

4.4 Carbon Reduction Group

4.4.1 A report was considered by Corporate Management Team seeking approval to join the Carbon Reduction Group run by the Freight Transport Association.

4.4.2. Caerphilly Council continues to submit fuel usage data into the Carbon Reduction Group. Two annual reports have now been completed however they gather all the information as a whole and do not separate and report on individual organisations.

4.4.3 To-date, data on fuel usages for Years 2005 to 2011 has been forwarded to the Carbon Reduction Group and this information is contained below:

Year	Litres Used Diesel	Carbon based on 2.68Kg per litre
2005	1236856	3320.15 tonnes
2006	1373591	3686.60 tonnes
2007	1436113	3854.16 tonnes
2008	1426263	3827.77 tonnes
2009	1523914	4089.47 tonnes
2010	1518738	4075.60 tonnes
2011	1443319	3873.48 tonnes

- 4.4.4 2006 to 2009 saw an increase in the fuel usage for the authority; this can be attributed to the increase in size and number of Refuse Collection Vehicles, as a result of the expansion of Recycling and Green Waste Initiative. In 2006, there were approximately 15 Refuse Vehicles compared to the 35 Vehicles in 2009.
- 4.4.5 Following the peak in 2009, the Authority is beginning to notice a decrease in the fuel being consumed; this is as a result of a improved age profile of the fleet (as demonstrated in Item 3.2.2) plus the new technologies and improve engine efficiencies on new vehicles.

4.5 Vehicle Tracking & Telematic Systems

- 4.5.1 Vehicle Tracking Systems are becoming exceptionally sophisticated and not only are they able to locate the whereabouts of a vehicle but are now able to monitor and report on driving behaviour.
- 4.5.2 Two systems are currently being trialled, one for light commercial vehicles and the other a more sophisticated system which can link into the CANbus of the engine for use in heavy municipal vehicles. CANbus is shortened for Controller Area Network bus. It is a wiring system that can be deemed to be the brain of the vehicle. It picks up signals from various computers within the vehicle such as engine, gearbox; electronic braking systems; suspension and any other equipment. Once the information is gathered it can send it to wherever it needs to go. Vehicle Tracking & Telematic systems link into and retrieve this as real time information.
- 4.5.3 Both systems are able to identify driver behaviour and highlight areas where training could be beneficial to improve fuel efficiency.
- 4.5.4 A tender document is being produced in order that a corporate Vehicle Tracking and Management Information System can be introduced throughout the authority.

4.6 Fuel Efficiency Trial

- 4.6.1 One recently purchased Dennis Eagle Refuse Collection Vehicle was delivered with a fuel efficiency savings pack for trialling. The fuel efficiency pack maps the engine to ensure the maximum performance of the engine is achieved; and to reduce over revving of the engine.
- 4.6.2 The trial has taken place since July, 2012 and initial indicators are that the vehicle travels approximately 6 mpg compared to an average of 4mpg – if this continues there is a potential saving of 25%
- 4.6.3 There is a cost implication for this fuel efficiency pack, for which an anticipated payback time would be in the region of 2 years based on average mileage of 20,000pa.

4.7 Green Fleet Review

- 4.7.1 In December 2011, the authority accepted the opportunity of a Green Fleet Review initiated by the Energy Savings Trust. This review covered not only the Council's Operational Fleet but also the Grey Fleet (to include those who claim both essential and casual car allowance).
- 4.7.2 Fuel Usage and Mileage was collated and analysed and the following information was obtained:

Fleet	Units	Carbon (t)	%	Miles	%
Grey Fleet	2,969	1,042	61%	3,576,020	67%
Fleet Vans	229	386	23%	1,063,382	20%
Minibuses	43	178	10%	387,886	7%
4WD Vehicles	16	50	3%	107,764	2%
Fleet Cars	12	26	2%	87,947	2%
Lease Cars	5	5	0%	20,455	0%
Hire Fleet	1,389	21	1%	58,605	1%
Green Fleet Review		1,707 tonnes		5,302,059 miles	

4.7.3 In addition to the information given above the following recommendations were also made

- Improve the accuracy of Fuel and Mileage Data - **ongoing**
- Reduce Grey Fleet Use by encouraging alternatives
- Remove the Financial Incentive of NJC Mileage Rates - **completed**
- Introduce a Pool or Car Club Fleet
- Review the Van Fleet – Fuel Efficiency, Size, Safety and Speed - **ongoing**
- Set minimum standards for all cars
- Improve Management of Road Risk across all fleets - **ongoing, Driver Trainer Assessor Appointed, plus Occupational Road Risk Policy Drafted**

4.7.4 Many of the recommendations have been implemented, and others are ongoing.

5. CONCLUSION

- 5.1 To conclude, Caerphilly Council through the continual replace of its vehicles, and as a result of the European Emission Standards is continually improving the sustainability of its fleet.
- 5.2 Almost all its vehicles continue to reach or exceed the emission levels set down by London's Low Emission Zone (LEZ).
- 5.3 In addition to replacement vehicles, Fleet Management, along with its end users, continue to examine and demonstrate new vehicles; to ascertain suitability for providing front line services.
- 5.4 Through the implementation of Legislative and Policy Change, CCBC ensures that its drivers are made aware of their roles and responsibilities, and as a result improves the overall standards of driving; maintenance and environmental emissions. This is continuing with Safe and Fuel Efficient Module being developed.
- 5.5 Whilst joining the FTA's Carbon Reduction Scheme, Caerphilly Council is able to log and register fuel usage and calculate carbon usage as far back as 2005. Whilst recording such data is not mandatory at the moment for transport, should the situation change, (it is believed it is possible); this information will be readily available. The report provided by the FTA is for the Haulage Sector as a whole and does not report on individual organisations.
- 5.6 Electronic Defect Reporting has now been implemented across 120 Operator Licence Vehicles. Additionally drivers who use PDA's for mobile working are also beginning to use the system. This has resulted in a considerable saving on paper and printing; and has improved the efficiency of the defect reporting system.
- 5.7 Every effort is made to ensure fit for purpose, environmentally friendly vehicles are procured, and there remains a commitment to improving the age profile of the fleet; which enhances sustainability and service delivery.
- 5.8 Finally, CCBC has and continues to actively research ways in which it can contribute to its sustainability and efficiency, and every effort is made by both Fleet Management and the end

users to ensure this continues.

6. RECOMMENDATIONS

6.1 Members of the Sustainable Development Advisory Panel are asked to note the contents of this report.

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Sources: Department for Transport (Statistics) www.dieseln.net
European Standards Emissions www.energysavingtrust.org.uk
Energy Savings Trust