

Minimising environmental impacts

We want to ensure that our transport services actively reduce the environmental impacts of travel. To do this we promote the environmental benefits of travelling by train and bus. We also work on reducing our own impacts.

This section explains what we are doing to achieve our aim.

Overview

- In April 2009 all but one of our UK bus and train operating companies had achieved accreditation to the ISO14001 management system standard. The one remaining company in Wales awaits final assessment.
- We continue to work to reduce our carbon emissions but it is taking time for the benefits of the initiatives to be demonstrated in performance improvements. Fuel efficiency in our UK Bus division is beginning to improve and carbon dioxide emissions per passenger kilometre continue to reduce in our UK Rail division.
- In May 2008 our operations in the UK were accredited under the prestigious Energy Efficiency Accreditation Scheme (EEAS), an independent emission reduction award initiative. EEAS recognises organisations who demonstrate energy savings through management commitment and investment in energy efficiency measures. We are the first transport company to complete the accreditation since the scheme was extended to include transport emissions.
- We have established total waste management contracts in both our UK Rail division and in North America, allowing us to monitor waste arising and recycling rates across the business. Our recycling rates in the UK have improved by a further 6%.

Awards

We were a gold winner in the 2008 Green Apple Award in the Transport, Freight and Highways Category in recognition of our Climate Change Strategy.



Environmental management

In the UK our well-established environmental management structure is led by the Group Head of Environment. In North America we have reinforced environmental management by appointing a Director of Environment. Environmental responsibilities at site level have been integrated into the engineering/maintenance structure. Our operating companies all work to our minimum environmental standards against which they are periodically audited.

We encourage staff to participate in environmental initiatives through our 'small changes - big difference' campaign. In the UK we have commissioned focus groups to understand how our employees view the environment and want to be engaged. Their feedback has helped to develop environmental campaigns aimed at raising staff involvement in recycling, energy saving and other environmental activities.

This year we have implemented centralised utilities and waste management contracts in North America. This move will enable us for the first time to report baseline data – a significant step forward in developing environmental programmes across our North American sites.

Climate change

Our estimated carbon footprint is 3,210,551 tonnes. A breakdown of these emissions shows that the vast majority arise from the operation of our vehicles - see diagram opposite.

Our overall carbon footprint has increased from last year. There has been a substantial increase in the size of our business in North America and a growth in mileage in our UK Bus and UK Rail divisions. These trends can be viewed at www.firstgroup.com/corporate/csr/environment_and_climate_change. They reflect greater use of public transport and the resulting environmental benefits arising from the lower carbon footprint of bus and rail travel compared to the use of the private car.

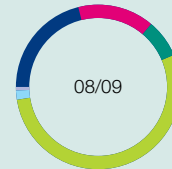
We continue to work hard to reduce our carbon emissions and meet the challenging targets we have set ourselves in our Climate Change Strategy, a copy of which can be found at www.firstgroup.com/corporate/csr/environment_and_climate_change.

During the past two years we have worked extensively to better understand the factors affecting vehicle fuel efficiency. We are formulating projections of likely future emissions based on various technology outcomes. In North America we are improving the data that we use to measure our carbon emissions and have initiated a number of projects aimed at improving fuel efficiency. We have not yet established carbon reduction targets for this part of the business but are committed to doing so in the coming year.

We continue to reduce the energy usage in our buildings and have also reduced the emissions associated with business travel. The following pages give details of the initiatives we have introduced to cut fuel consumption from our vehicles. As a result of these initiatives carbon dioxide emissions per kilometre in our UK Bus division have reduced by 0.7% over the past 12 months. This is despite trends in vehicle manufacturing that continue to reduce fuel efficiency in new vehicles. We have also saved a further 16,238 tonnes of carbon dioxide through the use of 5% biodiesel. Emissions per passenger kilometre from our diesel-operated rail fleet have continued to decrease, largely due to passenger growth.

Further data on our carbon emissions and our position on biofuels and sustainability can be found at www.firstgroup.com/corporate/csr/environment_and_climate_change.

Breakdown of our estimated carbon footprint (tonnes of carbon dioxide)



UK Bus fleet	686,590
UK Rail fleet (diesel)	487,992
UK Rail fleet (electric)	244,197
North America fleet	1,735,119
Energy use in buildings UK	55,436
Business travel	1,217

Energy usage in buildings does not include minor stations and some leased properties in our UK Rail division. Energy usage from our North American properties is also not included as we are currently extrapolating data from a small proportion of the total portfolio. We have programmes to collate this outstanding data by April 2010. Emissions for the First Student vehicle fleet are estimated on the basis of miles per gallon data for the main vehicle types.

Average emissions from our diesel rail fleet (grammes of carbon dioxide per passenger kilometre)

05/06	57.19
06/07	53.63
07/08	50.54
08/09	49.39

Average emissions from our UK bus fleet (kilogrammes of carbon dioxide per kilometre)

05/06	1.108
06/07	1.124
07/08	1.142
08/09	1.134



Examples of posters used in our small changes - big difference campaign.





Minimising environmental impacts

Reducing our carbon footprint

Our medium-term carbon reduction targets are based on continued reliance on current technologies and fuel efficiency optimisation methods. The longer-term targets depend on significant developments in engine technology which are currently unavailable.

UK Bus

We achieved carbon savings in our UK Bus division by introducing 5% biodiesel and cutting energy usage in buildings. We have also achieved a 0.7% improvement in fuel efficiency despite the introduction of new, heavier EURO engines, which are less fuel efficient than the vehicles they replace.

This follows the introduction of a range of comprehensive measures:

- work with our fuel suppliers to optimise fuel quality
- trialling fuel additives
- improving fuel management procedures
- reducing idling with automatic engine shut-off on newer vehicles
- identifying underperforming vehicles
- driver training.

We remain committed to an 8% improvement in fuel efficiency by 2012.

As part of service planning we seek to optimise the fuel efficiency of our routes by matching the bus size to the number of passengers. We also match capacity and demand on routes by altering frequencies to ensure that we do not over or under provide as the market conditions change.

Since February 2009 we have worked in partnership with Transport for London to operate five hybrid buses in London. These vehicles should deliver significant fuel efficiency improvements over our current vehicles, offering a means of lowering carbon emissions for the future.

The European Union's EURO engine standards require a progressive reduction in vehicle engine emissions of local air pollutants such as nitrogen oxides and particulates. The exhaust modifications required to meet the new emission standards have contributed to poorer vehicle fuel consumption. We urge the European Union to review its commitment to higher engine standards which further increase fuel consumption.

Case Study

The role of driver training

We have analysed fuel efficiency data from different drivers driving the same buses on the same route. Even allowing for factors such as congestion, the variance can be as high as 40% between drivers, averaging at approximately 15%. Our drivers have a fundamental role to play in reducing fuel usage. To help them achieve this, we are trialling the GreenRoad driver feedback system. In-cab lights coloured red, amber and green inform the driver of their driving style. Feedback is also presented to drivers in written reports.

UK Rail

Our UK Rail division strategy is still founded on:

- using mains electricity to power engines during cleaning and maintenance
- reducing idling
- selected engine running
- driver training.

We have enjoyed particular success in delivering our fuel efficiency programme to First TransPennine Express. This year First Capital Connect became the first train operating company to begin monitoring electric traction energy. This data will help us to identify how driving techniques impact on fuel consumption; in combination with a programme to introduce regenerative braking, it will reduce electric traction energy consumption.

Case Study

Reducing fuel use at First TransPennine Express

First TransPennine Express has been working closely with Siemens to improve fuel efficiency in its Class 185 fleet. The initiative included the introduction of software to manage train idling times and engine running to optimise efficiency. Drivers have received fuel efficiency training and in-cab fuel efficiency displays have been installed to allow drivers to monitor their performance. The work has resulted in 5.5% savings in carbon dioxide emissions equating to 4,546 tonnes for January to December 2008. In June 2008 the company won an Environmental Innovation award for its work at the Railway Forum Innovation Awards.

North America

In North America we have improved systems for measuring fuel efficiency across our expanded business. We now have average fuel efficiency data for all vehicle types. The data is allowing us to implement fuel efficiency improvement programmes.

In First Student a trial coupling GPS data to engine performance is enabling us to accurately measure fuel efficiency by vehicle – data we do not currently hold. This technology is also being used to determine the most fuel-efficient school routes for our buses. First Transit has been monitoring and raising fuel efficiency for several years. This programme focuses on the role of maintenance, tyre pressures and driver training.

Case Study

Reducing the impacts of travel

Although only a small part of our overall carbon footprint we aim to reduce the impacts from business travel and commuting. Our emissions from business travel in the UK have reduced by 11.4% in the last 12 months, equating to 157 tonnes of carbon dioxide. By offering free bus or rail passes, we encourage our employees to use public transport when travelling to work. For those unable to use public transport, for example when travelling to the depot for the first shift of the day, we encourage car sharing (in partnership with *liftshare.com*) and bike schemes. A central database allows any of our UK employees to access information to help them find travel partners.

Energy usage in buildings

We also aim to reduce the heating and lighting energy used in our depots and stations. During the last 12 months we have cut our energy consumption by 3.4% in our UK Bus division and 2.8% in our UK Rail division, meeting our overall UK energy reduction target of 3%. These combined savings have contributed to a reduction of 2,359 tonnes in the carbon footprint of our UK buildings. In North America we do not yet have comprehensive data across all our properties but this will be available by 2010. This year we have extrapolated available data to estimate our baseline which currently stands at 396,967,430 kWh. We will refine this figure when we have data from all sites and use it to evaluate our energy management effectiveness in the future. Further energy usage data can be found at www.firstgroup.com/corporate/csr/environment_and_climate_change.

Total energy usage UK Bus (kWh)*

05/06	122,286,956
06/07	101,099,163
07/08	95,262,742
08/09	91,981,203

Total energy usage UK Rail (kWh)*

05/06	71,049,577
06/07	70,905,990
07/08	72,510,465
08/09	70,469,552

* Energy data is reported as the combined gas and electricity usage at each depot expressed in kilowatt hours. Data for rail does not include minor stations and some leased property.

Reducing rail energy use

During the year First Capital Connect has trialled voltage-controlling powerPerfactor units which extend the life of electrical equipment and support reductions of up to 10% in energy usage. Trial results have been shared with Network Rail which has now given approval for widespread installation of powerPerfectors.

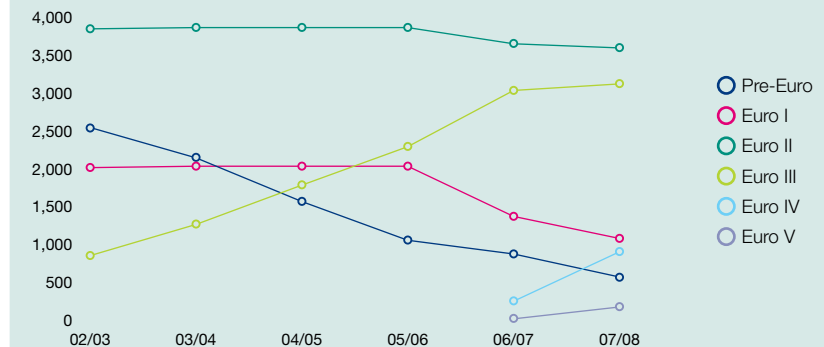
Local air quality

We continue to invest to reduce local air emissions from our fleet with ongoing investment in new trains and buses. In the UK our bus fleet now comprises 33% EURO III engines and 11% EURO IV and V engines. In North America we have purchased 6,676 new school buses in the last two years, all operating to the most rigorous Environmental Protection Agency standards. Our continued investment in new vehicles has achieved the following emission reductions in our UK Bus division over the past four years.

Local air emission reductions in our UK Bus division since 2005

	Particulates	Nitrogen oxides	Carbon monoxide	Hydrocarbons
Percentage reduction	31	18	30	27
Tonnage reduction	69	956	456	166

Breakdown of our UK bus fleet by EURO engine type* (number of buses)



* Reporting period is January to January

Emissions trends broken down by division can be found at www.firstgroup.com/corporate/csr/environment_and_climate_change.

Energy-saving lighting

We are currently trialling a number of lighting solutions in a drive to source the best possible lighting solutions for our depots and offices. Energy efficiency, light levels and maintenance/replacement requirements will all be assessed in order to identify the best products for our needs.



First Capital Connect receive the award for Best Train Operating Company at the First Annual Environmental Awards 2008. The award was given in recognition of their initiative to recycle passenger waste at stations despite security constraints.



Minimising environmental impacts

Water usage

Our main use of water is for washing our vehicles. Clean vehicles are important to our customers' perception of service quality. However we must balance customer expectations with our desire to reduce water use. In our UK Bus division we have installed bus washes that partially recycle water across all depots. Trials proved that because we need to wash many vehicles within a short timescale, bus washes which partially recycle save us more water than those which fully recycle. Total recycling systems cannot replenish the water fast enough and have to draw water from the mains.

In both our UK Bus division and UK Rail division total water usage has increased due to a rise in the number of bus and train units. However, usage per bus has reduced by 2% and per train unit by 4%. In North America we are currently collating baseline data against which we will monitor trends and secure performance improvements.

Water usage - UK Bus division

Total water usage (m³)

05/06	536,456
06/07	586,892
07/08	539,875
08/09	541,408

Average water usage per bus (m³ per bus)

05/06	58
06/07	62
07/08	58
08/09	57

Water usage - UK Rail division

Total water usage (m³)

05/06	432,878
06/07	467,013
07/08	487,511
08/09	496,335

Average water usage per train unit (m³)

05/06	215
06/07	223
07/08	219
08/09	210

Data for rail does not include minor stations and some leased property.

Waste management

Our operations give rise to both hazardous and non-hazardous waste including waste from our offices and depots and that left on our vehicles by our passengers. We have monitored waste management performance in UK Bus for a number of years through our central waste management contract. Similar contracts have now been established in both UK Rail and North America. In UK Rail we now have early trend data. In North America we can now monitor progress against our baseline.

This year we have started to make significant progress in improving our non-hazardous waste recycling rates in the UK. We have achieved this by working closely with our waste management partners. In our UK Bus division we have improved our non-hazardous waste recycling rates from 27% to 33%. The UK Rail division has increased its recycling rate from 9% to 14%. In North America, baseline data indicates that we recycle around 3% of our non-industrial waste (i.e. paper, cardboard, glass and metal). We will be looking to further increase our waste recycling rates in all divisions next year.

We currently recycle 90% of our hazardous waste in the UK Bus division. Comprehensive data for our UK Rail division is not yet available. In North America all used oil, oil filters and anti-freeze are collected and recycled.

We continue to explore new alternatives to landfill and have started to make progress in establishing methods for recycling the waste left by our passengers.

- During the past 12 months First Capital Connect has increased its recycling rate from 2% to 20%. A key contributor to this figure has been the introduction of customer recycling points at 85% of their manned stations. These facilities were introduced after long and careful consultation with TRANSEC (the Department for Transport's security advisors to the rail network) to overcome security constraints on waste receptacles at stations.
- First TransPennine Express was the first train operating company to introduce recycling of on-train waste. Newspapers and magazines are now collected separately by on-board cleaners diverting 30% by weight of the on-board waste from landfill.
- In Leeds the bus cleaning team now segregates all waste cleared from buses. Drinks cans, paper, cardboard and mixed plastic are separated. Early figures show 60% of waste is now sent for recycling.

Full waste arising data can be found at www.firstgroup.com/corporate/csr/environment_and_climate_change.

Case Study

Working in partnership with TRiP (Transport Recycling in Partnership) we have helped to develop a business for re-using and recycling transport industry waste. Old passenger seat covers have been made into a unique range of products including footwear and bags. With our support TRiP has also researched ways of composting seat cover trimmings. Through this work we hope to achieve 100% reuse and recycling of this waste stream.

