

Optimizing transport

As a global automaker, people and goods within Fiat Group are always on the move. Every year, our Logistics departments manage the movement of a huge amount of goods and vehicles. We strive to keep our emissions as low as possible by expanding the number of low-emission transport vehicles, by optimizing our transport logistics flows, and by using telecommunication technologies where possible to reduce employee travel.

Upstream and downstream logistics

Attaining maximum efficiency and minimal environmental impact while managing the movement of materials, parts and finished vehicles through a complex global supply chain is a commitment that Fiat Group Logistics embraced years ago. By optimizing freight flows and maximizing efficiencies, our efforts are centered on reducing environmental impacts by **cutting logistics-related emissions and minimizing the use of non-reusable packaging**.

This is specifically stated in our **Green Logistics Principles**, consistent with the Fiat Group Environmental Guidelines on which they are based, which provide guidance on reducing environmental impacts, focusing on four main areas:

- increase in low-emission transport
- use of intermodal solutions
- optimization of transport capacity
- reduced use of packaging and protective materials.

Organization

World Class Logistics (WCL) defines logistics processes at plants and in the supplier network which have been established to meet the requirements of safety, ergonomics, eco-compatibility and transport flow optimization. This is managed by Fiat's Logistics Engineering unit and Chrysler Group's Logistics & Customs department, which act as bridges between manufacturing and suppliers or dealers through material movement. Processes have been significantly improved through the re-engineering of material flows and the application of Just-in-Time methodology, by reducing stock and material handling and delivering only what is needed, where it is needed, at the right time.

Logistics flows

Components and materials delivery (**upstream transport**) to Group plants and **spare parts** (managed by Fiat Parts & Services and Mopar⁽¹⁾) transport to warehouses and distribution centers is handled either by external transport providers engaged by the company or managed directly by the material suppliers themselves. Shipment of spare parts to dealers is handled by external logistics operators that are not managed by the Group. Vehicle distribution (**downstream transport**) from plants to dealers is handled by the Group-owned fleet (i-FAST Automotive Logistics S.r.l. in Europe and Chrysler Group Transport in North America) or by external transport providers engaged by the company.

⁽¹⁾ The Group's service, parts and customer care organization.

Environmental performance

The environmental key performance indicators (KPI) identified and adopted are regularly monitored to enable greater coverage and in-depth analysis of distribution flow impacts. The results from monitoring are used to set continuously challenging improvement targets.

CO₂ emissions recorded in 2013 relating to Group logistics processes managed directly by Mass-Market and Premium Brand logistics in the **NAFTA** region equaled approximately 900,000 tons: 52% from upstream and 48% from downstream transport for vehicle distribution. This represents an increase of about 19.8% compared with the previous year⁽¹⁾.

The 2013 increase in production levels and volume mix in the NAFTA region led to significant challenges in freight and vehicle movement. In some cases, production schedules and availability of materials necessitated less than fully-cubed loads, resulting in more miles per vehicle shipped being traveled by the upstream transport fleet.

Improved sales growth in the international markets, which requires shipment to coastal ports, as well as increased sales in the southern and western states, saw more vehicles traveling longer distances.

Aggressive measures were essential in keeping the resulting carbon emissions to a minimum. Overall, carbon emissions per kilometer traveled for upstream freight increased by 1.6% despite the 17.4% increase in kilometers driven, while downstream carbon emissions per kilometer traveled decreased by 7.5% compared with the 30.3% increase in transport kilometers, primarily due to an increase in rail transport.

With respect to the **EMEA** region, **CO₂ emissions decreased 9.5%** in 2013 compared with 2012⁽³⁾.

CO₂ emissions in logistics processes⁽²⁾

Mass-Market and Premium Brands in EMEA (thousands of tons of CO₂)

	2013	2012 ⁽³⁾	2011 ⁽³⁾
Upstream	65.7	74.6	81.0
Downstream	96.1	104.7	114.5
Spare parts	8.0	8.4	9.5
Total	169.8	187.6	205.0

Increase in low-emission transport

In the NAFTA region, efforts continued to reduce our carbon footprint for downstream Group-managed transport, resulting in new official partnerships. Following the partnership between Canada and the US Environmental Protection Agency in 2012, a similar initiative was established in 2013 with the Mexican Secretariat of Communications and Transportation Agency (SCT) and the Mexican Environmental Agency (SEMARNAT). The primary objective of *Transporte Limpio* (literally "Clean Transport"), a voluntary national program, is to reduce CO₂ emissions from cargo transport vehicles while increasing fuel economy and implementing more environmentally friendly practices.

During 2013, we avoided more than 19,000 tons of CO₂ by using rail transportation instead of other, more polluting modes.

With respect to downstream transport in Europe, the Group's internal fleet of trucks carries about 16% of the total vehicle distribution by road. Of this fleet, **80% is already Euro V-compliant**. Continued investment in more efficient trucks is expected for 2014.

⁽¹⁾ Last year's report indicated 308,000 metric tons of CO₂ emissions from upstream freight. This figure should be 387,904 resulting in a total of 749,473 metric tons.

⁽²⁾ The calculation of CO₂ emissions was based on the criteria illustrated in *The Greenhouse Gas Protocol – revised edition for road transport*, and the IFEU Heidelberg environmental method for sea and rail transport. The figure relates to 100% of downstream transport and 71% of the volume of upstream transport in Europe. The figure for emissions from the transportation of spare parts relates to 31% of upstream traffic by weight; downstream transport for spare parts is not monitored as it is not currently managed directly by the Group.

⁽³⁾ Data restated to be consistent with 2013 scope.

Regarding Group-managed upstream transport in Europe, access to plants is already prohibited for vehicles with emission levels that do not meet the Euro III standard.

Contractual clauses continued to be progressively introduced in 2013, **requiring that at least 50% of supplier fleets consist of vehicles compliant with Euro IV or stricter standards.**

We are also continuing to monitor emission standards on the vehicles used by a large part of material and component suppliers not managed directly by the Group. This makes it possible to extend the same standards required for Group-managed transportation to those fleets as well.

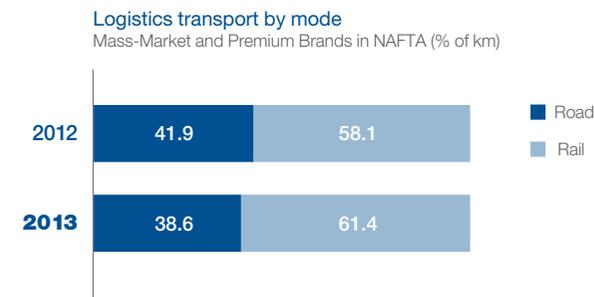
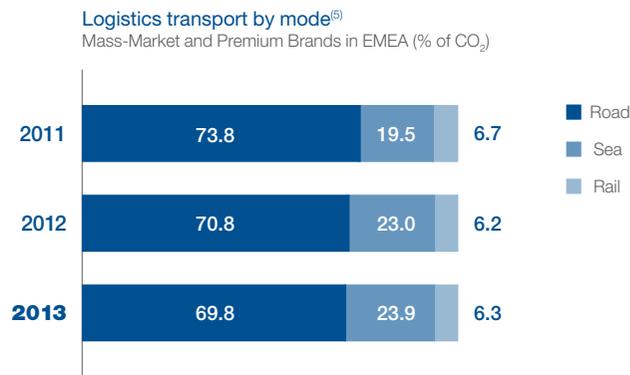
Use of intermodal solutions

In order to reduce traffic congestion and CO₂ emissions, the Group explores alternative solutions to road transport through a variety of options such as rail and sea. Depending on geography, infrastructure and production volumes, the upstream and downstream material transport may require a significant percentage of road transport. Efforts were made in 2013 to continue the **extension of intermodal solutions** which had already been introduced. In addition, the Group continued to evaluate potential new rail routes both for material transport and vehicle distribution.

In 2013, Fiat Group **upstream** rail transport share of CO₂ emission in the EMEA region increased from 5.8% to 8.0% compared with 2011, while road transport impact decreased from 93.5% to 90.6% ⁽⁴⁾. Sea transport accounted for less than 1% out of the total emission.

Regarding **downstream** logistics, sea transports share of CO₂ emission increased from 32.8% to 39.3% compared with 2011, while road transport impact decreased from 59.9% to 55.7%. The remaining percentage is attributable to rail transport. In Europe, the lower volumes transported made it more difficult to fully exploit railcar density and hence resulted in a slight decrease in the use of this transport mode.

In the NAFTA region, the Group works in partnership with other automakers by co-loading vehicles and, in this way, increase railcar density. Due to the increase in intermodal transport solutions, 2013 registered savings of about 4,500 tons of CO₂ and about €1.3 million.



⁽⁴⁾ Percentage data have been restated to include FGA Engines and Transmissions in the scope.

⁽⁵⁾ Data includes upstream and downstream transport and excludes spare parts figures.

Optimization of transport capacity

Maximum utilization of transport capacity is another method used by the Group **to reduce the environmental impact of logistics operations** while simultaneously containing shipping costs. The extension of the “**milk run**⁽⁶⁾” approach by Magneti Marelli in the EMEA region resulted in a reduction of 12,500 tons in CO₂ emissions in 2013.

Through daily route optimization in upstream flows in the NAFTA region, 870,000 kilometers were saved, avoiding the emission of 850 tons of CO₂. Collaboration with other automakers to consolidate collection routes resulted in a savings of an additional 1 million kilometers, avoiding the emission of 970 tons of CO₂. The process led not only to improvements in financial performance but also a reduction in truck traffic.

The Mopar Service and Parts organizations have embraced the concepts of World Class Logistics (WCL) and have begun implementing actions similar to those at our manufacturing facilities in order to achieve a best-in-class supply chain. A Central Lead has been established within the organizations and Central Teams are in place to drive the WCL methodology and support the Mopar network.

The continuation of training and awareness programs on cube utilization has resulted in additional year-over-year improvement. In 2013, our supplier shipments required an estimated 300 fewer trailers and 320,000 fewer kilometers when adjusted for volume.

Additionally, we initiated a focused, small-scale pilot project with the Milwaukee Parts Distribution Center to determine the impact trailer decking has on delivery cost. Mopar identified a 25% potential reduction in trailers needed and distance traveled, due to the additional space that decking provides within each trailer. Expansion will begin in the first part of 2014.

In 2013, the Group continued efforts to reduce CO₂ emissions by looking for additional opportunities to engage other automakers and non-automotive companies via the carriers to combine downstream freight and share the transportation costs among all parties. Additional focus was placed on opportunities within the Mopar network utilizing both upstream and downstream lanes to reduce capacity and save kilometers. These efforts allowed Mopar to supply 25% of the dealers on shared service routes.

Reduced use of packaging and protective materials

We also work to **minimize packaging and protective materials** and **increase the use of reusable containers**, while maintaining standards and meeting quality requirements. Where this is not possible, the Group ensures that standard recovery processes are applied.

Although the Group’s commitment is to reduce **disposable cardboard packaging in European plants**, its use increased in 2013 by 5.2% compared with the previous year (from 5.7 to 6.0 kg per vehicle). This was principally due to an increase in cardboard required by the new Grugliasco (Italy) plant where Maserati vehicles are produced. This plant was out of scope in 2013, but its cardboard usage was unexpectedly reported under the Mirafiori (Italy) plant figures. It was not possible to isolate the specific Grugliasco figures, leading to a perceived jump in overall usage. Despite this, compared with 2009 there was a **6.3% reduction** (from 6.4 to 6.0 kg per vehicle).

We continued to **reduce wood packaging** for international shipments of materials from Italy. In 2013, shipments to our plant in Betim (Brazil) saw a 9.7% reduction in the use of disposable wood packaging compared with 2012 (from 7.2 in 2012 to 6.5 kg/m³ shipped), and a 47.6% reduction compared with 2011. These results are due to the progressive introduction of returnable metal crates or specially equipped containers replacing disposable wood packaging. In 2013, monitoring of wood packaging systems was extended to Group plants in Turkey and Poland. We also initiated projects to reduce packaging material in the NAFTA region. Where wood or corrugated material is necessary for the export of material to international manufacturing locations, the company partners with service providers that are certified by the Sustainable Forestry Initiative (SFI).

⁽⁶⁾ The “milk run” refers to a process whereby transport pickups are organized to optimize truck routes, ensure full truckloads and minimize the time required to make all supplier pickups in a specific geographic area.

Employee commuting

One of the areas where Fiat Group has long focused its efforts to reduce CO₂ emissions is employee commuting between home and work. The initiatives implemented include the optimization of travel routes, the promotion of public transportation and the use of more sustainable vehicles.

The easygo project addresses approximately 18,000 employees and 4,000 daily visitors at the **Mirafiori complex in Turin (Italy)**. The initiative was developed in 2008 in collaboration with institutions and public transportation companies, and uses input from employees for continuous improvement.

In 2013, we conducted a mobility survey on approximately 1,600 employees prior to their transfer to new offices created at the Mirafiori complex in Turin. The study was meant to analyze employee commuting needs and the optimal routes for getting to their new workplace. By analyzing the local public transport network, we then were able to provide employees with pertinent information on the company intranet and thus ease the move to the new offices.

With respect to public transportation, special and regular routes have been reorganized, with service made more frequent and at specific hours of the day to coincide with employee arrival and departure times. In addition, shuttle services between the main bus routes and train stations have been arranged. In terms of private transportation, the focus has been on bicycling and personal vehicles. Bike paths were improved both inside and outside of the plant complex and parking spaces for bikes were created.

Employees at the facility also have a dedicated internet web portal where they can sign up to participate in carpooling initiatives, share means of transportation and access information about public transportation and bike paths. A special email address was also launched for employees to suggest areas of improvement and indicate service disruptions. In addition, traffic lights, pedestrian crossings and stopping/parking zones continue to be upgraded to improve the flow of traffic and safety conditions in and around the Mirafiori complex.

The principal benefits expected from the easygo project include not only a reduction in the environmental impact from commuting, but also improved employee satisfaction and well-being resulting from reduced commute time and cost, reduced risk of accidents, lower stress and, finally, more social interaction with co-workers.

In order to plan improvement activities for the coming years, a study was conducted to evaluate the effectiveness of the interventions completed since the beginning of the project, particularly with respect to public transportation and parking areas.

At the **Chrysler Group headquarters**, a grassroots sustainability program promotes employee ideas and engagement. One of the grassroots teams encouraged employee cycling by installing additional bicycle parking slots at the complex to secure bikes for those that cycle to work. The team also coordinated with local experts to offer cycling education to employees to support safe cycling in and around the community. In addition, vanpool information was offered at the annual Earth Day event at the Chrysler Group headquarters to support more environmentally friendly transportation and employee convenience.

Business travel

The Group understands the impact that business travel can have on the environment, employees and the broader community, and is committed to a responsible travel management program.

Since 2011, a project at Fiat Group has monitored CO₂ emissions generated by its business air travel. In 2013, CO₂ emissions from air travel, covering 55% of Group employees, totaled more than 39,600⁽¹⁾ tons. The CO₂ emissions recorded in 2013 were generated by more than 110,000 business trips taken during the year, a result of the global nature of the Group. The total amount of km flown increased by 0.7% compared with 2012, emitting the same amount of CO₂.

To minimize the need for travel, the use of audio and video conferencing and instant messaging systems was further extended to reach more than 75,000 individuals. On average, there were approximately 34,000 phone calls, 8,500 desktop sharing sessions, 4,000 web conferences and 350,000 instant message sessions each day in 2013. The Group TelePresence videoconferencing system has significantly grown since 2012. At year-end 2013, this integrated system of 117 meeting rooms registered more than 32,300 hours of teleconference, an increase of 120% compared with the previous year. These communication methods enabled employees to stay in contact with their counterparts at other locations, without the need for business travel and its resulting impact on the environment.

⁽¹⁾ This calculation was made according to the DEFRA/GHG methodologies.