

Michelin's Green Meters

October 30, 2007
Berlin – New York – Paris – Shanghai

Press Kit

www.michelin-green-meter.com

For Additional Information in North America,
including high resolution photos and broadcast quality video,
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To obtain high-resolution, formatted-for-TV images and photographs of the Michelin green meters in the four cities, go to: www.thenewsmarket.com/michelin. If you are visiting this site for the first time, you will need to sign in to download the videos. For assistance, contact: journalisthelp@thenewsmarket.com



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PRESS INFORMATION

MICHELIN'S "GREEN" METERS PAINT THE SKY WITH GLOBAL FUEL EFFICIENCY STORY

Each second, around the world, Michelin green energy saving tires help reduce fuel consumption and lower CO₂ emissions

NEW YORK CITY (Oct. 30, 2007) – Beginning today, Michelin will project meters in four major cities around the world—Berlin, New York City, Paris and Shanghai. These meters will show the fuel savings and reductions in CO₂ emissions since 1992—when this revolutionary technology was first introduced—thanks to Michelin green energy saving tires.

Michelin green energy saving tires include a variety of passenger car, light truck and commercial truck tires that are optimized for fuel economy by reducing their rolling resistance and weight without compromising other key performance factors such as traction, grip and tread wear. Reducing rolling resistance also reduces CO₂ emissions.

Featuring the world-famous Michelin Man, the meters will be projected at 7 p.m. local time on the façade of the Park Inn Hotel in Berlin; on the NASDAQ and Reuters boards in Times Square, New York City; in the Port de Suffren at the foot of the Eiffel Tower in Paris; and on the City Group Mansion tower, across from the Bund, in Shanghai.

In 15 years, compared to conventional tires on the road, the **570 million** Michelin green energy saving tires sold worldwide have reduced fuel consumption by an estimated **2.38 billion gallons**, resulting in a reduction of CO₂ emissions of **25 million tons**, the equivalent of the amount absorbed by **880 million** trees in one year. This means that each second **11.6 gallons** of fuel are saved and **240.6 pounds** of CO₂ are not released into the atmosphere. These figures will be on display to millions of people around the world. Full details of the Michelin Green Meter are available at www.michelin-green-meter.com.

As a responsible citizen, Michelin seeks to build awareness among people around the world of the contribution that Michelin green energy saving tires can make to the environment.

That's because choosing the right tire can have a significant impact on the environment. This is especially important today when experts agree that road transport is a major source of CO₂ emissions, one of the greenhouse gases responsible for global warming.

Fully aware of this challenge, Michelin, which allocates nearly 4 percent of its annual net sales to research and development, has made the design of green energy saving tires a key component of its innovation strategy. So that consumers may integrate "green" criteria into their choice of tires, Michelin is highlighting the impact of tire choice on fuel consumption and on the environment. For Michelin, this initiative truly represents "a better way forward."

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I. Michelin's Green Meters: A worldwide event for a global environmental challenge

Berlin, New York, Paris and Shanghai are four major cities around the world whose growth has been driven by the mobility of goods and the millions of people who come and go every day. That's why Michelin chose these four locations to launch a truly unique event whose objective is to focus the public's attention on the environmental and energy issues involved in choosing the right tire.

Beginning Oct. 30, 2007, these four cities will play host to Michelin's green meters. People passing by the City Group Mansion tower in Shanghai, China; the façade of the Park Inn Hotel in Berlin; the Port de Suffren at the foot of the Eiffel Tower in Paris; and the NASDAQ and Reuters boards in Times Square, New York City will see the reductions in fuel consumption and lower CO₂ emissions generated by Michelin's "green energy saving" tires since their launch in 1992. The meters will continue to count, in real time, the ever-increasing fuel and CO₂ savings as more and more of Michelin's environmentally-positive tires are placed into service on roads around the world.

Michelin green energy saving tires include a variety of passenger car, light truck and commercial truck tires optimized for fuel economy by reducing their rolling resistance and weight of the tire without compromising other key performance factors such as traction, grip and tread wear. Reducing rolling resistance also reduces CO₂ emissions.

Michelin has long been committed to better mobility, meaning mobility that is "sustainable for the planet and society over the long term." Thanks to Michelin's green meters, drivers will now have a better understanding of the environmental consequences at stake when they choose tires for their vehicles.

1. Michelin's green energy saving tires: quantifying the environmental benefits in real time

In each of the four cities, the Michelin green meters will display estimates of:

- Worldwide fuel savings attributable to Michelin green energy saving tires compared to conventional tires on the road since 1992, a total of **2,380,056,909 gallons**.
- The ever-increasing fuel savings, thanks to Michelin green energy saving tires currently on the road, updated at a rate of **11.6 gal./second**.
- The amount of CO₂ not released into the atmosphere since the introduction in 1992 of Michelin green energy saving tires, a total of **25,119,890 tons**.
- The amount of CO₂ not released into the atmosphere updated at a rate of more than **240.61 lbs./second**.

2. The environmental impact of tires: an ignored issue

While many drivers are in favor of more environmentally positive mobility, most are unaware of how tires can reduce a vehicle's environmental impact by improving its energy performance. In a recent survey¹ by Michelin, tires are mentioned as a source of pollution by only 24 percent of those surveyed. In fact, due to rolling resistance, tires can have a significant impact on vehicle fuel economy and the environment in general.

- **What is rolling resistance?**

With each rotation of the wheel, the shape of the tire changes slightly under the weight of the vehicle as the tire makes contact with the road. As its structure changes, the tire's components heat up and some of the energy transmitted by the engine is lost. This is the phenomenon known as rolling resistance. Since energy is needed to keep a vehicle moving forward, lowering a tire's rolling resistance makes it possible to reduce fuel consumption and, consequently, lower emissions of CO₂ and other greenhouse gases.

Rolling resistance is one of the five forces a vehicle must overcome in order to keep moving. The others are: 1) air resistance (which depends on vehicle speed), 2) significant inertia forces when accelerating (such as in city driving), 3) gravity when driving uphill, and 4) internal friction (involving the transmission, for example).



- **Visible differences in performance**

When it comes to rolling resistance, all tires are not equal, with differences of up to 50 percent on tires designed to equip the same vehicle.

To highlight these differences, Michelin demonstrated, at the 62nd Frankfurt Auto Show in September 2007, the phenomenon of rolling resistance and its impact on fuel consumption to the public. The test involved a concave 72-foot track and two Peugeot 308s automobiles that were

¹ Survey of 5,061 Web users age 18 to 65 conducted online by Michelin and LH1 2 from Feb. 27 to March 10, 2006. The sample comprised 1,061 French, 1,000 Chinese, 1,000 Japanese, 1,000 Americans and 1,000 Germans using the quota method of sampling.

identical except for their tires. One was fitted with Michelin Energy Saver tires and the other with tires whose rolling resistance was the same as the market average² (see illustration above). Released from a height of 10.5 feet on a 20 degree slope, the two vehicles rolled forward and backward, propelled only by their weight. The car equipped with Michelin Energy Saver tires, which offer less rolling resistance, continued to move significantly longer than the other vehicle. This illustrates that the car requires less energy to cover the same distance as another equipped with different tires, because of the benefits provided by Michelin Energy Saver tires.

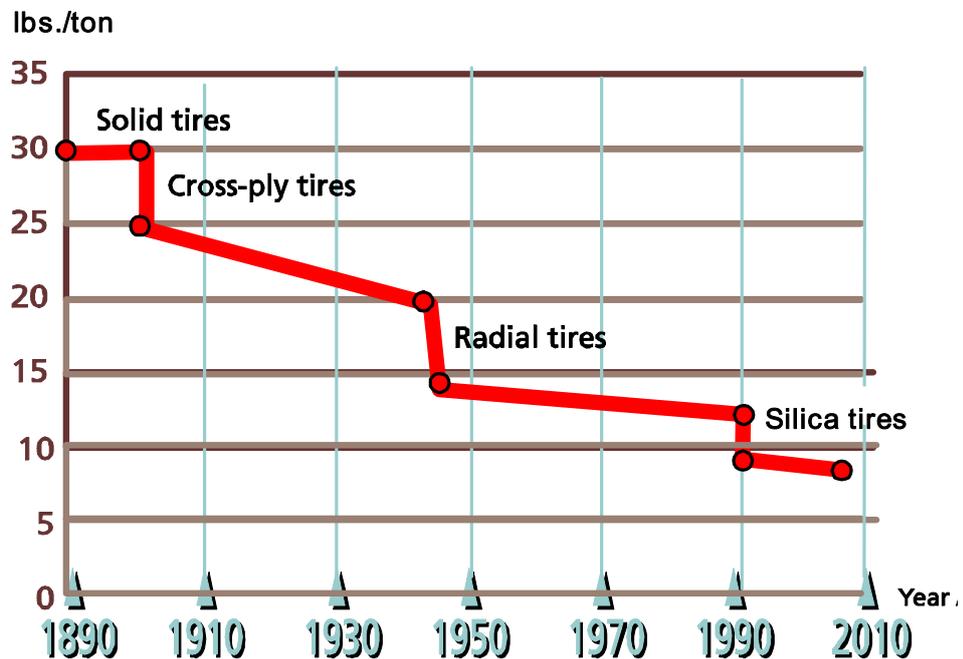
² ISO test conducted by TÜV SÜD Automotive in 2007 on a representative market sample of 195/65R15 and 205/55 R16 tires.

II. Michelin's environmental commitment: Helping to lower CO₂ emissions

1. Lowering CO₂ emissions: A priority for Michelin's research and development teams

An aggressive commitment to reducing tire energy consumption has guided Michelin throughout its history. The increasing importance of this challenge is illustrated by the fact that the world's current estimated 830 million vehicles, which are responsible for 18 percent of global CO₂ emissions³, are expected to double by 2030⁴. With its green energy saving tires, Michelin is demonstrating its concern for preserving energy resources. This is particularly critical since at current consumption levels, at least one major authority believes that the world's easily accessible oil reserves could be depleted in an estimated 31 years⁵.

A commitment to reducing the environmental impact and fuel consumption of tires is a guiding principle at Michelin



1946: The invention of the radial tire improved performance in a number of different areas, among them rolling resistance. This led to a reduction in fuel consumption.

³ Source: International Energy Agency

⁴ Source: World Business Council for Sustainable Development, a Geneva-based association of 170 international corporations committed to supporting sustainable development

⁵ Source: France's Ministry of the Economy, Finance and Industry

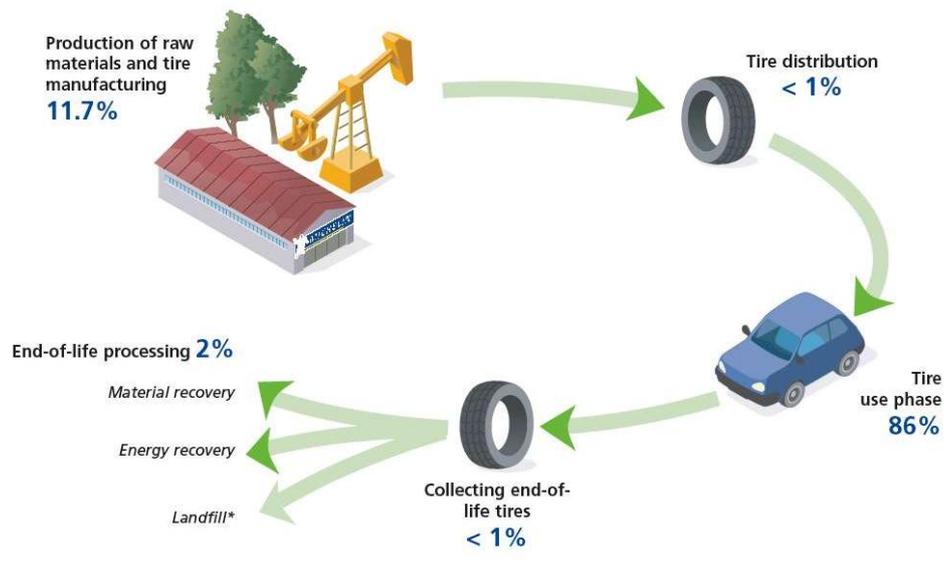
1992: Launch of Michelin green energy saving tires, which integrated silica in the tread as a partial substitute for carbon black. Silica helps to lower rolling resistance without compromising performance in traction, grip (especially on wet surfaces) and tread life. **This innovation made a significant improvement in reducing the energy needed to keep a vehicle moving, enabling a reduction in fuel consumption of .06 gal/1,000 miles.** That's why the "Michelin green energy saving tires" name was chosen—to underscore the dual advantage in terms of fuel savings and lower CO₂ emissions.

Today, further advances are still possible. Researchers at Michelin believe that significant additional reductions in rolling resistance, up to 50 percent, are possible within the next 10 to 15 years—a technical challenge to which Michelin is responding with special research programs.

Michelin has focused on rolling resistance because, contrary to common belief, **a tire has its greatest environmental impact—up to 86 percent—when it is in use on the road**, not during manufacture or disposal. The illustration below shows the environmental impact of a tire throughout its life.

Life cycle assessment of an average European passenger car tire

Contribution of the different stages of tire life cycle in the global impact on human health and the environment



Source: May 2001 study conducted by Préc Consultant B.V

* Banned in Europe since 2006

2. Environmentally friendlier cars, thanks to Michelin green energy saving tires

In 15 years, Michelin has developed no fewer than four generations of Michelin green energy saving tires, clear proof of the importance given to protecting the environment and preserving energy resources.

- **Three out of four Michelin car tires sold in Europe are green energy saving tires**

More than 570 million Michelin green energy saving tires have been sold worldwide since 1992. The environmental impact has been considerable, given that for car tires alone this represents a **gain of more than 1.7 billion gallons of fuel and a reduction of more than 17.6 million tons of CO₂**, the equivalent of what is absorbed by 650 million trees in a year.

The latest addition to the Michelin green energy saving tires lineup was unveiled to the public at the 62nd Frankfurt Auto Show this past September. **Called the Michelin Energy Saver, the new tire makes further significant improvements in a car's energy balance and environmental impact, reducing fuel consumption by nearly 0.2 liter per 100 km and reducing CO₂ emissions by almost 4 g/km.** These represent considerable cost benefits, enabling motorists to save nearly €2 € every time they fill up (for a diesel-powered vehicle with a 50-liter fuel tank that consumes roughly 6 l/ 100 km, and based on an average price of €1.20 € per liter).

Compared with the market average⁶, the gains delivered by the Michelin Energy Saver tire are considerable—not only for drivers but also for the environment, when viewed in terms of the total number of cars on the road and total distances traveled. During the entire life of a vehicle, this is close to **one ton of CO₂ not released** into the atmosphere, equivalent to the amount absorbed by 40 trees in a year.

- **Reconciling environmental protection, safety and road performance**

The challenge to which Michelin is responding is to design tires that help reduce fuel consumption while maintaining the same high performance levels in other areas. In this respect, the Michelin Energy Saver tire—the fourth generation of Michelin green energy saving tire since 1992—represents a synthesis of all of Michelin's skills and expertise. Fuel savings are combined with superior grip and safety, as well as the best total mileage in the market.

⁶ISO test conducted by TÜV SÜD Automotive in 2007 on a representative market sample of 195/65R15 and 205/55 R16 tires.

- **Michelin green energy saving tires provide automotive manufacturers with key advantages in meeting future European environmental standards**

The European Commission has reaffirmed its determination “to address energy efficiency and CO₂ emissions from cars.”⁷ In its “January 2007 package on energy and climate”, **the commission emphasized that “further measures to tackle automobile CO₂ emissions from cars will be outlined (...) in order to reach through a comprehensive and consistent approach the target of 120 g CO₂/km by 2012.”** In mid-2008, the commission will suggest a legislative framework to the European Parliament in order to achieve this objective.

This will be no easy task. Over the next four years, European carmakers must achieve **a reduction of 20 g/km in the average level of CO₂ emissions** for all their models, from 140 g/km in 2008 to 120 g/km in 2012. That’s where the **Michelin Energy Saver** tire can play a crucial role, since **the tire alone can achieve one-fifth of that goal without any other changes being made in today’s European vehicles.** For carmakers, this represents a “plug and play” solution.

The technology deployed by Michelin not only reduces the vehicle’s environmental impact but also achieves economies of scale for car makers, which are supported by Michelin during the automotive design phase in finding environmental protection solutions. This approach is reflected in the partnership between Michelin and Peugeot during the development of the Peugeot 308 automobile. The Michelin Energy Saver tire contributes to the low fuel consumption of vehicle models fitted with 90hp and 110hp HDi engines.

- **Michelin green energy saving tires continue to deliver value to the passenger car and light truck market in North America**

In the United States, where Corporate Average Fuel Economy (CAFE) standards have been enforced by the National Highway Traffic & Safety Administration (NHTSA) since the mid-1970s, Michelin has supported its vehicle manufacturer customers in reaching these CAFE standards by providing low rolling resistance tires that do not compromise other key performances such as traction and wet handling. CAFE standards are focused on improving the fuel economy of passenger vehicles, which in turn lowers CO₂ emissions.

In both original equipment and replacement tires, Michelin offers consumers fuel efficient tires that save money and help protect the environment. For example, the recently introduced Michelin Latitude Tour HP tire for the fast growing CUV market will save consumers up to \$400 in fuel costs (at today’s prices) over the life of their vehicle and will also reduce the amount of CO₂ emissions by more than one ton over the same period.

3. Promoting the creation of energy-efficiency labeling for tires

Michelin is leading the effort to create an energy efficiency index system for car and truck tires, similar to that used by the automobile industry to rate vehicle fuel consumption and CO₂

⁷ Source: European Union, COM (2006) 545

emissions. In a similar fashion, motorists looking to purchase tires will be able to see at a glance the energy performance of the tire they are considering.

Under Michelin's leadership, the entire industry in Europe is working to make this project a reality, reflecting a commitment to inform consumers that tires perform very differently in terms of rolling resistance and, consequently, environmental impact. These differences may be as much as 50 percent for different tire brands produced for the same car. For a car at 40 mpg, a difference of more than 50 percent in rolling resistance can improve fuel consumption by up to 4 mpg and lower CO₂ emissions by up to 10 percent. The classification planned for Europe will range from an A rating for tires with the best energy performance to a low rating (not yet defined) for the least efficient. Tires that fall below the lowest rating will not be allowed for sale in Europe. **The system should be provided in Europe beginning in 2011.**

In the United States, Michelin is aggressively supporting rolling resistance legislation pending before the U.S. Congress that would require the NHTSA, in consultation with the U.S. Environmental Protection Agency (EPA), to devise and implement a consumer information program to give consumers for the first time the ability to know and compare rolling resistance performance characteristics at the point of sale. Similar to the EU effort, this rolling resistance information translates directly into fuel economy and will allow consumers to choose the most fuel efficient tires for their vehicles.

Michelin is also actively working with the state of California to implement regulations to fulfill Assembly Bill 844 (AB844), already passed into law by the state legislature, requiring a rolling resistance grading system for tires sold in the state. **This consumer information system could be in place in the state of California as early as 2009.**

Michelin's efforts to introduce energy efficiency labeling are motivated by the benefits it would provide to consumers as well as by the company's commitment to protect the environment. This can make the consumer's choice of replacement tires an act of responsible environmental stewardship, since in addition to providing overall fuel cost savings, low rolling resistance tires also lower the CO₂ emissions that contribute to global warming.



Michelin's low rolling resistance tires for passenger cars often display a special "Green X" marking on the sidewall.

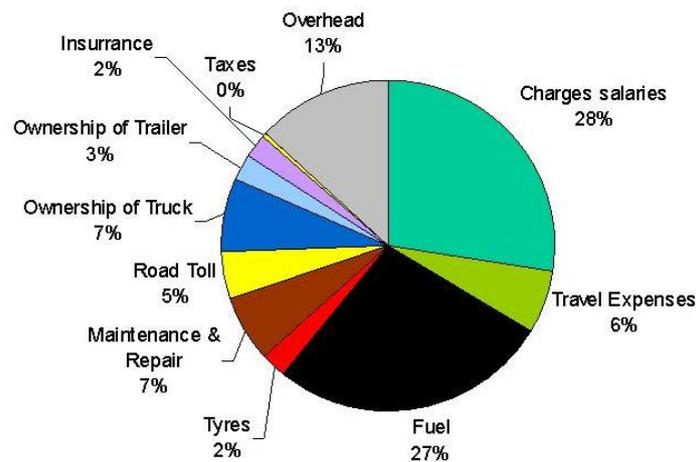
4. Environmental technologies developed for truck tires

For commercial trucking fleets, the cost of fuel and tires can represent more than 25 percent of total operating costs. This accounts for millions of dollars

each year that translate into higher shipping and retail costs for each of us. This is why Michelin transferred its low rolling-resistance technology, introduced in 1992 for passenger car tires, to truck tires in 1994.

While the average passenger car in North America travels approximately 12,000 miles a year, a long-haul truck can rack up the same number of miles each month. And, one fleet can have hundreds or even thousands of vehicles – resulting in millions of dollars in fuel and tire costs. At the same time, energy costs are at historic highs. Diesel fuel has more than doubled in the United States over the last five years and has increased in Europe by 40 percent over the same period. Fuel is second only to labor costs for trucking fleets. With these factors in mind, tire performance and fuel economy are not only major environmental concerns but also major financial issues for the trucking industry. The right tire choice can be the difference in the profitability of a trucking company.

European trucking company expenses



Source: French National Road Haulage Committee (CNR) – 2006

- **Michelin green energy saving truck tires**

Since each axle has its own special requirements, Michelin green energy saving tires in North America comprise three major types:

- Steer axle: **Michelin XZA-1+, XZA2 and XZA3** tires
- Drive axle: **Michelin XDA Energy, XDA3 and X One XDA** tires
- Trailer axle: **Michelin XTA Energy, XT-1 and X One XTA** tires

- **Delivering economic and environmental benefits in Europe**

Because they reduce fuel consumption by approximately two liters per 100 km, Michelin Energy tires provide European trucking companies with a considerable advantage. If consumption is reduced by one liter per 100 km through the entire life of the tire, this translates in to a savings of 60,000 l/year—for a fleet of 50 trucks each covering 120,000 km/year—or €54,000 € based on a price of €0.90 € for a liter of diesel fuel*. And in addition to the financial

benefit for trucking companies, lowering fuel consumption reduces the industry's impact on the environment. Each liter of diesel fuel saved corresponds to 2.66 kg of CO₂ not released into the atmosphere. That's why European legislation now recognizes that tires play a significant role in helping to reduce emissions of harmful pollutants and greenhouse gases.

Source: The Michelin Challenge

- **The Michelin X One revolution in North America**

Launched at the end of 2000, the Michelin X One tire replaces dual tires on commercial vehicles in North America with one wide-based single tire, effectively turning 18-wheelers into 10-wheelers. By comparison, Michelin X One tires will improve the vehicle's fuel economy by around 4 percent and can reduce the weight of a tractor-trailer by as much as 720 pounds. The weight savings allows vehicles to increase their payload, which in turn means fewer trucks are needed to carry the same amount of freight, thus reducing road congestion.

A single long-haul truck, fitted with Michelin X One tires, can save up to 80 gallons of fuel each month, which at today's prices can save each tractor-trailer more than \$200 per month in fuel costs. This gives large national fleets the ability to lower their CO₂ emissions while saving millions of dollars in fuel costs each year.

In the seven years since Michelin launched the X One revolution, these wide single tires have collectively saved an estimated 15 million gallons of fuel and reduced CO₂ emissions by more than 165 thousand tons.

And the demand for Michelin X One tires continues to grow, converting more than 1,000 vehicles each month in North America. This is a great example of Michelin Durable Technology research delivering a product that is both environmentally conscious and economically advantageous.

- **Proven at The Challenge**

To demonstrate the benefits delivered by its Energy truck tires, Michelin organized an impartially supervised real-life test in September 2006.

Two identical trucks left Michelin's Ladoux Research Center near Clermont-Ferrand, France on Sept. 25, 2006 for the IAA Motor Show in Hanover, Germany, where they arrived the following day. Both trucks covered the same distance of 777 miles, following the same itinerary, traveling at the same speed and carrying the same load. The only difference was the tires; the first being equipped with new Michelin E2+ tires and the second with new Michelin A2 Energy low rolling resistance tires. The Michelin A2 Energy tires resulted in a fuel savings of 7.6 gallons compared to the Michelin E2+ tires, an average increase of .35 miles per gallon (mpg) for a truck that averages 6 mpg.

The table below shows the average gains observed during a tire's first life (3 percent fuel economy) obtained in actual driving conditions by a fleet with 100 trucks.

Diesel fuel price	\$2.95 per gallon*
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Fuel savings thanks to Michelin X One tires	3 percent**
Number of trucks in the fleet (example)	100
Average distance traveled by each truck	120,000 miles
Average current fuel economy	6 mpg
Annual savings for a fleet of 50 trucks	\$177,000
Savings in terms of tires	420 new steer tires per year***

* Sept. 2007 reported by the U.S. Dept. of Energy.

**New Michelin X One tires have a 4 percent fuel economy advantage over dual tires. While the X One maintains an advantage over duals throughout its life, the advantage is more substantial when the tires are new. Therefore, the overall fuel savings have been reduced to 3 percent for calculation.

***Based on an estimated replacement tire price of \$420 per steer tire

Fuel savings also means a reduced environmental impact, since each gallon of diesel fuel saved represents 22.3 pounds of CO₂ not released into the atmosphere. For the table above, this results in **a reduction in CO₂ emissions of around 223 tons.**

- **Fuel savings and lower CO₂ emissions thanks to Michelin retreading**

In addition to the benefits provided by low rolling resistance technology, Michelin truck tires offer other advantages that reduce fuel consumption and CO₂ emissions. Their architecture is designed so that each tire has multiple lives—the first with the new tire, followed by multiple retreads through Michelin Retread Technologies (MRT).

Michelin retreading delivers performance comparable to Michelin new tires and also helps preserve raw materials. That's because the amount of material needed to retread a tire is only 20 percent to 30 percent of what is needed to manufacture a new tire, since much of the original materials are reused.

- **Reducing fuel consumption thanks to Michelin's advice and expertise**

Fuel efficiency can be improved if tires are used and maintained properly. Michelin has more than 1,300 experts who travel across Europe and North America, visiting truck users and helping them to optimize their fleets and choose, maintain and manage their tires to achieve maximum fuel savings. They also train dealers who then in turn can better serve users by helping them to get the most out of Michelin products.

In Europe:

Intended for large trucking companies in Europe, the Michelin Fleet Solutions offering deploys a unique business model that invoices customers not on tires purchased but on distances driven, again with the goal of optimizing a tire's multiple lives and, in particular, achieving greater fuel savings. For its European trucking company customers, Michelin recently introduced an online calculator (www.michelintransport.com/economiedecarburant) enabling them to determine simulated gains depending on their fleet size.

In North America:

Michelin also offers an online fuel savings calculator for North American fleets that allows them to calculate the savings of specifying Michelin green energy saving tires. This calculator can be found at www.michelintruck.com.

III. Michelin's worldwide commitment to better mobility

"Will we be able to find solutions that enable us to develop mobility while reducing the disadvantages?" asks WBCSD⁸ President Bjorn Stigson. As a major mobility player, Michelin has responded with a commitment to better mobility, meaning that it is sustainable for the planet and society over the long term. To fulfill this commitment, the company is backed by a culture of performance and responsibility that has been deployed across the organization, on all continents and in all host countries.

1. Five core values

Since a responsible enterprise that is committed to sustainable development must assess the negative effects of its operations in order to reduce them, Michelin develops its high-performance products from a foundation of core values. This strategy is apparent at each stage of the manufacturing process. Respect for customers, people, shareholders, the environment and facts are the values that will ensure Michelin's responsible, long-term growth.

2. Michelin Performance and Responsibility: Creating the conditions for the company's responsible, long-term growth

Michelin's growth is driven by performance, both **technical**, which enables people to drive safely on our tires, and **financial**, which underpins the company's long-term viability. Michelin is dedicated to constantly improving its performance in both of these areas by assuming its **responsibilities** with regard to the long-term impact of its products and activities on people and the environment.

Introduced in 2002 under the guidance of Edouard Michelin, the Michelin Performance and Responsibility process is designed to put into practice the company's five core values. To enable this approach, the Michelin Performance and Responsibility Charter was published in 2003. This 40-page document has been translated into 15 languages and distributed to all Michelin managers worldwide.

Michelin Performance and Responsibility is built on a number of cornerstones:

- Pursuing a long-standing commitment to operating responsibly.
- Analyzing the challenges with regard to better mobility programs and Michelin's overall performance as a global, market-leading enterprise.
- Identifying the expectations of different stakeholder groups, including customers, employees and shareholders.

⁸ World Business Council for Sustainable Development, a Geneva-based association of international corporations committed to supporting sustainable development

- Measuring impact and monitoring performance through specific indicators that, for example, calculate workplace accident frequency and severity data or the percentage of tires produced in plants certified to ISO 14001 environmental management standards.
- Complying with local legislation in all host countries and, in some cases, adopting international norms for more demanding standards in specific situations.
- Reporting progress to internal and external stakeholders on a regular basis.

3. The Challenge Bibendum: Bringing together mobility stakeholders

In 1998, Bibendum, the world-famous Michelin man, celebrated his 100th birthday. To mark this historic milestone, Michelin created an event that would spotlight the technical progress made by vehicle manufacturers in developing environmentally friendly vehicles, proven in real-world conditions. The result was the first **Challenge Bibendum**, a friendly competition that ran from Clermont-Ferrand, France, the site of the Michelin Group’s worldwide headquarters, to the Champs-Élysées in Paris.

The Challenge Bibendum is designed to **spotlight the most significant advances in better mobility**. The idea behind the event is simple: to help people understand the technologies involved through practical demonstrations; and, to see how each technology fits into the overall picture. The approach used is equally direct: give today’s opinion leaders, decision-makers and media a clear, impartial, credible view of how the “state-of-the-art” in science and technology can pave the way to the development of sustainable mobility solutions. A real commitment to progress in this crucial area will require decisions impacting all of society. Ultimately, everyone has a role to play, whether government, industry or consumers.

The Challenge Bibendum was created to show that the automobile industry is working toward better mobility, and that it already has some of the technologies needed to reduce pollution and improve safety, without compromising mobility.

Substantial progress has been made in some areas in recent decades. For example, 100 passenger cars in 2003 generated less pollution than a single car back in 1975. But the most effective solutions need to be brought to market faster, and the Challenge Bibendum is one way of assessing and publicizing those solutions.

2000: the second Challenge Bibendum is held in Clermont-Ferrand, France
Beginning the following year, the event becomes annual and more international in scope.

2001: Based in California, on the West Coast of the United States and including with a rally from Los Angeles, Calif. to Las Vegas, Nev.

2002: Returning to Europe, starting in Heidelberg, Germany and heading to Paris, by way of the European Parliament in Strasbourg.

2003: Back to California, this time in the Sonoma Valley and San Francisco.

2004: Eastward bound, more precisely to Shanghai, China.

2005: Once more to the East, to Japan, with the Bibendum Forum & Rally, an event developed from the Challenge Bibendum.

2006: Paris again plays host to the major mobility stakeholders for an update on new advances towards sustainable mobility.
2007: Scheduled to take place Nov. 15-17 in Shanghai.

Appendix 1

Calculation methodology

Quantifying the contribution of Michelin green energy saving tires to fuel savings and lower CO₂ emissions.

The methodology* applied has been approved by the Technical Authority for Automobiles, Motorcycles and Cycles (UTAC).

The two figures to be determined are:

- The amount of fuel saved since the market launch of Michelin green energy saving tires in 1992.
- The amount of CO₂ not released into the atmosphere over the same period.

➤ **Estimating the amount of fuel saved as of Oct. 30, 2007**

The formula consists of aggregating the fuel savings delivered by each Michelin green energy saving tire throughout its lifetime. The calculation involves three steps:

A) Estimate the fuel savings per 100 km thanks to Michelin green energy saving tires.

This is determined by the difference in rolling resistance between Michelin green energy saving tires and the market average of conventional tires on the road (as measured by Germany's TÜV SÜD Automotive on a representative market sample of tires, including conventional Michelin tires). Then, the consumption gain, proportional to the difference of rolling resistance forces, is calculated using commercially available simulation software common to the automotive industry.

B) Assess the distance traveled with Michelin green energy saving tires sold between 1992 and October 2007.

The total distance traveled* can be calculated by multiplying the average life of the tires sold by the number of vehicles equipped with Michelin green energy saving tires.

C) Calculate the amount of fuel saved.

This is determined by multiplying the gain in consumption per kilometer or mile by the distance traveled.

➤ **Transform the fuel savings into CO₂ not released into the atmosphere**

The estimation of CO₂ not released into the atmosphere is proportional to the amount of fuel saved. The formula used is the following: each liter of fuel consumed results in the release of 2.5 kg of CO₂ into the atmosphere.

**45,000 km, based on calculations made on all tires in the representative market sample.*

➤ **Measuring the gains second by second**

The second-by-second gain (in terms of fuel saved and CO₂ not released into the atmosphere) is calculated from the gains measured between Oct. 1 and Oct. 30, 2007, divided by 30 (days) then by 24 (hours), and lastly by 3,600 (seconds).

➤ **Calculation variables**

The methodology is the same for car tires and truck tires, although calculations are based on the number of vehicles equipped with Michelin green energy saving tires for cars and on the number of axles fitted with Michelin green energy saving tires for trucks.

➤ **Additional information on the calculations & data**

Additional information on Michelin green energy saving tires, including more in-depth information on the calculations and data can be found online at: www.michelin-green-meter.com.

Appendix 2:

Mobility challenges of the future

To promote and support discussions about sustainable mobility, Michelin, along with other global companies from the transportation industry, took part in the Sustainable Mobility Project organized by the World Business Council for Sustainable Development (WBCSD). The goal was to take an inventory of mobility initiatives around the world, to analyze the challenges ahead and to determine future objectives to meet those challenges.

A key driver of economic and social development, road transport of people and merchandise has been steadily increasing for decades. Today, more than 80 percent of all transportation of people is on roads. Between 1950 and 2003, the total number of road vehicles worldwide increased from 50 million to more than 830 million. According to WBCSD⁹ estimates, this figure will double by 2030, while distances traveled to transport people are expected to increase by nearly 80 percent between 1995 and 2020. This increase in people mobility will be particularly dramatic in emerging countries such as China and Latin American countries, with certain studies forecasting average annual growth of 3 percent for the period 2000-2030.

Behind these figures, however, access to mobility varies greatly from one region to another. According to the WBCSD, the average annual distance traveled by an American in 2000 was 12 times greater than that traveled by an African. More than 75 percent of all motor vehicles are found in developed countries and access to mobility remains a problem for the disadvantaged, the elderly and the handicapped.

The increase in road traffic has created major problems for today's society in three areas:

- **A significant rise in the number of road accidents**, which result in 50 million injuries and 1.2 million deaths every year. Of the total, more than 85 percent are in developing countries where the situation is getting worse, while it has stabilized in developed countries (source: Organization for Economic Cooperation and Development). In developing countries, road accident victims are mainly pedestrians or cyclists, while in industrialized countries most casualties are motorists.
- **An increase in the environmental impact** of pollutants at the local level, such as carbon monoxide, nitrogen oxides and volatile organic compounds, as well as greenhouse gasses such as CO₂ that cause global warming. According to the International Energy Agency (IEA), transportation accounts for 26 percent of all CO₂ emissions. Another illustrative figure is that transportation accounts for roughly 65 percent of all oil consumption in industrialized countries. The IEA forecasts that oil consumption to meet transportation needs could double in the next 25 to 30 years. Lastly, another area of concern is reducing noise levels, especially in urban and suburban areas.
- **Traffic flows**. According to the World Bank, more than 50 percent of the global population will live in urban areas by 2008, compared with less than 30 percent in 1950. In developing

⁹ World Business Council for Sustainable Development, a Geneva-based association of 170 international corporations committed to supporting sustainable development

countries, this rapid urban growth is not always supported by infrastructure improvements, leading to chronic congestion on road arteries.