

10 trends that drove sustainable transport in 2013

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Published December 26, 2013



Getting from point A to B often requires a lot of energy — and often results in a lot of unwanted pollution. But the following 10 trends in sustainable transportation show how globally thinking, locally acting people and companies were able to make getting around greener than ever in 2013.

1. Peer-to-peer car sharing

Owning a car is so yesterday. So is renting one, at least in the conventional sense. Everywhere you look, cars are just sitting there doing nothing, like excessive status symbols of a bygone era — and

a huge opportunity waiting to happen.

Thankfully, that opportunity is happening. In 2013, peer-to-peer (P2P) car sharing emerged as a major theme.

This trend, which has the potential to transform transportation for years to come, is being driven into the mainstream by startups such as [Buzzcar](#), founded by former Zipcar CEO Robin Chase, tech giants such as [SAP](#) and people everywhere who are willing to share their vehicles for a few extra bucks. And we're not talking small savings here. SAP, before recently launching its [TwoGo](#) app to the public, saved \$5 million internally through P2P car sharing among its employees. Even some automakers — perhaps seeing a threat to their traditional business model of exclusive car ownership and use — are seeing the sense in car sharing. General Motors, for example, is partnering with P2P car-sharing start-up [RelayRides](#).

Indeed, the smartest car of all may not be an electric vehicle, hybrid or self-driving car, but simply the car you share in your community.

2. Electric vehicle sales surge

Car sharing doesn't appear to be having a negative impact on vehicle purchases — or at least not on electric vehicles. Car sharing may, in fact, emerge as the [killer app](#) of [EV sales](#). Electric vehicle manufacturers and car-sharing companies rolled out countless partnerships in 2013, whether it was Toyota and City CarShare in [California](#), Renault and Autolib in [France](#) or Nissan and the city of [Yokohama](#), Japan.

Perhaps it's no coincidence, then, that electric vehicle sales were up about 300 percent on the year through November, according to the most recent sales data. Leading the segment were Nissan's Leaf and Tesla's Model S, which experienced triple- and quadruple-digit growth, respectively. This year also featured the market debut of Chevy's Spark EV and a strong year of growth for the Ford Focus Electric, the Honda Fit EV, the Mitsubishi I and the Toyota RAV4 EV.



The 2013 Chevrolet Spark (Credit: General Motors)

While the raw number of EVs sold through November may still underwhelm at just over 41,000, this compares to only about 10,000 sold over the same period of 2012. Moreover, sales of plug-in hybrid electric vehicles also showed strength this year, posting respectable 31-percent growth with nearly 44,000 sold through November. Chevy Volt and the Prius PHEV still lead in total units sold, but sales of the Ford C-Max Energi PHEV jumped more than 350 percent this year, and Honda also introduced its Accord PHEV.

If Santa is generous, December could see sales of all-electric vehicles and plug-in electric hybrids cross the 100,000-unit threshold by the end of this year.

3. Vehicle 'lightweighting' — ultra-light, ultra-efficient

Rocky Mountain Institute co-founder Amory Lovins wrote earlier this year that "lightweighting" has been "the hottest strategic trend for several years," as automakers react to stricter fuel economy rules not only by introducing EV, PHEVs and hybrids to the market, but also by simply moving to lighter and even ultra-light vehicles.

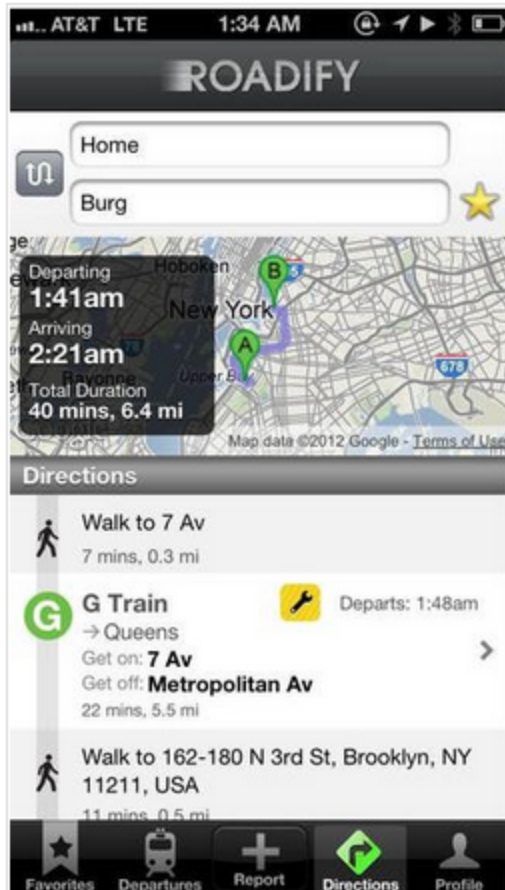
"The auto industry is finally beginning the fundamental change we've been advocating since 1991," wrote Lovins. "Lightweighting" is at the center of RMI's "platform fitness" approach, which advances the notion that vehicle engineers and manufacturers first should focus on optimizing the structure of vehicles before even considering which fuel source or engine technology to use.

It's really a no-brainer and astonishing we haven't seen more of it until now. According to Lovins, moving to lighter materials, such as carbon-fiber-reinforced plastic, can have a huge positive impact both on the bottom line by requiring "80 percent less autobody manufacturing capital," and on the environment by saving in the U.S. alone "half an OPEC's worth of oil."

This year showed that carmakers clearly understand this now, with brands such as [BMW](#), [Honda](#) and [Hyundai](#) bringing ultra-light vehicles into the showrooms and onto the streets. The understanding that efficiency measures such as "lightweighting" should be the first fuel of choice is gaining traction among fleet operators, energy producers and the general public as well.

4. Smarter parking, smarter cities

Think about the last time you tried to find a parking spot in your favorite busy borough or hopping urban haunt. How many times did you circle the block? How many prayers to the parking-karma goddess did you offer? How much gas did you waste? How many pedestrians or cyclists did you almost run over?



Roadify's smart parking app (Credit: iTunes)

Companies including Google, Tesla, Nissan, General Motors and Ford are making major advances in self-driving vehicle technologies, and in doing so are showing that they can eliminate many of our worst driving habits such as braking too hard, accelerating too fast and taking the most [traffic-congested routes](#). In addition, they are [unlocking efficiency possibilities](#) by enabling self-driving cars and trucks to work together on the roads in ways that humans cannot.

Volvo, for example, recently demonstrated in Europe that a pack of autonomously driven vehicles could reap huge fuel savings by caravanning closer together at highway speed in a manner that would not be humanly possible. Such demonstrations could lead to wider applications in the future with [freight trucking fleets](#).

Smart parking systems that combine sensors, wireless communications and mobile apps aim to help drivers avoid the frustration, expense and pollution associated with everybody's least-favorite thing about driving. They are being launched in a [growing number of cities](#) nationwide. Big corporations such as Siemens and start-ups including Fybr, Libelium, ParkMobile, Roadify and others are creating the technology to allow drivers to reserve parking through their mobile phones or accurately predict where they are most likely to find a spot. Tests are being conducted in Los Angeles, San Francisco, Reno, Indianapolis, Washington, D.C., and other cities.

[Navigant Research](#) predicts that by 2020, nearly a million smart parking spots will be on the streets worldwide.

5. Self-driving vehicles: efficiency not humanly possible

It was already a tough blow to mankind's self-esteem when a computer named Watson outwitted two human encyclopedias on "Jeopardy!" a few years ago. In 2013, nearly every vehicle manufacturer in the world seemed to be driving home another harsh truth: Computers also may drive better than we do, and [more sustainably](#).

Companies including Google, Tesla, Nissan, General Motors and Ford are making major advances in self-driving

In what was announced as the world's first large-scale autonomous driving pilot project, Volvo is planning to introduce 100 self-driving cars to the [streets of Gothenburg, Sweden](#), in 2017. Semi-autonomous aspects of this work likely will be rolled out earlier in advance of completely self-driving vehicles.

6. Back to the tracks: cutting freight's carbon footprint

One of oldest forms of mechanized freight transport, railroads remain among the most fuel-efficient carriers of goods and materials, and are, on average, about four times more fuel-efficient [\[PDF\]](#) than the trucks that drove away with much of their business in the second half of the 20th century.

Now companies as diverse as [GE Lighting and Jelly Belly Candy Co.](#) are switching back to rail, finding that doing so cuts both emissions and cost. Packaging and paper company Boise and Caterpillar, the world's largest maker of mining and construction equipment, recently [snubbed roads for rail](#). Hewlett-Packard this year opted for rail over ocean shipping and air transport to haul its [notebook computers and displays](#) made in China to markets as far away as Germany. HP says the route is cost-effective and more environmental than air transport, as well as faster than water despite the distance of 6,700 miles.

The potential emissions-saving benefits of this trend are vast. According to an independent study conducted for the Federal Railroad Administration, if just 10 percent of long-haul freight currently transported by truck was moved instead to rail, the resulting emissions savings would be equal to taking nearly 2 million cars off the roads. And because one train can replace hundreds of trucks, substituting rail for road also can reduce highway congestion.

7. Big Data delivers transportation efficiency

Despite the vastly superior efficiency of trains, railroads are highly complex networks in need of constant monitoring, maintenance and optimization.

[Yarra Trams](#) in Melbourne, Australia, operator of the world's largest tram and light-rail network, which spans 156 miles of track and includes more than 91,000 individual assets, this year credited Big Data analytics supplied by IBM with helping it operate its network more efficiently and sustainably.

The [Union Pacific Railroad](#) in the U.S. also uses Big Data to manage its system and cut emissions, and companies such as [United Parcel Service](#) and [Ford](#) are using Big Data to further boost fuel economy and advance myriad other sustainability measures. Ford says Big Data technologies and analytics are helping the automaker guide decisions on fuel economy, alternative fuels and rare-earth minerals for batteries and powertrains.

These cases are just a few of many in 2013 that illustrate how Big Data technologies and analytics are improving the efficiency of public transportation systems, railroads and personal vehicles to make mechanized transportation more sustainable.

8. Pedal power: bike fleets and e-bikes on a roll

Hundreds of cities and companies around the globe have embraced bicycle-sharing programs as an important part of their sustainability efforts. Denver, Chicago, Omaha, San Antonio and, most recently, San Francisco, are among the U.S. cities to establish bike-sharing operations. Many more exist worldwide. On [corporate campuses](#) at Apple, Google, Facebook, LinkedIn and Genentech, you also will discover bicycle-sharing fleets.

Corporate support of bike sharing also promotes personal health, says Amy Harcourt, co-founder of consulting firm Bikes Make Life Better. "Bikes are finding their way into corporate sustainability programs because of their significant ability to impact daily efficiencies and the bottom line," Harcourt said.

Electric bikes, or e-bikes, are also taking off and have enormous potential to replace the aging, dirty mopeds that pollute many urban centers in [developing countries](#). Realizing this, the Asian Development Bank is working with the Philippines to begin replacing an estimated 3.5 million gas-powered mopeds and motorcycles with electric bikes and trikes.



A e-bike in Dalian, China (Credit: TonyV3112 via Shutterstock)

9. Flying high: sustainable aviation biofuel

Not to be overlooked, the aviation industry is moving forward with some earnest effort to improve the [sustainability of aircraft travel](#). Boeing recently announced collaborations with Brazilian airline [GOL Linhas Aereas Inteligentes](#) and [South African Airways](#) to develop and implement sustainable aviation biofuel supply chains in Africa and South America. Both collaborations are aimed at identifying the most promising fuels and refining technologies to produce sustainable biofuels appropriate for aviation.

Boeing and the airlines believe that biofuel produced from plants or algae performs as well or better than conventional petroleum-based jet fuel and can be produced sustainably.

More than 1,500 passenger flights using a mix of 50 percent biofuel already have occurred. In Brazil, GOL even completed Brazil's first commercial biofuel flight in a Boeing 737-800 that was fueled in part with biofuel made from waste cooking oil.

While supply chains for sustainable aviation biofuels may require a few more years to fully take flight, airlines and manufacturers have another option to meet their carbon emissions reduction goals. According to a [recent report](#), the aviation industry can do this easily and inexpensively by purchasing carbon offsets.

10. Save as you sail: sustainable shipping

The global shipping industry transports around 90 percent of world trade and is responsible for nearly 3 percent of man-made carbon emissions. To make shipping more sustainable, a collaboration of some of the world's largest shipping companies — including Maersk, Cargill, Lloyd's and Daewoo Shipping — established the [Sustainable Shipping Initiative](#). This year the initiative published a [new report](#) calling on the industry to implement practices and technologies to reduce shipping's environmental footprint.

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Among the innovations that could help the shipping industry achieve its goals is a [hybrid ship](#) being developed by Rolls Royce and B9 Shipping. The ship, now under development, combines bio-methane engines with an automated sail system to capture the wind.

<http://www.greenbiz.com/blog/2013/12/26/10-trends-drove-sustainable-transport-2013>