American Association of State Highway and Transportation Officials

AASHTO

The Voice of Transportation

Real Transportation Solutions for Greenhouse Gas Emissions Reductions

Autos and light-duty trucks contribute 16.5 percent of the greenhouse gases in the United States. States are looking at the best ways to reduce these emissions while sustaining the transportation services people and businesses depend upon. We are committed to doing our part to help achieve the goal of reducing U.S. greenhouse gas (GHG) emissions 80 percent by 2050. Our strategies include:

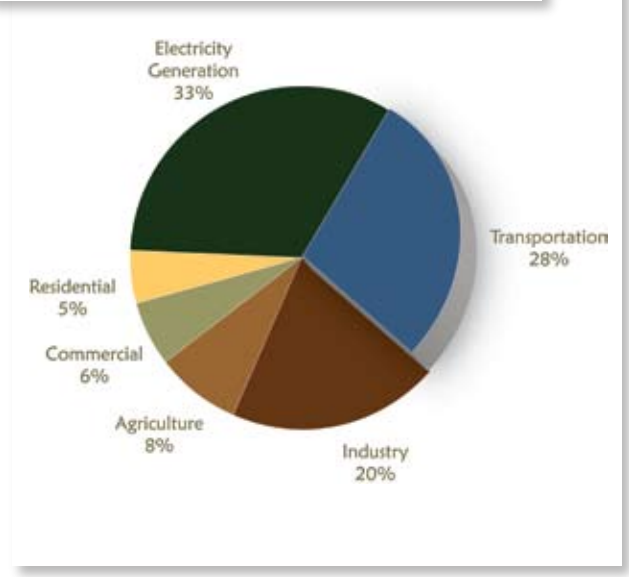
1. Smarter Travel: Reduce the rate of growth in the number of vehicle miles traveled (VMT) in the United States.
2. Better Cars: Increase vehicle fuel efficiency.
3. Better Fuels: Shift to fuels that produce low or zero carbon dioxide emissions.
4. Optimize the System: Improve the efficiency and operation of our roads.

How can we reduce greenhouse gases produced by cars and light trucks without sacrificing jobs and our way of life? There are many options on the table—driving less and more efficiently, using alternative fuels, building more fuel-efficient cars. In fact, there is no single best way to reduce emissions from these vehicles—which produce 16.5 percent of all greenhouse gases in the United States. The real answer is a combination of new technologies, cutting-edge public policy, and changing how we drive.

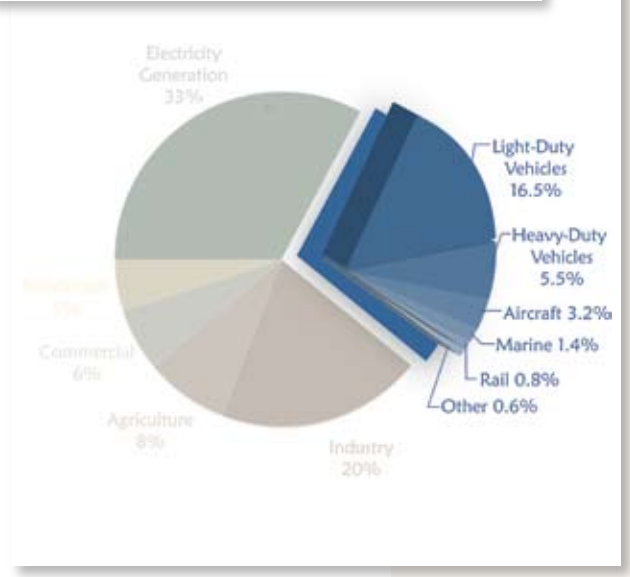
The American Association of State Highway Transportation Officials and its state members are committed to a goal of reducing greenhouse gases 80 percent by 2050, compared to 2005 levels, through a combination of four basic strategies:

- reducing the annual growth in driving,
- increasing vehicle fuel efficiency,
- shifting to fuels that produce low or zero carbon dioxide, and
- improving the efficiency and operation of our roads.

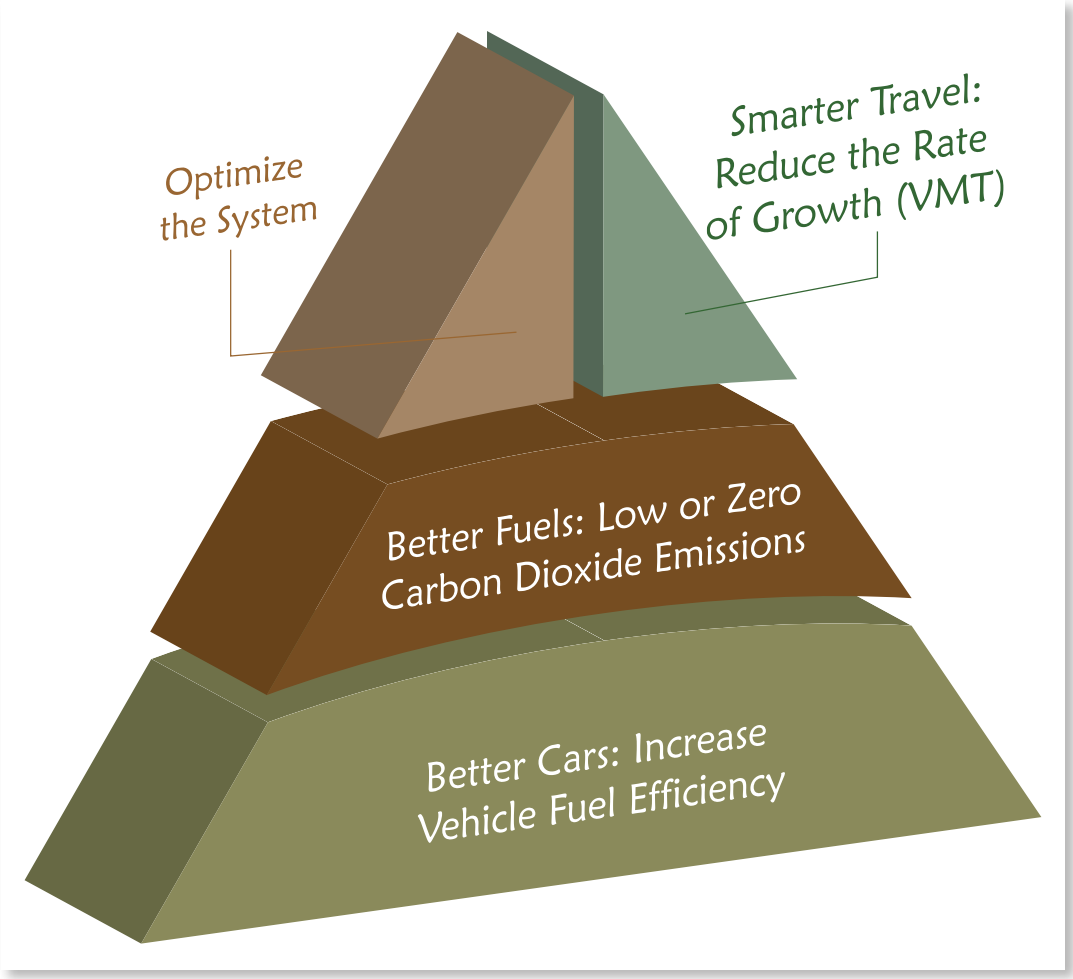
2006 U.S. GHG Emissions by End Use Economic Sector



2006 Transportation GHG Emissions Breakdown by Mode



Source: EPA Inventory of U.S. Greenhouse Gas Emissions and Sinks (Feb. 2008).



None of these are 'blue-sky' schemes; all are realistic, reasonable, and achievable ways to cut emissions. Although each idea alone contributes to reducing greenhouse gases, combined they offer an extremely effective and powerful plan. As federal, state, and local governments, industry, and the environmental community work to identify the combination of strategies that will enable us to meet GHG reduction goals, it is important to determine what we can realistically expect to achieve from the various solutions being advocated—some of the ideas above will be able to achieve much greater and more cost-effective reductions than others. Some states and companies have already begun testing or implementing these ideas. So have many foreign countries.

Here are examples of these ideas in action:

1. Smarter Travel: Reducing the growth in the number of vehicle miles traveled

For 20 years leading up to 2005, population growth and a strong economy spurred travel growth by more than 2 percent per year. With the lagging economy and higher gas prices, however, we saw a drop in 2008 from 3 trillion to about 2.9 trillion vehicle miles traveled (VMT).

By holding growth in miles driven to 1 percent annually, along with increasing fuel economy, the United States could achieve its emission goals.

As the economy recovers its strength, and more people drive, the question is: what are the best ways to reduce the number of vehicle trips, and still meet the nation's mobility needs?

Transit Solutions

Increasing the use of transit where it exists and providing transit options where they are not available are tools for reducing the rate of growth in VMT. AASHTO has proposed doubling the nation's transit ridership by 2030 and increasing transit funding from $10.5 billion to $18.5 billion each year.

Many states are proposing transit expansions to alleviate congestion and reduce emissions. One example in northern Virginia is the $2.6 billion Metro Rail Extension to Tysons Corner and Dulles Airport. Final design is underway for an extension of service from the Metrorail subway system serving the Metropolitan Washington, D.C. region, to Tysons Corner, Virginia's largest employment center and Dulles International Airport. Construction will begin in March 2009 on Phase I of the project which is expected to be completed in 2013. The project will provide high-capacity transit service in the Dulles Corridor, resulting in travel time savings between the corridor and downtown D.C., offering a viable alternative to automobile travel to the airport and to Tysons Corner shopping and job sites, and supporting future transit-oriented development along the Metrorail line.

In Seattle, some 92,000 passengers tried out Seattle's new light rail line on its opening weekend in mid-July, when riders were invited to ride-for-free to experience the 14-mile line between downtown Seattle and Tukwila. Construction of the city's new mass transit system took five years and cost $2.3 billion. The light rail system uses a bus tunnel through downtown Seattle,

which will continue to accommodate buses. By the end of the year Sound Transit says light rail will reach Sea-Tac Airport. By 2016, a $1.9 billion tunnel will reach the University of Washington. And voters have already approved spending $18 billion to extend lines to suburban stops in Lynnwood, Federal Way, and Redmond.

A standard two-car train can hold 400 people packed, or at least 300 comfortably. Officials say ridership will reach 26,600 boardings a day by next year.

The Charlotte Area Transit System launched its $426.7 million South Corridor line in 2007. A year after Lynx Blue Line light rail debuted in southern Mecklenburg, the 16,000 weekday ridership on the 9.6-mile route to and from uptown Charlotte was "way beyond" expectations, according to a CATS spokeswoman.

CATS has opened new parking spaces for the Lynx stops to help morning commuters—many of whom face the "full" message board sign at the 1,100-plus-space deck, then drive to other light-rail stations for spaces. Four more rail vehicles are on order, Leier said, and should be available in two years.

These examples illustrate the benefits of increasing transit service. First, transit systems can reduce urban congestion by removing vehicles from the road when commuters opt to take the bus or light rail system. The elimination of thousands of vehicles from city streets also serves to reduce greenhouse gas emissions.

In addition to light rail systems, other communities may expand transit service through bus service.

- **Bus-Rapid Transit.** Many communities will enhance their bus operations through innovative improvements to system design and performance. Low floors and multiple-doors will be used to speed up passenger loading, while dedicated lanes will make it possible for trips to be made by bus faster than would be possible by private automobile.
- **Paratransit Services for Older Persons and Persons with Disabilities.** The aging of America is creating a huge demand for both fixed-route and paratransit services. Improved paratransit services will be

needed in cities, suburbs, and rural areas. Connecting rural America with medical and other services will be especially helpful.

- **Intercity Bus Needs.** Additional funds will be needed to expand intercity bus services to rural communities. Demand for over-the-road charter bus services will flourish for tours and tourism as the Baby Boom generation hits retirement. As airport capacity and airspace become strained, viable alternative service for trips of 300 miles or less will be provided with great success using intercity buses and intercity passenger rail.

There are many other options for reducing growth in travel demand from van sharing, carpooling, and telecommuting to congestion pricing and other pricing mechanisms.

Carpooling, vanpooling, telecommuting, and trip chaining can achieve great GHG reductions. Currently, work-trip carpools and vanpools receive little government support, but they provide seven times the passenger miles of transit—and carpooling/vanpooling could be doubled or tripled at relatively little cost. These strategies are particularly important because they are effective and low cost for rural and suburban locations.

Other possibilities involve land use strategies which include transit use, bicycling, and walking. Portland, Oregon, for example, has invested in their bicycle infrastructure and has documented greenhouse gas reductions. The Rails-to-Trails Conservancy estimates that increased bicycling infrastructure in Portland could reduce emissions by 0.73 million metric tons of carbon dioxide by 2040, with a net economic

benefit of $1.4 billion from fuel and health care cost savings.

AASHTO has proposed greater support for biking and walking investments; $500 million or more per year.

Intercity Passenger Rail Service

The U.S. is experiencing a renaissance in intercity passenger rail transportation, spurred in part by the Obama administration's strong commitment of $8 billion for intercity and high-speed rail investments though the economic recovery act. There were 278 pre-applications submitted for intercity passenger rail grant funding totaling $102 billion—nearly 13 times the $8 billion Congress has appropriated for rail projects under the American Recovery and Reinvestment Act, according to the Federal Railroad Administration.

Congress is also demonstrating its commitment to intercity and high speed rail, with the House of Representatives funding $4 billion for such projects in its proposed appropriations bill for fiscal year 2010, and House Transportation and Infrastructure Chairman James Oberstar proposing $50 billion as part of his surface transportation authorization bill.

Public support is also strong. For example, voters in California approved a $9 billion bond issue to support the development of an 800 mile network with anticipated speeds of 220 miles per hour to meet the mobility needs of their growing population and to relieve congestion on freeways and airports. Construction may begin in 2011.

Intercity passenger rail service in North America can provide the traveling public with a genuine transportation alternative. Passenger rail service which is well-connected to other transportation modes and systems, including commuter rail and other public transit alternatives, will further enhance its utility.

AASHTO has stated it is "time for the United States to provide a robust intercity passenger rail network that provides competitive, reliable, and frequent passenger service, comparable to world class systems in other countries."

Passenger rail service also has the potential for contributing to reduction of greenhouse gas emissions. According to the Department of Energy's Oak Ridge National Laboratory, intercity passenger rail is 17 percent more efficient than air travel and 21 percent more efficient than auto travel. A 2006 report, prepared jointly by the Center for Clean Air Policy and the Center for Neighborhood Technology, provided a technical analysis demonstrating that the implementation of high-speed rail technologies on federally-designated high-speed rail corridors would result in a net savings of 6 billion pounds of carbon dioxide emissions. The report used the 11 federally designated high-speed rail corridors in the United States to estimate the annual GHG benefits, if these high-speed rail systems were developed as planned.

Writing in the 2009 winter edition of the Transportation Research Board online publication Intercity Passenger Rail Systems Update, Tim Gillespie, a past vice president of Amtrak notes that "Other countries have already congestion and experienced emission reduction benefits by employing newer rail technology and high-speed rail corridors. The high cost of fuel in Europe and Asia has promoted development of high-speed rail, and the results of this development demonstrate that, when reliable and convenient rail passenger service is available, customers and operators will move away from high-carbon producing modes—particularly as the cost of auto and air travel increase."

Land Use Strategies

Land use strategies can also help to reduce travel demand. With more expensive oil on the horizon, development patterns can be expected to "move closer in" to central cities and older suburbs. Infill development can accommodate housing and commercial demand, particularly when transportation services are upgraded to accommodate such growth. Other land-use options that

can help reduce emissions include new, mixed-use, transit-oriented development and compact single-family subdivisions.

Two examples of such land-use strategies include:

The Jersey City Comeback: An Urban Infill Success Story.

In the 1960s, Jersey City, just across the Hudson River from New York City, hit hard times; its railroads went broke, and many of its factories closed. Today it has experience a comeback. It is clean, green, and growing. Urban planners see it as an example of how the nation can accommodate some of the 100 million Americans expected by 2040. Over the past 25 years, it has gained 30,000 residents, 27,000 jobs, and 18 million square feet of prime office space. The light rail transit line built by the New Jersey DOT along Essex Street in its downtown has spawned 3,000 residential units in five years. Toll Brothers Construction, better known for building big houses in the suburbs, formed a division to focus on locales like Jersey City, "because that's where our customers are going."

Lakewood, Colorado: A Suburban Infill Success Story.

In 1966, the 1.4 million square-foot Villa Italia shopping mall, the largest mall in the Denver region, opened to great fanfare in Lakewood, a suburban community of 150,000. Thirty years later the mall had become 70% vacant, and in 2001 it closed. Over the next four years, the City of Lakewood together with public-private partnership implemented a plan to transform the dying shopping center into a 22 block downtown-in-the-making. By 2005, Belmar, as the development came to be known, had 650,000 square feet of retail/restaurant/entertainment space, 212,000 square feet of office space, and 109 apartment units. Hundreds of additional apartment units and town homes were under construction. This 104 acre project was given a design award in 2007 by the Urban Land Institute for "exemplifying the potential for transforming post World War II suburbs into more diverse, compact, sustainable, pedestrian-oriented, and transit-oriented suburban infill development."

Road Pricing/VMT Tax

In recent years, the concept of road pricing has received increased attention, primarily as a means of managing congestion and generating additional funding for transportation. Its advocates believe that if implemented on a broad scale, road pricing systems could reduce GHG emissions as well. Road pricing can take many different forms, from tolls to parking pricing to VMT-based pricing to gasoline surcharges. These types of initiatives could also help limit GHG emissions.

Variable rate pricing for the use of High Occupancy Toll Lanes (HOT Lanes) is

one option for reducing urban congestion and managing traffic flow. The HOT lane concept was pioneered in San Diego on Interstate 15 in the 1990s when drivers of single-occupant vehicles were allowed to pay a toll and use an eight-mile stretch of an HOV lane. San Diego now plans to expand this initial eight-mile segment to a hundred-mile variably-priced system that will not only pay for the new lane capacity, but generate funding for transit as well. Several HOT lane projects have been built or are about to be built in Texas, Virginia, Minnesota, and elsewhere.

Another example of congestion pricing has been implemented to relieve truck congestion at the nation's largest port complex.

PierPASS is a program created by marine terminal operators at the Los Angeles and Long Beach ports to reduce truck traffic during peak daytime hours, alleviate overall port congestion, and lessen the industry's environmental impacts on neighborhoods and air quality. By imposing charges during peak daytime hours through an electronic toll system, trucks have been encouraged to operate at night and on Saturdays.

In July 2006, PierPASS announced that 2.5 million truck trips have been diverted from peak daytime traffic during the first full year since the "offpeak" program was launched in 2005. Offpeak is taking up to 60,000 truck trips per week out of daytime freeway traffic patterns, producing a notable reduction in daytime congestion on roads near the ports.

VMT tax trials in Oregon and by the Puget Sound Regional Council suggest

that when people pay a fee based on their driving, they tend to drive fewer miles mainly by combining trips. Implementation is complicated, though, because it may involve installing GPS or other devices that monitor the amount of miles driven.

2. Better Cars: Increasing vehicle fuel efficiency

More fuel efficiency means less fuel used. Makes sense. How much this saves, though, is amazing. The average fuel economy for today's fleet is approximately 20 miles per gallon. A study by New York City-based infrastructure consultancy, engineering, and construction management firm Parsons Brinckerhoff found that if light-duty vehicles average 100 miles per gallon by 2050, and the growth of vehicle miles slows to one percent a year, then greenhouse gas emissions can be reduced by 60 percent.

If that 100 mpg number by 2050 seems high, consider that the government's new CAFÉ (Corporate Average Fuel Economy) standards require that new cars must average 39 mpg and trucks must average 30 mpg by 2016, just seven years away.

Already, automakers have announced cutting-edge, high-mileage cars for coming years. Honda's 2010 *Insight* hybrid, which went on sale April, 22—Earth Day—promises more than 40 miles per gallon, and Toyota's 2010 *Prius* hybrid offers a 50+ mpg combined fuel economy. On the zero emission side, Chevrolet's 2011 model *Volt* electric car can travel up to 40 miles on one charge which makes it ideal for more than 75 percent of the country's commuters. Moreover, it doesn't require any special charging station; any standard electrical outlet will work. For those traveling longer distances, the Volt has a gasoline-powered, range-extending engine that drives a generator—that charges the batteries—for going beyond the 40-mile range. Likewise, Toyota announced plans this year for the *FT-EV*, a battery-powered, four-seat, compact car. It is a 'concept car,' but the company promises an 'urban commuter' electric car, which can go 50 miles between charges, in 2012. Even luxury cars are going green. Mercedes Benz recently showed its *BlueZERO E-Cell* plug-in electric which can go 125 miles on a single charge. The

Middle panel: Chevrolet's *Volt*

BlueZERO E-Cell Plus adds a small gas engine to charge batteries, extending its range to 370 miles, and the *BlueZERO F-Cell* has a fuel cell that converts a tank of compressed hydrogen into electricity for 350 miles of nearly zero emissions.

Every drop counts, according to the Union of Concerned Scientists who say that for every gallon of gasoline consumed, approximately 24 pounds of greenhouse gases are released into the air. This not only includes burning gas in our vehicles, but also the five pounds of greenhouse gases released during drilling, refining, and distributing gasoline. Increasing fuel economy standards to 35 mpg by 2020, UCS says, can cut annual greenhouse gas emissions by 206 metric tons in 2020.

3. Better Fuels: Shifting to fuels that produce low or zero carbon dioxide emissions

We are already well on our way in this area. Hybrid vehicles, that use a combination of gasoline and electricity and can get over 50 miles per gallon, are becoming common on our roads. Many states, like Virginia, for example, promote their use by allowing single drivers in hybrid vehicles to ride in HOV lanes along with carpoolers.

Hybrids typically achieve greater fuel economy and lower emissions than conventional gasoline engines. Some current hybrids, including the Honda *Civic*, Honda *Insight* and Toyota *Prius*, produce even less emissions than the level recommended by the U.S. Environmental Protection Agency.

A 2008 UK study *The King Review of Low-Carbon Cars* noted that, in the long term, carbon-free road transport fuel was the only way for Great Britain to 'decarbonize,' essentially achieving an 80 to 90 percent reduction in emissions. Interestingly, the report suggested that while biofuels offer great benefits in the early and medium stages of our move to zero emissions, too much reliance on biofuels could put a great strain on the earth's natural resources.

While hybrids currently offer great paybacks, they are a bridge to the ultimate goal of zero-emission vehicles which would most likely run on electricity or natural gas. Hybrids use gasoline for power, but the engine also charges batteries for use when the engine is off. As we move toward totally electric cars, we're seeing hybrid-hybrids or 'plug-in hybrids' that can receive electric charging from outside the vehicle itself.

In fact, for the first time, a plug-in hybrid was named the *2009 North American Production Preview Vehicle of the Year*, an award reserved for vehicles based on an existing model that has been announced or planned for production. A panel of automotive journalists named the *Karma Sunset* over a list of seven other finalists from major automakers. The car is powered by two electric motors and a 2-liter turbocharged engine from General Motors. Automaker Fisker estimates that a fully charged car will go 50 miles before the gas engine has to take over.

Electric Vehicles

In June 2001, REVA Electric Car Company Private Ltd. in India produced that country's first electric vehicle, the *REVAiCar*, and more have been produced than any other currently selling electric car. The 3-door hatchback microcar can go about 50 miles on an eight-hour charge and is suited for low-speed urban transportation.

The *REVAiCar,* India's first electric vehicle

In 2008, California-based Tesla Motors began production of the *Tesla Roadster* which can travel 244 miles on a single charge of its lithium-ion battery pack. The car is fast and can reach 60 miles per hour in under four seconds. The company released a newer version of the roadster in January with adjustable dampers and a new motor that offers even faster acceleration. Although miles per gallon cannot be measured on electric cars, the *Roadster*'s equivalent gas consumptions would be about 105 mpg. Other full-sized electric cars are in production including the *AC Propulsion eBox*, a battery-powered version of the Toyota *Scion xB*, and the Blade *Electron* built in Australia.

Volkswagen recently announced that it will introduce its first electric car in 2013 and UK-based Liberty Electric Cars is re-engineering *Range Rovers* to run on electricity.

Cities around the world are already vying to become models for promoting electric vehicles. Tokyo has designated eight cities and prefectures across Japan as so-called EV towns. The strategy is to work with local governments to provide both residential and public charging options, while wooing public support with educational efforts and tax and other incentives for purchase of electric vehicles. With subsidies, the actual cost to purchase a Mitsubishi *iMiev* electric vehicle will be $36,000.

The port city of Yokohama, will install 100 public, rapid-electric chargers, and offer its own subsidy for 150 EV purchases. In the United States, San Francisco and Portland are already competing to become the first to offer electric charging stations.

Natural Gas Vehicles

Natural gas offers an excellent alternative to gasoline-powered cars because it has been used successfully throughout the world especially for buses in congested environments. More than 7 million natural gas-powered vehicles are on the world's roads according to the International Association of Natural Gas Vehicles. The United States alone has about 130,000 natural gas buses. [http://www.iangv.org/tools-resources/statistics.html]

The United States does not yet have an infrastructure to fuel natural gas vehicles on a large scale, but because many homes already use natural gas for heating and cooking, these could be used to fuel personal vehicles provided that a refueling system was connected to the gas line. One company, Fuel Systems Solutions, Inc., is working on a home natural gas refueling system called the Phill Home Refueling Appliance in partnership with Honda for its American GX model.

Natural gas must be stored in cylinders, usually located in the vehicle's trunk. Although the most common form is Compressed Natural Gas (CNG), it also comes in the less common liquid form known as Liquefied Natural Gas (LNG).

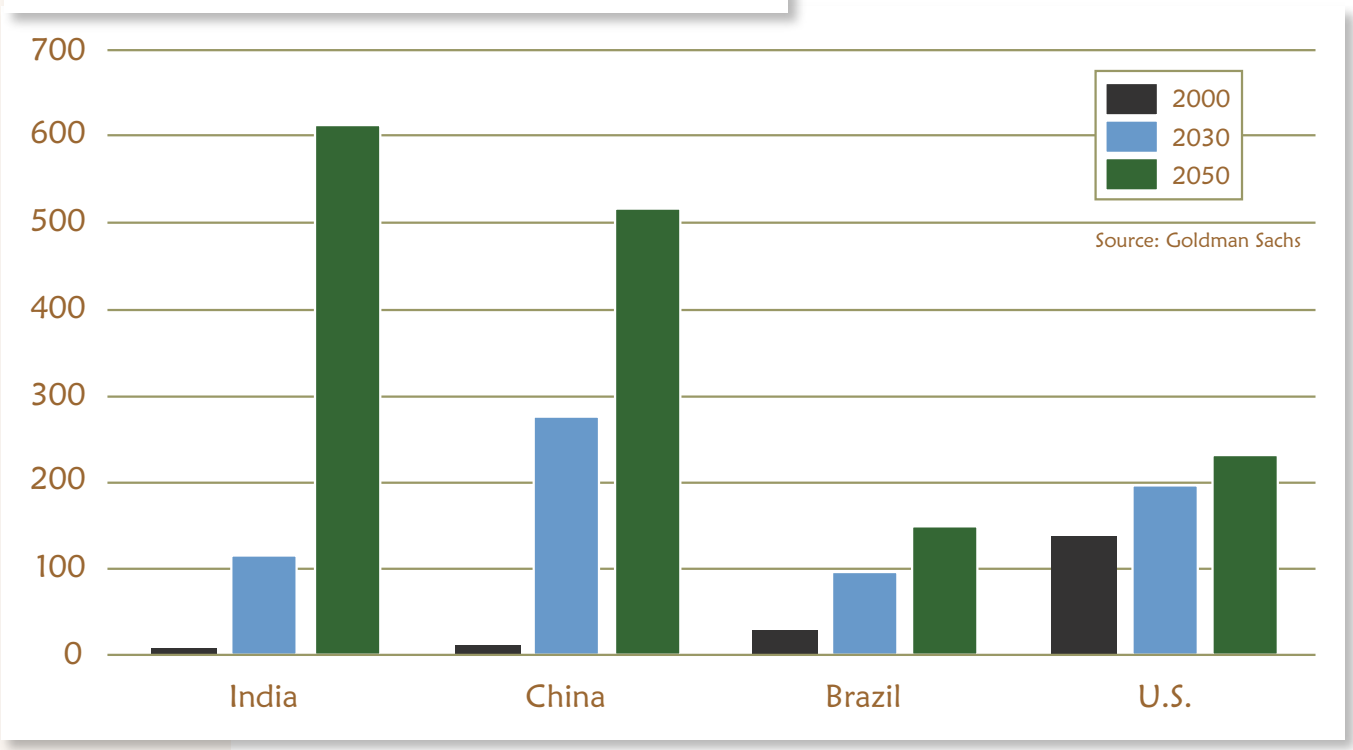
One benefit of Natural Gas Vehicles (NGV) is that you can convert traditional gasoline engines to run on natural gas. Many car and light truck makers, including Ford, Toyota, and Volkswagen, have natural gas versions of their vehicles available for sale.

As far as the environment is concerned, natural gas has the highest energy/carbon ratio of any fossil fuel, meaning that it produces less carbon dioxide per unit of energy than any hydrocarbon.

Major reductions in greenhouse gas emissions will depend to a large extent on achieving technological breakthroughs that dramatically reduce emissions per mile. In addition to the billions being invested in research by private industry, the federal government is also increasing research such as the *FreedomCar* program examining hydrogen fuel-cell vehicles.

When looking at the bigger picture, you see the necessity of achieving not only national, but global greenhouse gas reduction goals. It is estimated that India, China, and Brazil will collectively outstrip United States' vehicle ownership by 5 to 1 by 2050. From a world-wide perspective, it is evident that decarbonizing vehicles and fuels is an essential strategy.

Projection of Total Cars Owned (Millions)



4. Optimize the System: Improving the efficiency and operation of our roads.

Improved operation of our highway system can help to improve mobility while reducing GHG emissions. A vehicle sitting in traffic consumes more energy and emits more GHGs per mile. The optimum speed for cars is about 45 miles per hour.

Greenhouse gas reductions may be achieved through maximizing the efficiency of the transportation system, through effective management of available road capacity and reducing delays. Intelligent transportation systems that cut down on congestion and idling in traffic include ramp metering, message signs warning of disruptions, real-time traveler information, variable speed limits to help cars flow smoothly onto a highway, and advanced traffic signal controls that change timing based on traffic load.

A vehicle sitting in traffic consumes more energy and emits more GHGs per mile than a vehicle operating at a moderate but consistent speed. Research conducted at the University of California at Riverside found that innovative traffic operations improvements such as reducing congestion, reducing excessive speeds and smoothing traffic flow can also have a significant impact on vehicle CO_2 emissions in the near term.

Eliminating Bottlenecks

Elimination of traffic bottlenecks and relieving congestion can make significant improvements in emissions reductions.

One example is the Utah Department of Transportation's $685 million Legacy Parkway Project—a 14-mile stretch of four-lane highway that provided an alternative route on the state's most-congested freeway corridor—which has cut the average afternoon commute time

from Salt Lake City to Farmington down from 42 minutes to just 16 minutes.

On July 28, 2006, the Governor of Nebraska cut the ribbon on an innovative $100 million project which will ease access to Interstate 680, and take 70 percent of the traffic off local roads. With daily traffic at Omaha's busiest intersection expected to increase by 50 percent in the next two years, Nebraska's Department of Roads came up with building two elevated expressway bridges, both 40 feet above grade and a mile long, and worked with contractors Hawkins Construction Company and HDR Engineering to deliver the project a year ahead of schedule. The West Dodge Expressway will relieve congestion at an intersection that sees more than 105,000 vehicles a day. The expressway bridges will carry three lanes of traffic in both directions, with local traffic using the existing at-grade West Dodge Road.

AASHTO's Executive Director John Horsley said, "I like to point to this project as a demonstration that you can, in fact, 'build your way out of congestion.' By going up, rather than out they found a way to add capacity without having to acquire new right-of-way."

For further information on improving operations see the AASHTO publication *Optimizing the System: Saving Lives; Saving Time*. (downloads.transportation.org/OptimizingTheSystem.pdf)

West Dodge Elevated Expressway.
Courtesy of Nebraska Department of Roads.

Ecodriving

Perhaps the most grassroots way for drivers to reduce their vehicle's emissions is through ecodriving, which aims to instill new driver habits that reduce emissions. A recent pilot project called *Driving Change*, involving employees of EnCana Oil & Gas and Denver's city government, was able to reduce carbon dioxide emissions by 10 percent—just by having drivers change how they operate their vehicles. Drivers were given feedback through a web site about their vehicle's performance and were shown ways to improve it through slower braking, less idling, and fewer jackrabbit starts. By the end of the project's test phase, carbon dioxide produced by 400 vehicles had dropped from 647 pounds a month to 545 pounds, a reduction of 40,800 pounds for all vehicles.

In some countries, like Sweden, ecodriving skills are mandatory in driver education. In the United States, companies like Pro Formance teach classes in ecodriving. According to the Auto Alliance, an organization representing vehicle makers, if everyone in the United States practiced Ecodriving, it would be equivalent to heating and powering nearly eight cities the size of Los Angeles.

At their web site (http://www.ecodrivingusa.com/#/ecodriving-practices/) they offer the following tips:

- Avoid rapid stops and starts.
- Use cruise control.
- Plan your trips using the shortest distances.
- Avoid idling.
- Buy an automated road pass for toll roads.

- Use the highest gear possible.
- Check tire pressure monthly.
- Remove excess weight from your trunk.

Conclusion

Reducing greenhouse gases 80 percent by 2050 is a realistic goal, and we can reach it if we keep ourselves open to new ideas, technologies, and policies that offer the promise of lowering emissions.

WHAT AASHTO SUPPORTS

State transportation departments have endorsed a wide range of transportation strategies to reduce greenhouse gas emissions. These include:

- public participation and transparency in the development of strategies to reduce greenhouse gas emissions,
- strong Federal research and development to develop cleaner vehicles and fuels;
- reducing the VMT growth rate to 1 percent annually
- a new Federal program of $100 million annually to coordinate and improve land use;
- increased transit funding from $10.5 billion to $18.5 billion each year;
- doubling of transit ridership;
- greater support for biking and walking $500 million or more each year;
- intensified funding for more efficient highway operations;
- significant increases in intercity passenger rail; and
- increased reliance on non-highway modes for freight transportation.

For further information on Real Transportation Solutions for Greenhouse Gas Emission Reductions, visit AASHTO's website at: http://www.transportation1.org/RealSolutions/index.html

American Association of State Highway and Transportation Officials
AASHTO
The Voice of Transportation

444 N. Capitol St., NW, Ste. 249
Washington, DC 20001
www.transportation.org

ISBN: 978-1-56051-460-2
Publication Code: MCR-1