Winter 2006

Clean Air Forum

Information on energy efficiency from around the state, with useful tips for consumers.

Environmental and Wallet-Friendly Vehicles

In the market for a new car? Concerned with fuel efficiency, as well as doing your part to protect the environment? Highway vehicles are a significant contributor to air pollution in the United States, producing key chemicals that cause smog and can lead to health problems. All new cars must meet federal emission standards, but as vehicles get older, the amount of pollution they produce increases. It is no coincidence that vehicles with better fuel economy pollute less than those with lower fuel economy. Many Internet sites have sprung up with not only fuel efficiency ratings, but greenhouse gas ratings that provide air pollution information to help you choose the cleanest vehicle that meets your needs. If you are looking for more information, you can download the *Model Year 2006 Fuel Economy Guide* published by the U.S. Department of Energy and U.S. Environmental Protection Agency at www.fueleconomy.gov.

According to hybridCARS.com, sales of **hybrid-electric vehicles** (HEVs) in the United States have generally doubled every year since 2000, with over 135,000 sold during the first eight months of 2005. The choices have continued to grow with many automakers adding SUVs to their existing compact and midsize offerings. The most fuel efficient and lowest air pollution emitting vehicles in some classes for the 2005 model year are HEVs. Hybrids combine the best features of the internal combustion engine with an electric motor and can significantly improve fuel economy without sacrificing performance or driving range.

Modern **diesel-fuel powered vehicles** hold great promise for helping the U.S. achieve its energy and environmental goals. Today's clean diesel cars, pickups and SUVs are cleaner and quieter than ever before. Because diesels burn less fuel than gasoline vehicles, they produce significantly lower emissions of greenhouse gases, such as carbon dioxide. According to the Diesel Technology Forum, diesel-powered cars achieve 20 to 40 percent better fuel economy than gasoline powered equivalents, especially in popular SUVs and light trucks which now make up more than half of all new sales.

Biodiesel is a clean-burning fuel containing no sulfur or aromatic compounds. It is produced from a number of renewable sources including soybean oil, vegetable oils and animal fats. Biodiesel can be used in its pure form, B100, or blended with conventional diesel. The most common blend is B20 which

***Vehicles,** continued on page 6*

DEP Cabinet Secretary Stephanie R. Timmermeyer accepts the keys to state government's first hybrid vehicle at Bert Wolfe Toyota in Charleston.

DEP Purchases Hybrid for State Government

In June 2005, Governor Joe Manchin and DEP Cabinet Secretary Stephanie R. Timmermeyer arrived at the Environmental Excellence awards presentation in the newest addition to DEP's fleet, a 2005 Toyota Prius. Although a small portion of the state fleet has previously consisted of compressed natural gas vehicles, the Prius is West Virginia state government's first hybrid-electric vehicle.

The idea of purchasing the Prius was first discussed in a meeting with the cabinet secretary and division directors, who felt the Prius would be a good purchase to help promote the idea of environmentally friendly transportation alternatives.

HEVs are primarily propelled by an internal combustion engine, just like conventional vehicles; however, they also convert energy normally wasted during coasting and braking into electricity, which is stored in a battery until needed by the electric motor. The electric motor is used to assist the engine when accelerating or hill climbing and in low-speed driving conditions where normal engines are least efficient.

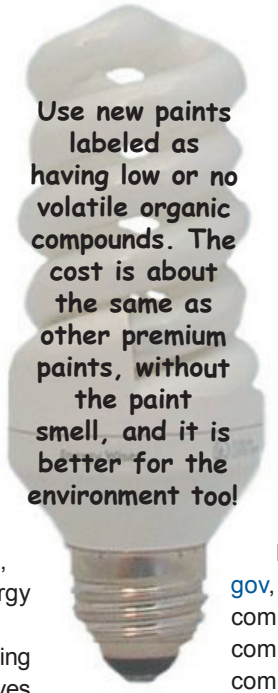
In the *2005 Fuel Economy Guide,* the Prius' annual fuel cost is approximately 51 percent less than the Chevrolet Malibu and 45 percent less than the Chrysler Sebring, two other midsize cars commonly purchased for the state fleet.

An Ad Hoc Publication of the West Virginia Department of Environmental Protection's Division of Air Quality in conjunction with the West Virginia Development Office

International Code Ensures More Energy Efficient and Environmentally Friendly Buildings

Thanks to the adoption of an international building code, West Virginians now have greater options in energy efficiency. "Adopting the 2000 International Building Code (IBC2000) – all chapters and provisions including the International Energy Conservation Code – was a milestone achievement for West Virginia," said Jeff Herholdt, manager of the Energy Efficiency Program of the West Virginia Development Office.

Adopted by the state during the 2003 West Virginia Legislative session, IBC2000 became effective on April 1, 2003. The rule establishes the standards considered necessary by the State Fire Commission to safeguard life and property and ensure quality of construction of all structures built or renovated throughout the state.



IBC2000 Helps Energy and the Environment

"It is West Virginia's first comprehensive code for new residential construction," Herholdt said. "The code's importance to energy efficiency includes, for example, requiring 12 inches of insulation. An energy audit says you need it; the code requires it."

According to the U.S. Department of Energy's Building Codes Program, energy efficient buildings improve the lives of Americans by saving consumers money, lessening our demand for fossil fuels, decreasing the need for new power generation and reducing environmental emissions.

More Building Code Benefits

Building codes set the standard for homes by establishing requirements for insulation, walls, windows, flooring, electrical wiring and plumbing for safety and comfort in a particular climate zone. What is recommended, for example, for a home in Alaska would not necessarily be the same requirement for a home in Arizona. Building professionals such as architects, engineers, designers, builders, code officials and energy efficiency and safety experts have, through the years, tested, implemented and revised the standards to ensure safety and comfort levels in homes in various climate zones.

Educational Resources for Professionals

With funding from USDOE, the Energy Efficiency Program provides educational seminars on the newly adopted building code with emphasis on the energy provisions. Architects, engineers, builders, contractors, code officials and local government officials have participated in these seminars to acquaint themselves with the codes. Nationally recognized code organization professionals who are knowledgeable in all areas of IBC2000 lead the seminars.

In Spring 2006, the Energy Efficiency Program, with funding from USDOE, will hold one-day training sessions on the building codes in five West Virginia locations that are working on air quality issues. USDOE maintains that a modern building code is one of the most effective means to reduce energy consumption in the state that would, in turn, enhance West Virginia's ability to return to attainment status. For more information on these sessions, contact Debi Conrad at (800) 982-3386.

Resources also are available from USDOE's Building Energy Code Program at www.energycodes.gov, building code organizations and home building supply companies that inform homeowners and the building community on recommended energy efficient and code compliant materials for homes.

If you have questions on the building code, contact the building code official in your county or municipality or visit www.wvsos.com/rules/docs/worddocs/87-04.doc.

West Virginia USA

West Virginia Development Office

The Home Energy Saver: Help for Consumers

The Home Energy Saver, a free interactive software program, helps consumers identify the best ways to save energy in their homes and find the resources to make the savings happen. The project is sponsored by USDOE and the U.S. Environmental Protection Agency as part of the national ENERGY STAR Program for improving energy efficiency in homes.

Using the Home Energy Saver at http://hes.lbl.gov you can quickly compute your home's energy use online. By changing one or more features of your modeled home, you can estimate how much energy and money can be saved and how much pollution would be prevented by implementing energy efficiency improvements. All end uses (heating, cooling, major appliances, lighting and miscellaneous) are included in the model.

"Rebuild West Virginia" Reduces Energy Costs and Preserves History at Cass

In the early 1900s, lumbermen who worked for the booming West Virginia Pulp and Paper Mill in Cass, West Virginia, resided with their families in the company houses they built themselves.

Today Cass Scenic Railroad State Park guests can stay in one of these refurbished historic homes while exploring the fascinating heritage of the pioneering men and women who settled in Cass, worked at the mill and built the railroad.

To preserve these structures, decrease park costs and increase comfort for guests, the state park applied to the Rebuild West Virginia program for assistance in improving the cottages' energy efficiency. The program supports energy audits and the installation of energy measures in buildings designated individually or in a district on the National Register of Historic Places.

The Weatherization Assistance Program conducts onsite audits and installs recommended energy saving measures.

Rebuild West Virginia is a joint effort of the West Virginia Development Office's Energy Efficiency Program, Main Street West Virginia, the Division of Culture and History's Historic Preservation Office and the Office of Economic Opportunity's Weatherization Assistance Program (WAP).

Cass requested weatherization audits of 16, two-story cottages. WAP conducted the on-site audits and installed the recommended measures.

Using a blower door test, auditors quantified and diagnosed air leakage in the buildings. Surprisingly, they found low leakage rates in several cottages, which they attributed in part to the superior construction techniques of the original builders. For cottages with high air leakage rates, WAP performed various air sealing measures to lower the air flow of the cottages.

Auditors checked attic insulation coverage for variations in thickness. An infrared camera helped auditors find breaks or voids in wall and floor insulation.

Auditors suggested several additional measures that WAP installed such as:

- Replace incandescent lighting with high efficiency compact fluorescent lighting. "Compact fluorescent lights use two-thirds the electricity that incandescent bulbs use and last ten times longer," said Bob Scott, director of WAP.
- Insulate water heaters with fiberglass tank wrap.
- Install low flow showerheads.
- Wrap accessible hot water lines with foam pipe wrap.
- Install 6-mil (6/1000 inch) ground vapor barrier under all units.

The auditors also recommended these additional energy saving measures for the state park to address:

- Periodically clean baseboard electric heaters with the vacuum cleaner brush attachment.
- Install remote thermostat on wall, separate from heater. Actual room temperature will be measured rather than temperature at the heater and it will be easier for renters and maintenance staff to be aware of the settings.
- Clean refrigerator coils annually. Refrigerators will run shorter periods of time and use less energy.
- When replacing appliances, consider ENERGY STAR energy efficient products listed at www.ENERGYSTAR.gov.

While these recommendations were made specifically for Cass, you can implement some of them to increase your home's energy efficiency as well. For information on Rebuild West Virginia, visit www.wvdo.org/community/eehb.html.

Preserving the Cass cottages allows park guests to experience the heritage of the pioneering men and women who settled the area in the early 1900s.

IOF-WV Industrial Gas Utilization Center Helps Manufacturers Offset High Energy Costs

Hurricanes Katrina and Rita recently have brought energy supply concerns to the front burner. When gasoline prices soar above $3 per gallon, everyone notices! Perhaps less apparent – at least until we get the first gas bill during the home heating season – is the impact on natural gas.

Even before the storms, industrial natural gas prices in the United States had tripled in five years. Since the beginning of August, they have more than doubled again and recently have reached unheard of levels in excess of $14 per thousand cubic feet. This compares to the stable prices of $2 to $3 per thousand cubic feet through most of the 1990s.

An equally important comparison is with natural gas prices in other regions of the world. Unlike crude oil, which is easily transported and is priced more-or-less equally around the globe, natural gas prices vary greatly by region. Today, North America has the world's highest natural gas prices and even when prices return to pre-Katrina levels of around $7 per thousand cubic feet, that will still be more than three times as high as prices in regions such as the Middle East, East Africa and the Caribbean. This puts American manufacturing plants at a tremendous cost disadvantage.

In 2004, industrial consumption accounted for 45 percent of the natural gas used in the U.S. industrial sectors. Industries involved with chemicals, polymers, glass and metal casting are particularly dependent on natural gas, and the impact of these sharp price increases is potentially devastating. Chemical production, for example, has moved rapidly offshore over the past several years and this trend is likely to accelerate if action isn't taken. As Dow Chemical President and CEO Andrew Liveris said in a recent presentation to the U.S. Senate Committee on Energy and Natural Resources, "This renders the U.S. chemical industry – which uses natural gas as both a fuel and a raw material – simply uncompetitive with the rest of the world."

The West Virginia Development Office recognized the challenge faced by the state's energy-intensive manufacturers and in 2005, under the Industries of the Future - West Virginia (IOF-WV) umbrella, created the Industrial Gas Utilization Center. This center serves as a focal point for programs dedicated to helping West Virginia manufacturers offset the effects of high natural gas costs.

The IOF-WV program, formed in 1997 as a cooperative effort between the WVDO and West Virginia University, is the only assessment/technical assistance/technology development program in the state focusing on energy-intensive industries. Within the manufacturing sector, these industries provide more than 65 percent of the employment and approximately 75 percent of the manufacturing gross state product, the highest such percentages of any state in the U.S.

According to Bill Johnson, IOF-WV engineering scientist, "The center leverages IOF-WV teams that conduct energy assessments, deliver information and training on energy efficiency and develop research projects. These teams have worked with many state manufacturers over the past eight years on projects that promote energy and resource efficiency. We often find that up to 10 percent energy savings are available with relatively little investment."

Industry needs are determined through interaction with such organizations as the West Virginia Manufacturers Association, the Chemical Alliance Zone, the Society for Glass Science and Practices and the West Virginia Forestry Association, as well as through an aggressive program of plant visits.

In addition to natural gas efficiency opportunities, the center is engaged in efforts to advance Governor Joe Manchin's Coal Conversion Initiative. Synthetic gas from coal could represent an important energy and cost saving opportunity for West Virginia's energy intensive industries. A meeting is envisioned for Spring 2006 where coal technology vendors and West Virginia's industries can interact on the applicability of these technologies for their specific energy needs. Through the Industrial Gas Utilization Center, West Virginia industry will learn the costs, infrastructure requirements and benefits associated with using West Virginia energy resources to meet their energy needs.

The center also provides:

- Links to energy efficiency resources, such as BestPractices, software tools, technical briefs and energy management case studies developed by the U.S. Department of Energy's Industrial Technology Program.
- Support for engineering student internships to assist companies with implementing energy efficiency improvements.
- Information on current prices and price forecasts for natural gas and alternative fuels.
- Assistance in identifying financial resources to support energy efficiency and renewable energy projects.

For more information or to get involved, contact Debi Conrad of the Energy Efficiency Program at (800) 982-3386 or dconrad@wvdo.org. Please visit http://iofwv.nrcce.wvu.edu for more information on IOF-WV.

Drive sensibly. Aggressive driving (speeding, rapid acceleration and braking) wastes gas. It can lower your gas mileage by 33 percent at highway speeds and by 5 percent around town. Sensible driving is also safer for you and others, so you may save more than gas money.

Observe the speed limit. While each vehicle reaches its optimal fuel economy at a different speed (or range of speeds), gas mileage usually decreases rapidly at speeds above 60 mph. As a rule of thumb, you can assume that each 5 mph you drive over 60 mph is like paying an additional $0.21 per gallon for gas. Observing the speed limit is also safer.

Avoid excessive idling. Idling gets zero miles per gallon. Cars with larger engines typically waste more gas at idle than do cars with smaller engines.

Remove excessive weight. Avoid keeping unnecessary items in your vehicle, especially heavy ones. An extra 100 pounds in your vehicle could reduce your miles per gallon by up to 2 percent.

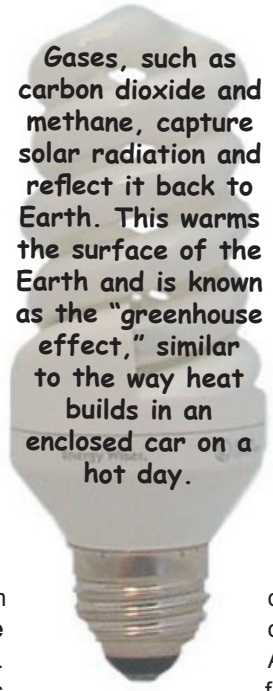
Use cruise control. Using cruise control on the highway helps you maintain a constant speed and, in most cases, will save gas.

Source: US EPA (http://www.fueleconomy.gov/feg/drive.shtml)

The Energy Policy Act of 2005

The first major piece of energy legislation in 13 years passed through Congress and was signed by President Bush on August 8, 2005 (the specific budget authority for its provisions are pending approval by Congress). This energy plan encourages conservation and energy efficiency and expands the use of alternative and renewable energy. There are some provisions of the Energy Policy Act that will provide incentives for citizens to become more energy efficient.

Over the past decade, America's energy consumption has been growing about 40 times faster than its energy production. The average American home loses between 10 to 50 percent of its energy through inadequate insulation and inefficient lights and appliances. The Energy Act includes incentives for consumers to conserve energy by offering tax credits for making energy efficiency improvements to their homes.



Tax Credits. In the United States, we spend more than $160 billion a year to heat, cool, light and go about our daily activities in our homes. Installing energy saving measures in our homes can significantly reduce our everyday costs. The Energy Act allows " . . . claiming a tax credit of up to 10 percent of the cost of energy saving home improvements, up to a lifetime maximum of $500. Tax credits are considered more valuable than deductions because they represent a dollar-for-dollar reduction in your tax bill. You don't have to itemize to claim them. The credit is **limited to improvements made between December 31, 2005 and January 1, 2008**. The amount you can claim for specific improvements is capped, but you can do a combination to reach the $500 limit." Eligible improvements include:

- Consumers can receive tax credits up to $500 for upgrading thermostats, caulking leaks or installing insulation designed to reduce the loss of heat or air conditioning.
- Installation of new exterior windows. Energy-efficient windows are one of the most effective ways to reduce your energy bills. The cap for this per homeowner is $200.
- Installation of a highly efficient central air conditioner, heat pump or water heater. These deductions are capped at $300. Homeowners installing a highly efficient furnace or boiler can claim up to $150.
- Consumers can receive a credit up to 30 percent of the cost or $2,000 for installing solar-powered hot water systems used exclusively for purposes other than heating swimming pools or hot tubs.

The above information was obtained from an August 2, 2005, article by Sandra Block in USA Today and a publication entitled, "The Energy Bill and You," from the U.S. Department of Energy.

Energy Efficiency Standards. There are also indirect benefits taxpayers may get from business tax breaks in the Energy Act. The Energy Act establishes new energy efficiency standards for manufacturers on a wide variety of consumer products and commercial appliances, including refrigerators, clothes washers, dishwashers, heaters and lighting units to encourage their purchase. It also includes tax credits for contractors who build energy-efficient homes. There is an incentive capped at $2,000 for building a home using 5 percent less energy than the International Energy Conservation Code and $1,000 for manufactured homes meeting ENERGY STAR criteria. These incentives could lower prices for consumers.

Hybrid Vehicles. A tax credit for energy-efficient hybrid, clean-diesel and fuel cell vehicles for new consumers is also included in the Energy Act. It will provide tax credits ranging from $1,700 to $3,400 per vehicle to consumers for purchase of these cars, based on their fuel savings potential.

Daylight-Saving Time. A provision within the Energy Act having a direct and more immediate impact on the public expands daylight-saving time by one month. This provision adds three weeks in the spring beginning on the second Sunday in March and extends by one week in the fall to the first Sunday in November. The change in daylight-saving time goes into effect beginning March 2007. By one estimate, this additional four weeks of daylight-saving time will save the equivalent of 270,000 barrels of oil per year.

Beyond that, the Energy Act is a wide-ranging document with far-reaching effects, as well as a wealth of information. According to the Energy Information Administration, the "7.5 billion gallon/year renewable fuel standard alone will reduce oil consumption by 80,000 barrels per day by 2012."* Check it out for yourself at http://energy.senate.gov/public.

**from an August 8, 2005 article in the Argus Air Daily*

Concerned about our environment? Tired of dependence on foreign oil? Then you should consider buying, converting or retrofitting a motor vehicle to operate on alternative fuel. By doing so, you will be reducing our dependence on foreign fuel and improving our air quality.

The state of West Virginia will help you defer the cost of a motor vehicle that operates on alternative fuel by providing you a tax credit against your income taxes.

To claim this credit, you must complete Schedule WV/AFMV-1, the West Virginia Alternative-Fuel Motor Vehicles Tax Credit Schedule, and attach it to your tax return. Only a total of five vehicles can be used to determine your annual credit for the year. The amount of credit is claimed over a three-year period by claiming one-third of the credit each year.

For more information, log onto the West Virginia State Tax Department website at http://www.state.wv.us/taxdiv.

DEP Reaches for Prestigious ENERGY STAR

The West Virginia Department of Environmental Protection is working with the West Virginia Development Office's Energy Efficiency Program to earn the ENERGY STAR label for its new Charleston headquarters.

ENERGY STAR, a U.S. Environmental Protection Agency-U.S. Department of Energy joint program, helps businesses and individuals protect the environment through superior energy efficiency. Products, homes and businesses can apply to receive ENERGY STAR certification by meeting energy efficiency requirements.

In 2004 alone, Americans, with the help of ENERGY STAR, saved enough energy to power 24 million homes and avoid greenhouse gas emissions equivalent to those from 20 million cars – all while saving $10 billion.

The WVDO Energy Efficiency Program became an ENERGY STAR state partner in 2004.

According to Energy Efficiency Program Coordinator Bill Willis, as a state partner, the program informs West Virginians about ENERGY STAR and promotes its activities through seminars, special events and a web page at www.wvdo.org/community/energystar.html.

For example, the program promotes the ENERGY STAR "Change a Light, Change the World Campaign," a national challenge to encourage Americans to help change the world, one light-one bulb at a time.

"If every West Virginia household replaced just one 75-watt incandescent light with a 20-watt compact fluorescent lamp, USEPA estimates we could save more than $5 million annually in energy costs," said Willis, who also is a certified lighting auditor.

Another responsibility as state partner is promoting more energy efficient buildings in the private and government sector. WVDO this year organized a seminar where experts taught architects and engineers involved in construction and design how to earn an ENERGY STAR label for a building. The Energy Efficiency Program is also working with DEP on certifying its new headquarters for the prestigious ENERGY STAR building designation.

The state's Lighting Grant Program, administered by WVDO, provides funding through USDOE's State Energy Program for lighting analyses of state and local government facilities and schools, nonprofit hospitals and public libraries using the USEPA's ENERGY STAR lighting audit.

Since the grant program began in 1995, more than 436 buildings have been audited for 132 participants. Estimated annual savings of measures identified for these buildings are nearly $2.5 million (equivalent to a reduction of 37,950 tons of greenhouse gases).

For more information, call Bill Willis at (800) 982-3386 or visit www.ENERGYSTAR.gov.

Vehicles, *continued from page 1*

contains 20 percent biodiesel blended with 80 percent conventional diesel. The benefits of B20 include enhanced lubricity, fuel system cleaning properties and environmental benefits.

Fuel cell vehicles (FCVs) are not expected to reach the mass market for at least a decade, however, a limited number have been made available in parts of the country with a readily accessible hydrogen supply. FCVs can achieve energy efficiencies of up to 30 percent higher than gasoline vehicles. Given this significant improvement in energy efficiency, FCVs offer substantial reductions in greenhouse gas emissions and higher mileage. They are powered by electric motors with fuel cells, which produce electricity from the chemical energy of hydrogen.

Some alternative fuel vehicles may be eligible for a "clean fuel" deduction of up to $2,000 if placed in service by the end of 2005. See the article on page 5 for more information.

Of course, if you are not ready to plunge into the new technology previously mentioned, buying the most fuel-efficient vehicle in a particular class can still help save you money and protect the environment too. According to USDOE, by choosing a vehicle that achieves 25 miles per gallon rather than a vehicle which gets 20 miles per gallon, you can prevent the release of about 15 tons of greenhouse gases over the lifetime of the vehicle.

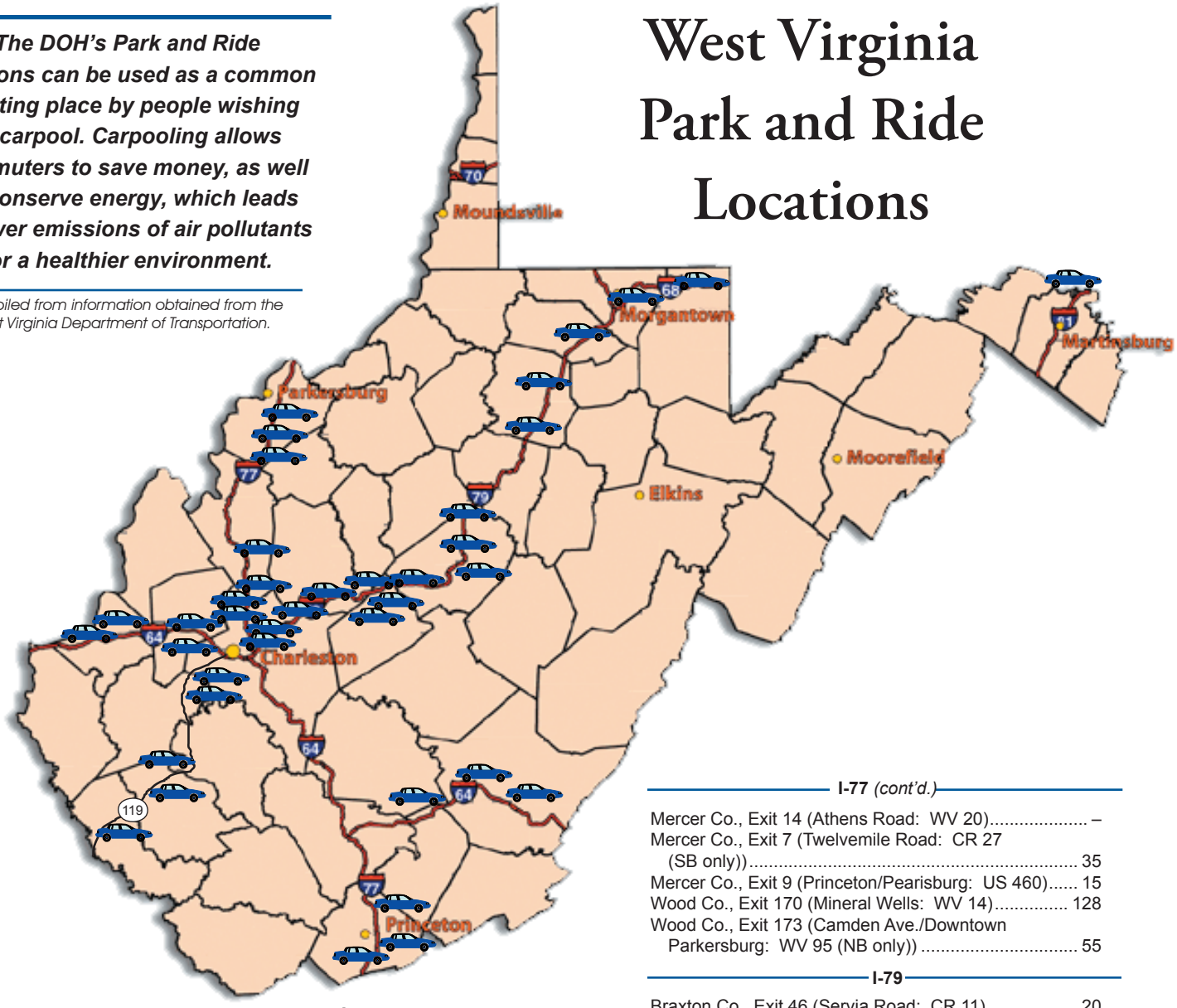
Vehicle Comparisons

Model	MPG City	MPG Hwy.	Greenhouse Gas Emissions (tons/year)
Dodge Caravan, 4 cyl., auto, gas	20	26	8.6
Dodge Ram 1500 Pickup, 2WD, 10 cyl., auto, gas	9	12	18.3
Ford Escape, 4WD, 4 cyl., auto, hybrid	33	29	6.2
Honda CRV, 4WD, 4 cyl., auto, gas	22	27	7.9
Honda Insight, 3 cyl., auto, hybrid	57	56	3.5
Mitsubishi Lancer, 4 cyl., auto, gas	25	31	7.0
Suzuki Swift, 4 cyl., auto, gas	26	34	6.6
Toyota Echo, 4 cyl., auto, gas	33	39	5.4
Toyota Prius, 4 cyl., auto, hybrid	60	51	3.5
Toyota RAV4, 4WD, 4 cyl., auto, gas	22	27	7.9
Volkswagen Beetle, 4 cyl., auto, diesel	35	42	5.6

West Virginia Park and Ride Locations

The DOH's Park and Ride locations can be used as a common meeting place by people wishing to carpool. Carpooling allows commuters to save money, as well as conserve energy, which leads to fewer emissions of air pollutants for a healthier environment.

Compiled from information obtained from the West Virginia Department of Transportation.



County and General Location (On Interstates and WV Corridors)	Approx. No. Spaces
I-64	
Cabell Co., Exit 11 (Huntington: WV 10)	27
Cabell Co., Exit 28 (Milton: US 60)	23
Cabell Co., Exit 8 (Huntington: WV 152/WV 527N)	46
Greenbrier Co., Exit 150 (Dawson: CR 29/4)	–
Greenbrier Co., Exit 156 (Midland Trail/Sam Black Church: US 60)	–
Greenbrier Co., Exit 161 (Alta: WV 12)	–
Kanawha Co., Exit 45 (Nitro: WV 25)	30
I-68	
Monongalia Co., Exit 4 (Sabraton: WV 7)	17
Preston Co., Exit 23 (Bruceton Mills: WV 26)	20
I-77	
Jackson Co., Exit 124 (Kenna: WV 34)	44
Jackson Co., Exit 138 (Ripley: US 33/WV 62)	30
Kanawha Co., Exit 106 (Edens Fork: CR 27)	24
Kanawha Co., Exit 114 (Pocatalico/Sissonville: WV 622)	42
Kanawha Co., Exit 116 (Haines Branch/ Sissonville: CR 21)	22
I-77 *(cont'd.)*	
Mercer Co., Exit 14 (Athens Road: WV 20)	–
Mercer Co., Exit 7 (Twelvemile Road: CR 27 (SB only))	35
Mercer Co., Exit 9 (Princeton/Pearisburg: US 460)	15
Wood Co., Exit 170 (Mineral Wells: WV 14)	128
Wood Co., Exit 173 (Camden Ave./Downtown Parkersburg: WV 95 (NB only))	55
I-79	
Braxton Co., Exit 46 (Servia Road: CR 11)	20
Braxton Co., Exit 51 (Frametown: WV 4)	46
Braxton Co., Exit 62 (Sutton/Gassaway: WV 4)	–
Braxton Co., Exit 67 (Flatwoods: WV 15/US 19)	25
Braxton Co., Exit 79 (Burnsville/Glenville: WV 5)	50
Clay Co., Exit 34 (Wallback)	20
Clay Co., Exit 40 (Big Otter)	34
Harrison Co., Exit 125 (Shinnston/Saltwell Road: WV 131)	20
Harrison Co., Exit 115 (Quiet Dell (NB only))	12
Kanawha Co., Exit 1 (Mink Shoals: US 119)	35
Kanawha Co., Exit 19 (Clendenin: US 119/CR 53)	77
Kanawha Co., Exit 5 (Big Chimney: WV 114)	23
Kanawha Co., Exit 9 (Elkview: CR 43)	41
Marion Co., Exit 139 (East Fairmont/Pricketts Creek: CR 33)	20
I-81	
Berkeley Co., Exit 23 (Marlowe/Falling Waters: US 11)	29
US 119	
Kanawha Co., at Cantley Drive	25
Kanawha Co., at Ruthdale Road	–
Logan Co., WV 10 (Chapmanville)	28
Logan Co., WV 73 (Logan)	40
Mingo Co., Chattaroy Hollow	57

Governor Lays Out Comprehensive Coal Conversion Technology Plan

In early October 2005, Governor Joe Manchin laid out a comprehensive plan to implement coal conversion technology on a state level, harnessing West Virginia's coal resources to address once and for all the vulnerability of America's refining capacity and the nation's dependence upon foreign sources of oil.

The *West Virginia Coal Conversion Initiative* is a comprehensive plan that will encompass public and private development of liquefaction and other coal conversion facilities and infrastructure in West Virginia. These facilities will convert coal into liquid fuels and other products for commercial and noncommercial uses.

Unlike coal conversion projects that have been proposed elsewhere, the *West Virginia Coal Conversion Initiative* will focus on the development of state-of-the-art, multi-product facilities that would adapt to the changing needs of the marketplace and produce whatever product is most needed at a specific time – be it natural gas, diesel fuel, jet fuel, hydrogen or chemicals.

Paving the way for establishment of this initiative, Governor Manchin is taking several steps to direct or reestablish government offices and authorities to formulate this comprehensive approach to coal conversion development. In addition, West Virginia's colleges, universities and technical schools will play an integral role in fulfilling a significant educational component of this plan, training workers for mining, transportation, construction and operations jobs that will be created with coal conversion projects across the state.

"West Virginia is one of several states rich in natural resources, and it is time that we stepped up to the plate and took responsibility for doing our part to address the nation's growing energy crisis," the governor said.

"As West Virginia's governor and as the chairman-elect of the Southern States Energy Board and chairman of the National Governors Association's Natural Resources committee, I feel it is important for West Virginia to be at the forefront of what I believe will soon be a coordinated national energy effort," the governor said.

"We are committing today to a complete coal conversion plant package, comprised of property, a permitting plan, identified and ready fuel supplies and a knowledgeable and trained work force," the governor added. "These efforts, along with those of other states, will ensure West Virginia's energy independence well into the future. With an estimated 50 billion tons of coal reserves in West Virginia that could make up to three barrels of liquid fuel per ton, it just makes common sense for our state to take the lead in advancing our efforts to the next level."

– For more information, see www.wv.gov

The ***Clean Air Forum*** is published by the

West Virginia Department of Environmental Protection
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Charleston, WV 25304

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