

CLEANING THE AIR

ANNUAL AIR QUALITY CONFERENCE OF ELECTED OFFICIALS

On October 20, the Maricopa County Air Quality Department brought together a group of Arizona's elected officials at the Partnering for Cleaner Air Annual Air Quality Conference, to discuss their perspective on the future of air quality regulations for the state. The panel—titled *The Elected Official's Perspective: What Information is Needed for Informed Decision-Making for Future Air Quality Regulations?*—highlighted perspectives from all levels of state government. The panel discussed what needs to be done to meet federal clean air standards and create future regulations for Arizona.

Moderated by Nancy Welch, associate director for the Morrison Institute for Public Policy, panelists included Arizona Rep. Ray Barnes, Arizona Sen. John Huppenthal, Supervisor Don Stapley of the Maricopa County Board of Supervisors District 2, and Tempe Mayor Hugh Hallman.

The politicians get involved for reasons of health and well-being, but also to serve their constituencies financially: environmental impact from air pollution not only affects public health, but if not brought into compliance, the air quality crisis in Maricopa County is a threat to crucial transportation dollars coming into the state.

As a member of the Senate Retirement and Rural Development Committee, Sen. Huppenthal said, "The growth of Arizona is dependent upon meeting the needs of our citizens. Meeting air quality standards will solidify the future of Arizona, keeping us from losing much needed highway and freeway funding."

The Maricopa County Air Quality Department is a regulatory agency whose goal is to ensure federal clean air standards are achieved and maintained for the residents and visitors of Maricopa County. The department is governed by the Maricopa County Board of Supervisors and follows air quality standards set forth by the Federal Clean Air Act. For more information on the conference, visit www.AnnualAirQualityConference.com.

ARIZONA GREEN PROJECTS FIRST 200 DAYS OF THE RECOVERY ACT

Based on the American Recovery and Reinvestment Act of 2009, the Environmental Protection Agency (EPA) manages over \$7 billion in projects and programs that invest in environmental protection and provide long-term economic benefits to aid recovery efforts across the nation. EPA has obligated over \$88 million in Recovery Act Funds to Arizona, including:

- The City of Phoenix will receive \$829,697 million to reduce diesel emissions by retrofitting and replacing city-owned equipment. The City will retrofit 45 pieces of equipment with diesel particulate filters or diesel oxidation catalysts, and replace an aging garbage hauler. The retro-fitted vehicles will run on ultra-low sulfur diesel.
- Arizona will receive Recovery funding for brownfields projects to help revitalize abandoned and contaminated properties and return them to productive reuse.
- The City of Flagstaff is receiving \$126,900 for work at the Route 66 Creosote Pit Cleanup and Redevelopment project
- South Tucson is receiving \$400,000 to conduct site assessments at properties with potential contamination.
- To support sustainable water and energy-efficient drinking water and wastewater systems, the Arizona Clean Water State Revolving Fund program will receive \$26.4 million, the Drinking Water State Revolving Fund program will receive \$55.3 million and \$267,400 in Recovery Act funds for Water Quality Management Planning (WQMP) in Arizona has been awarded.
- A cooperative agreement with the Arizona Department of Environmental Quality will distribute over \$3,219,000 for assessment and cleanup of underground storage tank leaks.
- The Arizona Department of Environmental Quality will receive \$1.73 million in Recovery funds to support clean diesel projects and loan programs.
- Several Arizona Tribes—the Hualapai Tribe, Hopi Tribe, San Carlos Apache Tribe, White Mountain Apache Tribe, Yavapai-Apache Nation, Tohono O'odham Nation, Ak-Chin Indian Community and Quechan Tribe—will receive funds to improve water services.



Audi A3 TDI clubsport quattro (euro)



Volkswagen Golf TDI (euro)



2010 Honda Insight



2010 Toyota Prius



Mercury Milan Hybrid

FIVE FINALISTS FOR GREEN CAR OF THE YEAR® WINNER TO BE NAMED AT LA AUTO SHOW

▲ *Green Car Journal* has announced its five finalists for the 2010 Green Car of the Year®. The award honors environmental leadership among vehicles that are readily available to consumers during the award year. *Green Car Journal* editors identify five finalists, with the winner decided by then with jurors such as Jay Leno, Jean-Michel Cousteau, Carroll Shelby, Matt Petersen of Global Green USA and the Sierra Club's Carl Popes.

"We're seeing the trend for 'green' cars emerging at all levels, from entry-level to luxury models, performance cars and SUVs/crossovers," said Ron Cogan, editor and publisher of the *Green Car Journal* and editor of

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2010 Chevrolet Volt



GreenCar.com. "Plus, an array of technologies and fuels as well as strategies like lightweighting and reducing rolling resistance are being applied to the challenge."

This year's finalists reflect this diversity. Audi makes the final five for the first time with its sporty A3 TDI clean diesel. The new Volkswagen Golf TDI shows VW's growing focus on clean diesels. The Honda Insight is a completely new hybrid. The Toyota Prius is a third-generation total redesign. The Mercury Milan Hybrid puts Ford's advanced-hybrid technology in an upscale mid-size sedan.

The award will be announced December 3, during LA Auto Show press days. The show is open to the public December 4-13. For info, visit LAautoshow.com.

FLEETS SPUR CHANGE LOWER EMISSIONS, HIGHER FUEL ECONOMY —AND INCREASED GREEN JOB GROWTH

The "greening" of corporate vehicle fleets can move a substantial number of highly efficient, clean-fuel vehicles onto the road in a relatively short timeframe. A newly released report by the Sustainable Transportation and Communities group at the Center for Automotive Research (CAR), an Ann Arbor-based nonprofit research organization, examines both the economic and environmental benefits of converting corporate fleets from gasoline to compressed natural gas (CNG) and hybrids.

Using AT&T's vehicle replacement program as a case study, CAR estimated the impact of buying or converting 15,000 vehicles to cleaner technology over a 10-year period. Replacing fleet vehicles powered by standard internal combustion engines with either hybrid vehicles or vans and trucks converted to CNG could reduce gasoline consumption by more than 49 million gallons over those 10 years and trim CO₂ emissions by 211,000 metric tons total over that period—the equivalent of removing more than 38,000 vehicles from the road for just one year.

In addition, the AT&T replacement program will help support an average of 1,000 vehicle-manufacturing related jobs each year from 2009-2013.

CAR performs numerous studies for federal, state and local governments, corporations, and foundations. Financial support for this study was provided by AT&T. To view the complete study, visit the CAR web site at www.cargroup.org.

230 MPG CHEVY VOLT? PLUGGING IN DAILY MAY BE ONE KEY

▲ GM says the Chevrolet Volt extended-range electric vehicle may achieve city fuel economy of at least 230 miles per gallon, based on development testing using draft EPA federal fuel economy methodology for plug-in electric vehicles. The Volt, scheduled to start production in late 2010 as a 2011 model, is expected to travel up to 40 miles on electricity from a single battery charge and be able to extend its overall range to more than 300 miles with its flex fuel-powered engine-generator. According to US Department of Transportation data, nearly eight of 10 Americans commute fewer than 40 miles a day.

"From the data we've seen, many Chevy Volt drivers may be able to be in pure electric mode on a daily basis without having to use any gas," said GM CEO Fritz Henderson. "EPA labels are a yardstick for customers to compare the fuel efficiency of vehicles. So, a vehicle like the Volt that achieves a composite triple-digit fuel economy is a game-changer. The key to high-mileage performance is for a Volt driver to plug into the electric grid at least once each day."

Actual gas-free mileage will vary depending on distance, cargo and passengers, and how much air conditioning or accessories are used. Based on unofficial development testing of pre-production prototypes, the Volt has achieved 40 miles of electric-only, petroleum-free driving in both EPA city and highway test cycles.

Under new draft methodology, EPA weights plug-in electrics as traveling more city miles than highway miles on only electricity. The EPA methodology uses kilowatt hours per 100 miles traveled to define the electrical efficiency of plug-ins. Applying EPA's methodology, GM expects the Volt to consume as little as 25 kilowatt hours per 100 miles in city driving. At the US average cost of electricity (approximately 11 cents per kWh), a typical Volt driver would pay about \$2.75 for electricity to travel 100 miles, or less than 3 cents per mile.

The Chevrolet Volt has two modes of operation: Electric and Extended-Range. In electric mode, the Volt will not use gasoline or produce tailpipe emissions. In Extended-Range mode, an engine-generator produces electricity to power the vehicle. Energy stored in the battery supplements the engine-generator if needed during heavy acceleration or on steep inclines.

CHOCOLATE AS FUEL A RACE CAR BUILT AND FUELED GREEN

Is this the world's first sustainable race car? Gas 2.0 reports a new racer that is made from woven flax and carrot pulp, as well as recycled carbon fiber and recycled resin. In addition, it uses biodiesel made from chocolate and animal fats and is lubricated with plant oils. Can it cut it on the race track? The turbo-charged Formula 3 race car was scheduled to compete in its first race on October 17, but was already reported to have a top speed of 135 mph and a 0-60 time of 2.5 seconds. To learn more, visit www.40mpg.org.

INDEX:AWARD 2009 WINNER: BETTER PLACE, ELECTRIC VEHICLE SERVICES COMPANY

INDEX:Award is the world's biggest design award, with a total award sum of 500,000 euros financed by the state of Denmark. Aiming at generating more 'Design to Improve Life' of higher quality all over the world, the biannual award goes to the winners in each of the five categories: body, home, work, play and community.

This year's winner in the Community category is Better Place, for creating a complete electric vehicle services solution. With the 100,000 euro prize, Better Place will fund a student design contest.

EUROPE GREENEST EVER HIGH-VOLUME VEHICLES BRING BIG GAINS

The average new car sold in Europe is now greener than ever, according to a report released by automotive data and intelligence provider JATO Dynamics. JATO has found an average 6.2 g/km reduction in the CO₂ output of new cars sold by the top 25 brands, with a similar reduction in 21 monitored EU markets. The figures underline how incremental improvements to high-volume vehicles can have an impact that far exceeds low-volume hybrid or alternative fuel vehicles.

David Di Girolamo of JATO explains: "Our analysis shows how the CO₂ output of new cars has dropped significantly this year, with manufacturers' own efforts in this area boosted by scrappage incentives and economic pressures, which have in turn persuaded customers to buy smaller, more efficient—and less polluting—new cars. The effect on new car CO₂ is quite pronounced."

JATO's analysis shows that 2009 new car sales for three brands—Smart, Fiat and MINI—are already under CO₂ limits not required by the EU until 2015. Fiat is most impressive, considering its volumes and model mix. The biggest improvement was from Alfa Romeo, whose average new car CO₂ output fell by 19.9g/km.

Sales volume is significant when assessing CO₂ performance. Among the top 25 volume brands in Europe, Chevrolet was first, helped by their diesel Cruze model and 3-cylinder, 0.8-litre, 119g/km Matiz. Second was Audi, helped by their 2.0-litre TDi engine. Toyota, Suzuki, Hyundai and Mazda also recorded double-digit improvements. Ford was best of the biggest European volume sellers, improving average CO₂ by 8.0 g/km as its ECOnetic range and in particular, its new 98 g/km Fiesta ECOnetic, proved popular across Europe. ■

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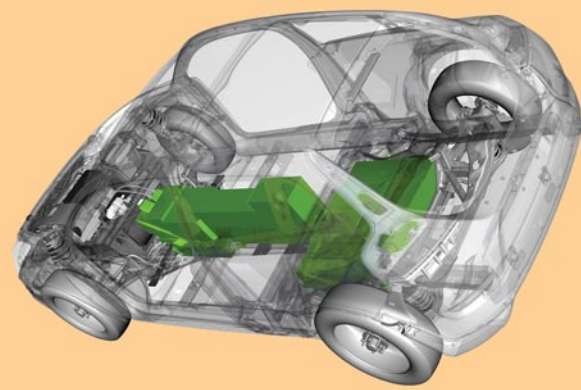
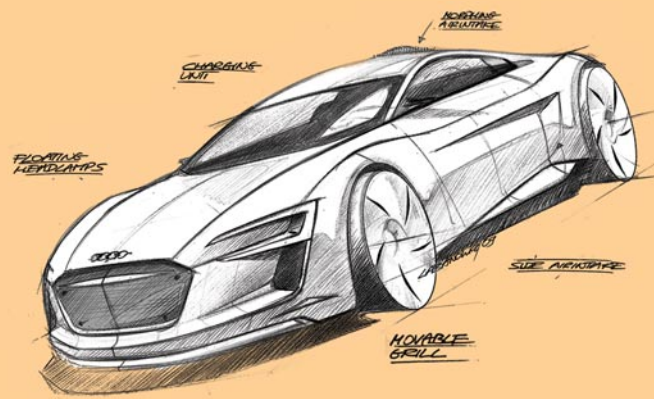
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AUDI REVEALS THE PURELY ELECTRIC e-TRON QUATTRO

At this year's Frankfurt Motor Show (IAA), Audi presented the e-tron, a high-performance sports car with a purely electric drive system. Four motors—two each at the front and rear axles—drive the wheels, making the concept car a true quattro. Producing 313hp (230 kW) and 3,319.03 lb-ft (4,500 Nm) of torque, the two-seater accelerates from 0 to 62 mph in 4.8 seconds, and from 60 to 75 mph in 4.1 seconds. The lithium-ion battery provides a truly useable energy content of 42.4 kilowatt hours to enable a range of approximately 154 miles.

The performance figures are not the whole story. The design is intended to place the e-tron in the sports car major leagues, while packaged to take into account the specific realities of an electric vehicle. The battery is directly behind the passenger cabin for an optimal center of gravity and axle load distribution. The e-tron is able to freely distribute the powerful torque of its four electric motors to the wheels as required. This torque vectoring allows for dazzling dynamics and exceptional agility and precision when cornering. The drive system, the power electronics and the battery are controlled by an innovative thermal management system that is a crucial component for achieving the car's range without compromising its high level of interior comfort. ■



FISKER KARMA PLUG-IN HYBRID ELECTRIC TO HAVE TOP STATS

The Fisker Karma plug-in hybrid electric vehicle will emit just 83g CO₂/km and have an economy rating of 67.2 mpg, according to Society of Automotive Engineers (SAE) methodology measuring emissions for plug-in hybrids. The four-door Karma aims to be one of the cleanest, most fuel-efficient cars in the world, while still offering world-class style and performance. The SAE estimates carbon dioxide output will be less than that of today's cleanest production cars and 75 percent less than that of competing vehicles, on average. Some 248 million gallons of gasoline could be saved and 2.5 million tons of CO₂ offset by selling 15,000 Karmas per year through 2016. Yet, with 403 hp and more torque than many supercars, 0-62 mph takes about six seconds with maximum speed of 125 mph. Fueling the Karma could cost just 3¢/mile, consuming as little as 21 kWh per 62 miles in electric-only Stealth mode, according to SAE methods. Fisker figures a real-world annual average would be closer 7¢/mile, based on a mix of Stealth and Sport (gasoline) mode use. Individual results may vary. Stealth mode is engaged on demand via steering wheel-mounted paddle switches. The Karma will be the first production Plug-in Hybrid Electric Vehicle (PHEV) when it goes on sale in 2010. ■

ALL-ELECTRIC VOLVO C30 PROJECT PRESENTED

In addition to the market introduction of a plug-in hybrid in 2012, work is under way at Volvo on an entirely electric-powered car known as a BEV (Battery Electric Vehicle).

"The Volvo C30 is the first model we will try out with electric power. This car's excellent properties in city traffic and its relatively low weight make it particularly suitable, since electric cars are primarily expected to be used in and around cities and for daily commuting," says Lennart Stegland, Director of Volvo Cars Special Vehicles.

It looks like a regular Volvo C30. The difference is that it is powered solely by electricity, entirely without tailpipe emissions, and has a range of up to 90 miles.

Prototypes of the C30 BEV have been built and tested this year. Much of the focus is on integration of the electric propulsion system with the rest of the car. The electric motor is housed under the hood, just like the engine in a conventional car. Batteries will most likely be in the prop shaft tunnel and the normal fuel tank location, within the car's optimized crumple zone. Since the car runs solely on electricity, it requires a larger battery with higher capacity (24 kWh) than a plug-in hybrid (12 kWh).

The C30 BEV is limited to a top speed of about 80 mph, more than sufficient for most drivers. Acceleration from 0 to 60 mph will take close to 11 seconds. ■



TESLA ELECTRIC VEHICLE FAST CHARGE CLEAN CITIES' DEMO

A demonstration of a J1772 fast charge of an electric Tesla Roadster was held in late September following a meeting of the Tucson Regional Clean Cities Coalition. The demonstration was sponsored by Pima Association of Governments' Clean Cities Program, the City of Tucson, and Coulomb Technologies. The Tesla Roadster has a charge range of 244 miles and accelerates from 0-60 mph in 3.9 seconds. The PAG Regional Council signed a memorandum of understanding with Nissan North America and Scottsdale-based ECOTality Inc. in March (see our Sept/Oct issue) to help implement electric vehicle infrastructure in the Tucson region in advance of the late 2010 deployment of Nissan's all-electric Leaf. "We have made a commitment to Nissan and ECOTality to join together to end range anxiety and make EV charging available to our community. This technology will play a role in that commitment," said Clean Cities Program Manager Colleen Crowninshield (pictured at right, above). J1772 is a standard that all future electric vehicles, including the Nissan Leaf and GM Volt, will support to ensure a universal connection from the vehicle to the charging station. ■

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