



On the Air

Driving into the Future

What will we be driving next year? Or in five years? How will our vehicles be powered? Ideally, we'll have lots of choices, notes Daniel Sperling, a co-author (with Deborah Gordon) of *Two Billion Cars – Driving Toward Sustainability*. More than one billion cars currently populate the earth; in the book the authors question whether the earth can sustain two billion traditional gasoline-powered cars.

Speaking at a recent event at Hearst Castle®, Sperling remarked, "I've come up with a phrase to describe what has happened in the last 30 to 40 years. I call it the *fuel du jour* phenomenon. First there were synfuels, and then methanol, and then we started talking about electric vehicles in the early 1990s. And then it was

hydrogen fuel cell vehicles, then ethanol from corn, and now back to electric vehicles and plug-in hybrids."

Sperling said the idea that there should be a single alternative to the gasoline-fueled vehicle is inherently problematic, and remarked, "What we really need to be thinking about is not alternate fuels but choices of fuels. When we can go out and choose between buying an electric vehicle, a compressed-natural gas vehicle, and a hydrogen vehicle, that's when we'll know we've made progress."

Sperling was speaking at a Central Coast Clean Cities Coalition membership gathering. The District recently joined the Coalition, also known as C-5, a partnership of local government agencies, academic institutions,

businesses, fuel and vehicle providers, and organizations led by the San Luis Obispo County Air Pollution Control District. C-5 has been designated since 2006 as a Clean Cities program by the U.S. Department of Energy, which founded Clean Cities to support local initiatives to reduce use of petroleum in transportation. C-5's goal is to expand the use of alternate-fueled vehicles and fueling infrastructure throughout the Central Coast.

The C-5 event showcased a variety of vehicles, including one that can go 56 miles per hour under human power. The vehicle developed by the Human Powered Vehicle Team at California Polytechnic State University at San Luis Obispo is a recumbent bicycle with a fairing made of carbon fiber and Kevlar.

Top speed for a human-powered vehicle can be up to 82 miles per hour (the world record), said George Leone, an advisor to the student team. He remarked, "When you are in the vehicle you don't feel the wind because of the fairing, so you don't realize just how fast you are going." He noted that Cal Poly's program, founded in 1978, is one of the oldest programs in the country if not in the world. He remarked, "It's such a good exercise for the student engineers to work on this project. These students are learning how to make a streamlined, fast, efficient vehicle—all important features for the car of the future."

In the next three years, major automakers are bringing to market as many as twenty new all-electric (also known as battery-electric) vehicles, and plug-in

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Visiting Group from Hangzhou



Representatives from government agencies involved in environmental protection in Hangzhou, located in southeastern China, visited the District in early December. The greater Hangzhou area has a population of 8 million. The delegation was touring California to learn about environmental programs, and visited the District to hear about local air pollution control issues and strategies. The group is pictured here with District Director Terry Dressler (seventh from right) and Public Information Officer Mary Byrd (second from right).

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Driving into the Future (cont'd)

hybrid electric vehicles. Early buyers may be able to qualify for up to \$12,500 in federal and state incentives. Vehicles coming to market soon include the Nissan LEAF (a battery-electric vehicle that can go up to 100 miles on a charge), the Chevy Volt (a plug-in gas-electric hybrid with a range of up to 40 miles in the all-electric mode), the Ford Focus battery-electric vehicle, the BMW battery-electric Mini and the Smart EV (both already available in limited quantities), the Mitsubishi i MIEV battery-electric vehicle, the Honda Fit electric vehicle, and the Toyota RAV4-EV and plug-in hybrid Prius. Even luxury automakers are working on alternate-fuel models; the Tesla all-electric Roadster has been available since 2008, and Mercedes-Benz has termed its new B-Class F-CELL vehicle (slated for 2012 release) the first fuel cell powered electric car to be produced under series production conditions in the U.S.

Recently, the Community Environmental Council (CEC) hosted a workshop in Santa Barbara where representatives from Southern California Edison demonstrated tools the utility has developed to make it easier for consumers to set up vehicle charging at home. The CEC is developing an initiative termed **Plug-in Santa Barbara**. The goal is to work with public and private partners to upgrade existing chargers and build out a public charging infrastructure, reduce barriers to electric vehicles, and work with tri-county governments to attract state and federal funding.

Other objectives include: working with builders and

architects to pre-wire new construction and major renovations so that buildings are "plug-in ready," positioning Santa Barbara and the Central Coast as a charging hub on the Highway 101 corridor between Los Angeles and San Francisco, and



serving as a one-stop resource for local car buyers, with information on the new models, home charging, incentives, permitting requirements, and the benefits of tying solar electric systems into charging facilities.

Battery-electric vehicles are considered zero-emission vehicles and receive the highest score of 10 on both scales – the Global Warming Score and the Smog Score – on the state's Environmental Performance Labels for new cars.

When factoring in the power plant emissions from making the electricity to charge the cars, the state still considers these vehicles to be 90 percent cleaner than the average gasoline-powered vehicle. In addition to producing no exhaust emissions or evaporative emissions, battery-electric vehicles



Cal Poly engineering students Kim Paterson and Will Hilgenberg demonstrate the team's human-powered vehicle, a recumbent bicycle with cover. On right, the fairing is placed over the vehicle so it can achieve top speed. When the vehicle is racing in this mode, there is braking capability but nowhere for the rider to put his or her feet, and the vehicle has to be "caught" as it comes to a stop.

do not have an emissions system that can degrade or fail with time, do not produce emissions from service stations and fuel refining operations, and produce few greenhouse gas emissions. Recharging of electric vehicles does not expose people to toxic air contaminants such as benzene, which are released when people refuel with gasoline. Electric and hybrid electric vehicles—and fuel-efficient traditional gasoline-powered vehicles—also help reduce dependence on foreign oil and increase energy security.

If automakers build these vehicles, will consumers buy them? Nissan received more than 6,600 reservations for the LEAF in the first three days the online reservation system (requiring a \$99 deposit) was available, and its initial production run of 20,000 vehicles is sold out.

At the C-5 event, Sperling remarked: "They're willing to sell the vehicles if we're willing to buy them... It's going to depend on us as the consumers."

The California Air Resources Board's Drive Clean California website at www.driveclean.ca.gov is a resource for consumers to learn about new cleaner vehicles, and to compare models. The website's database includes every vehicle certified in the state going back to 2000 model year. Vehicles can be compared by environmental impact, costs, and efficiency, and searched by make or model, category, technology/fuel type, Smog or Global Warming Score, or engine family.

Marian Medical Center's Sister Janet Corcoran

Caring for Mother Earth

APCD Board Roundup

Following are the highlights of the September and October Board meetings.

September

- Received and filed the summary of notices of violation issued during the months of June, July and August, 2010.
- Received and filed a report prepared by the California Air Resources Board documenting an audit of the District's Carl Moyer Program.
- Adopted amendments to the District Conflict of Interest Code.
- Repealed Rule 334 (the state's rule on hexavalent chromium emissions takes precedence over the District's rule).
- Adopted amended Rules 102 (Definitions), 202 (Exemptions to Rule 201), and 321 (Solvent Cleaning Machines and Solvent Cleaning).
- Adopted amended Rule 901, New Source Performance Standards.

October

- Received and filed the summary of notices of violation issued during the month of September 2010.
- Approved \$200,000 in additional funding allocation for the Marine Diesel Engine Repower Program.
- Received and filed an update on the U.S. Coast Guard Port Access Route Study and the California Air Resources Board Ocean-Going Vessels Fuel Regulation.
- Approved the implementation of the Off-Road Equipment Replacement Program as an addition to the District's Moyer Program, with an initial budget of \$500,000.

Sister Janet Corcoran, Vice President of Mission Services at Marian Medical Center in Santa Maria (on right), visits the District's table and "Wheel of Change" display at Marian Medical's Environmental Fair, an annual event for staff. In July the Santa Barbara County Board of Supervisors passed a resolution recognizing Sister Corcoran's 50th anniversary as a Sister of St. Francis, noting her "passion to care for Mother Earth," and achievement of multiple environmental goals at Marian Medical Center, where she has served for more than 25 years.



GREEN BUSINESS

SANTA BARBARA COUNTY

The Green Business Program of Santa Barbara County is a voluntary incentive program that encourages employers and employees to protect, preserve, and improve the environment. To date, 25 local businesses have been "certified" as Green

Businesses by completing the program requirements.

Businesses that have achieved certification during the past year will be honored on Wednesday, February 9, 2011 during a luncheon from 11:30 a.m. to

1:30 p.m. at the Santa Ynez Valley Marriott, located at 555 McMurray Road in Buellton.

To find out more about the program, participating businesses, and the upcoming luncheon, see www.GreenBizSBC.org.

New Faces and Transitions



Recently the District welcomed new staff and promoted staff to new positions. From left, Karly Kaufman started at the District as the new public outreach intern. Ben Ellenberger was promoted to Air Quality Engineering Supervisor, and Carly Wilburton was welcomed as a new Air Quality Specialist. Glenn Gazdecki (not pictured) was promoted to Inspection Specialist III.



District Board Calendar

Board of Directors

Note: The District Board will be changing in 2011.

- Supervisor Salud Carbajal
*First District
Santa Barbara County*
- Supervisor Janet Wolf
*Second District
Santa Barbara County*
- Supervisor Doreen Farr, Chair
*Third District
Santa Barbara County*
- Supervisor Joni Gray
*Fourth District
Santa Barbara County*
- Supervisor Joe Centeno
*Fifth District
Santa Barbara County*
- Mayor Victoria Pointer
City of Buellton
- Vice Mayor Al Clark
City of Carpinteria
- Mayor Lupe Alvarez
City of Guadalupe
- Mayor Pro Tem Cecilia Martner
Vice Chair, City of Lompoc
- Mayor Helene Schneider
City of Santa Barbara
- Mayor Larry Lavagnino
City of Santa Maria
- Councilmember Ed Skytt
City of Solvang
- Councilmember Roger Aceves
City of Goleta

All meetings start at 1:30 p.m. For final meeting agendas, call Sara Brumit, 961-8853.

January 20
Board of Supervisors'
Hearing Room
511 East Lakeside Parkway
Santa Maria, California 93455

March 17
Board of Supervisors'
Hearing Room
511 East Lakeside Parkway
Santa Maria, California 93455

May 19
Board of Supervisors'
Hearing Room
511 East Lakeside Parkway
Santa Maria, California 93455

June 16
Board of Supervisors'
Hearing Room
105 East Anapamu Street
Santa Barbara, California 93101

Community Advisory Council

The APCD Community Advisory Council meets monthly at the Days Motor Inn in Buellton. The public is welcome. For more information, call Sara Brumit, 961-8853.

Safer, Cleaner Fireplace Burning

This fall the District and Santa Barbara County Fire Department issued "Ten Tips for Safer, Cleaner Fireplace Burning."

1. Don't burn trash. Don't burn: plastics, chemicals, wrapping paper, magazines, or colored or coated papers (including newspaper inserts, junk mail, etc.). Also don't burn charcoal, coal, or holiday greens.
2. Be a good neighbor and notice your smoke. Build small hot fires rather than large smoldering ones. Use seasoned hard woods that burn hot and provide complete combustion. Avoid "roaring" fires. They can start chimney fires and can lead to overheating of wall or roof materials.



3. Save your fireplace or woodstove for special occasions.
4. Use a gas log if you can.
5. Clean your chimney.
6. Never use gasoline, charcoal lighter or other fuel to light or relight a fire because the vapors can explode.
7. Do not allow small children near the fireplace.
8. Never leave a fire unattended. Make sure the fire is completely out before going to bed or leaving the house.
9. Be sure no flammable materials hang down from or decorate your mantel.
10. Make sure you have basic fire safety equipment. Keep a type ABC fire extinguisher near the fireplace, install a screen that completely covers the fireplace opening, equip your house with smoke detectors, and use a spark arrester on top of your chimney.

For more information, see www.OurAir.org.



- Office**
260 N. San Antonio Rd. Suite A
Santa Barbara, CA 93110-1315
- Business Assistance**
(805) 961-8868
- Daily Air Quality Report**
www.sbcapcd.org
- Complaints/Public Information**
(805) 961-8800
- Air Quality Advisory Information**
(805) 961-8802
- World Wide Web**
www.OurAir.org
- E-Mail**
apcd@sbcapcd.org

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Planning for Clean Air

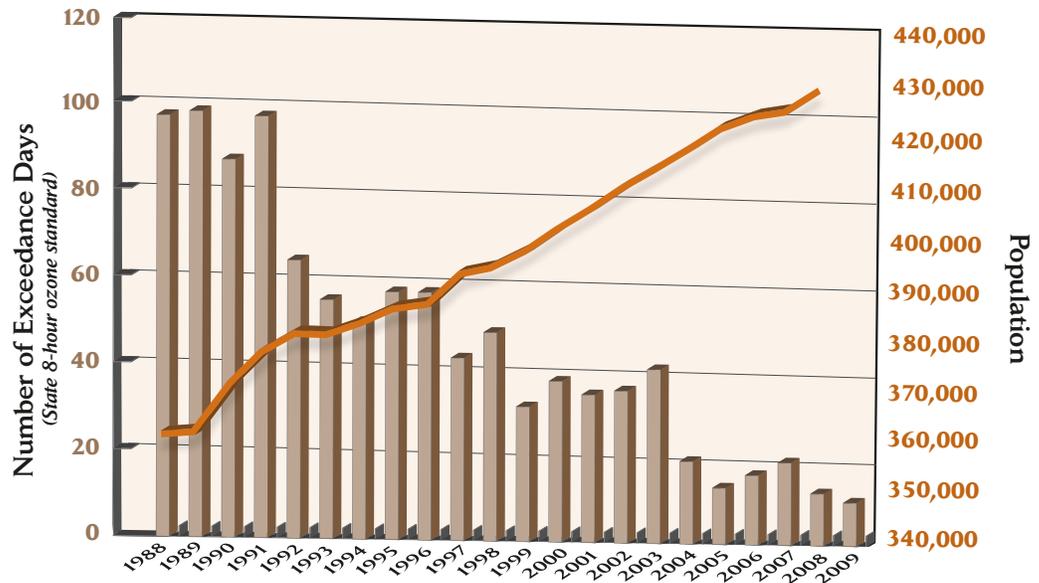
The District recently issued a draft *2010 Clean Air Plan (2010 Plan)* to show how the county will attain the state health-based eight-hour ozone standard. Ground-level ozone is formed when nitrogen oxides and reactive organic compounds react chemically in the presence of heat and sunlight. Ozone damages our lungs; it can cause a range of respiratory symptoms, can help cause early childhood asthma, and can affect long-term lung development in children.

Santa Barbara County is in attainment of the federal eight-hour ozone standard, and the state one-hour ozone standard, but is not in attainment of the state eight-hour ozone standard, and is required by the state to issue Clean Air Plan updates every three years. This *2010 Plan* is an update to the previous 2007 Clean Air Plan.

As shown in the graph, the number of days on which county air has exceeded the state eight-hour ozone standard has been going down over the years. District Planning and Technology Supervisor Ron Tan, who is overseeing the development of the *2010 Plan*, remarked "Ozone levels are declining even during a period of population growth. This is a very positive trend, and we expect it to continue."

The *2010 Plan* lists sources of ozone-forming emissions in the county, including industrial processes, combustion sources, petroleum handling, solvent use, consumer products use, waste burning, and cars and trucks

1988-2009 Declining Ozone Levels, Increasing Population Growth



The data show improving air quality in the county, with a decline in the number of days on which the county exceeded the state eight-hour ozone standard (bars), even as the county's population grew (shown in the ascending line). Population numbers for 2009 are not included.

and other mobile sources. The *2010 Plan* lists the contribution from each source in an emissions inventory, and shows how the pollution will be controlled, starting from the baseline year of 2007. The Santa Barbara County Association of Governments, the transportation planning agency in the county, prepares information for Clean Air Plans on existing and projected pollution from mobile sources.

As shown in the *2010 Plan*, on-road mobile sources (cars and trucks) are the largest contributor to locally generated ozone-forming air pollution. Other mobile sources (planes, trains, boats, off-road equipment, and farm equipment), solvent evaporation, fossil fuels combustion, surface cleaning and coating operations, prescribed burning, and petroleum production

and marketing combine to make up the remainder.

The *2010 Plan* also identifies the contribution to county ozone-forming emissions from marine shipping. Engines in large ships burn a particularly dirty fuel known as bunker oil. These engines have been largely unregulated in the past, and they produce a huge amount of pollution; winds in the Santa Barbara Channel blow much of this pollution onshore. District Clean Air Plans have projected that the increasing pollution from these ships could overwhelm all onshore attempts to reduce pollution.

Fortunately, thanks to recent state, national and international actions to control this pollution, this picture has changed. Tan said, "For the first time ever, we can

show in a Clean Air Plan that the emissions from marine shipping will be going down in years to come, as we reap the benefits from these regulatory actions. However, since marine shipping emissions are still a very large component of overall county emissions, we have to continue to encourage emission reduction measures."

The *2010 Plan* also includes two new informational, non-regulatory chapters: a new Transportation, Land Use and Air Quality chapter that discusses how these elements are linked; and a new Greenhouse Gases and Climate Change chapter. This chapter presents an overview of global climate change issues and a baseline 2007 carbon dioxide (CO₂) inventory for the county,

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Business Focus

Rules Roundup

In September the District Board took several actions on rules. The Board repealed Rule 334, which addresses hexavalent chromium emissions. The District's rule has been superseded by the state's stricter rule covering these emissions.

The Board also adopted amended Rule 901, New Source Performance Standards. This rule was updated to include the latest standards issued by the U.S. Environmental Protection Agency.

In addition, the Board adopted amended Rules 102 (Definitions), 202 (Exemptions to Rule 201), and 321 (Solvent Cleaning Machines and Solvent Cleaning). Rule 321 was modified to include requirements for solvent cleaning machines and solvent cleaning as identified in a control measure in the District's *Clean Air Plan*. The rule includes solvent reactive organic compound (ROC) content limits, revised equipment requirements for solvent cleaning machines (degreasers), and

sanctioned solvent cleaning devices and methods. The District expects the amended Rule 321 will result in about 0.5 tons per day of ROC emission reductions in the county.

The District is currently working on revising Rule 202 (Exemptions to Rule 201-Permit Required) to incorporate new state requirements for semiconductor operations to reduce emissions from chemical vapor deposition (CVD) chamber cleaning and etching processes by using

process optimization, alternative chemistries, and/or abatement.

The District is also working on several rule revisions to address new federal requirements for greenhouse gases that will become subject to regulation under the federal PSD and Title V/Part 70 permitting programs. The revisions are expected to go before the Board for adoption in January.

For more information on rules, see www.sbapcd.org/rules/rules.htm.

Planning for Clean Air (cont'd)

as a starting point to track the county's progress in reducing gases that cause global climate change. CO₂ is a common greenhouse gas.

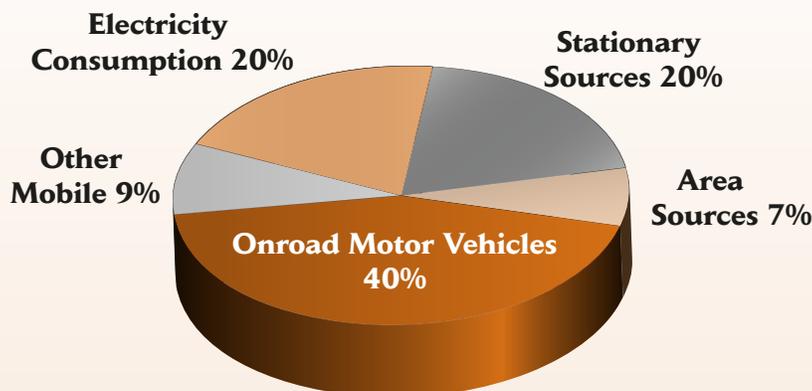
Tan noted, "The inventory results are not necessarily surprising—we would expect to see transportation and electricity use as major sources of CO₂ emissions. What the inventory brings home, however, is how much all of us contribute individually to greenhouse gas emissions in the county. We all use electricity, and we all travel from place to place."

The 2010 Plan concludes that the county will be able make continued progress toward attainment of the state eight-hour ozone standard. The 2010 Plan goes before the District Board in January for adoption. Once adopted, it will be sent to the

California Air Resources Board for final approval.

To view the 2010 Clean Air Plan and the Draft Environmental Impact Report for the Plan, see www.sbapcd.org/cap.htm.

Onshore Sources of Carbon Dioxide Emissions in Santa Barbara County (2007 Data)



CASH for Cleaner Engines



Funds to repower or retrofit engines in: off-road mobile equipment, farm equipment, fishing boats, school buses, and more.

Contact Al Ronyecz at 961-8877 or axr@sbapcd.org.

Apply NOW!

www.OurAir.org/funding

The chart on left shows onshore county emissions of carbon dioxide, a common greenhouse gas. "Area sources" refers to sources of pollution such as residential fuel combustion that may be spread over a wide area in the county. "Other mobile sources" refers to mobile sources of pollution that are not on-road (e.g. construction equipment).