

# Building Green

by Krista A. Rinehart

**Few things foster more attention today than a little star power.**

Recent attention to green building practices resulting from Brad Pitt's post-Katrina building design contest in New Orleans is one example. Yet, as is often the case, the benefits of environmentally conscious building design have been gaining steam and support quietly for some time and the leaders in the field aren't celebrities but state governments and private foundations.

The term "green building" can refer to a wide variety of activities and practices, from the use of alternative energy sources to the installation of energy efficient appliances and windows to the location and orientation of buildings such that nature's energy is most effectively utilized. Therefore, green building, also referred to as sustainable development, can encompass any practice that seeks to increase efficiency while reducing the impacts on public health, energy consumption and the environment.

The desirability of building green has increased in recent years for a number of reasons. Green buildings are more energy



efficient and therefore less costly to maintain and operate. In addition, the use of alternative energy sources like solar power is increasingly popular as energy costs soar and energy demand outstretches traditional energy supplies. Increased energy efficiency and the use of renewable energy to power buildings are also better for the environment as the threat of global warming gains focus. Finally, there are many health benefits to green buildings including improved indoor air quality.

Traditionally, those shying away from sustainable development and green building practices have done so on the grounds that it was too costly. However, as technology advances, the costs associated with sustainable development practices have decreased drastically. For example, the cost of a photovoltaic system (solar power) has declined 95 percent since the 1970s. Energy efficient appliances cost little more than traditional ones. So, today for relatively little increased upfront cost, governments and individuals can build green and then reap the environmental, health and economic benefits for years to come.

## States Leading the Way

State housing agencies are at the forefront of the sustainable development field thanks to the use of the Housing Credit. A

comprehensive report by Enterprise Community Partners (ECP) released in August catalogues state efforts in this area.

According to ECP, states use the Housing Credit to promote sustainable development practices through either threshold criteria or selection criteria incentives. Currently, 47 of the 50 states promote sustainable development in some form. These efforts can generally be divided into four broad categories: increased energy efficiency, sustainable site selection, resource conservation and indoor air quality.

Increased energy efficiency is the most common area in which states promote sustainable development. Forty-one states support increased energy efficiency in public housing through the use of minimum HVAC standards, specification of energy efficient windows and doors, minimum insulation standards, Energy Star rated appliances, lighting fixture requirements and other energy standards. For example, in addition to awarding review criteria points for these measures, South Dakota allows costs above standard limits when justified by the development's increased energy efficiency.

Sustainable site selection involves construction in neighborhoods near resident services and public transportation options,

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The purpose of *Ecos* is to present new ideas in state environmental management—including planning, budgeting and legislation—and to serve as a forum for ideas about the roles of states in protecting the environment.

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## Building Green

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areas with multiple employment opportunities, sites that have been environmentally assessed, and areas consistent with existing smart growth plans. Forty-one states currently use sustainable site considerations in their Housing Credit selection process. Delaware, Georgia, Illinois, Maryland, Michigan, Minnesota and Oregon are cited by ECP as leaders in the sustainable site selection field. Among those, Georgia and Massachusetts are two of only four states promoting the use of brownfield and greyfield sites in their Housing Credit development plans.

The third area in which states are leading the sustainable development field is resource conservation. Thirty-five states encourage conservation through the use of low-maintenance building materials, water conserving plumbing and appliances, low-water and low-maintenance landscaping, the use of recycled materials and the practice of recycling construction waste. ECP rates Alabama, Arizona, California, Georgia, Iowa, Maryland, New Mexico and North Carolina as the strongest resource conservation states.

Finally, states seek to improve the environmentally friendly nature of public housing projects through standards designed to improve indoor air quality for public health benefit. Nineteen states forward this goal by encouraging construction designs that limit moisture and include adequate ventilation, and the use of products that limit indoor air pollutants such as low volatile compound (VOC) paints, and formaldehyde-free composite woods and insulation. Leaders in this area include California, where non-smoking building proposals are awarded extra points, and Connecticut, where points are awarded for projects meeting asthma safe home standards.

In addition to forwarding sustainable development through their Housing Credit and public housing programs, states are turning to green building more frequently for other public works programs including school construction and private construction incentive programs.

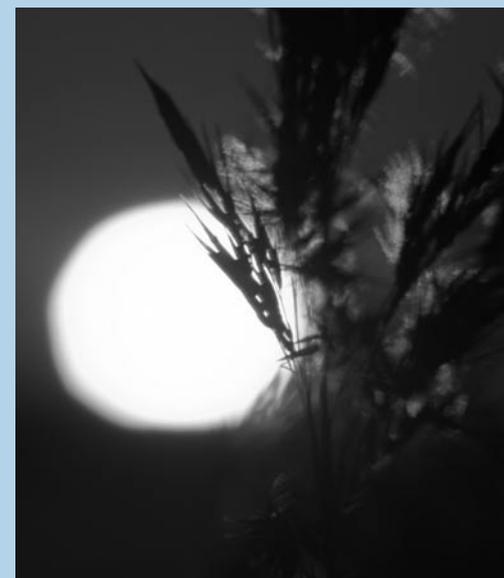
Several states provide various incentives to citizens using green building technologies like solar panel systems. For example, California's Emerging Renewables Rebate Program offers a rebate up to \$2,800/kilowatt for the installation of solar systems on residential or business properties. This rebate can equal as much as 40 percent of the system's total costs. California also offers a one-time tax credit of 7.5 percent for a resident's portion

of the costs associated with installing a solar system. Similarly, New Jersey offers up to 70 percent off the cost of installing a residential solar system.

Additionally, states including California, New Jersey, Washington and Massachusetts are using green building technology in government construction projects, most commonly schools. One example of state programs encouraging green-built schools is Oregon's High Performance Schools Program, a finalist for CSG's 2006 Innovations Award Program. Oregon's High Performance Schools Program provides education, grants and free technical assistance to K-12 school districts for the design and construction of schools that are at least 20 percent more efficient than Oregon standards, and that are designed and constructed in a sustainable manner. In addition to reducing energy costs and waste, programs like this one have also proven valuable educational tools.

### Charitable Foundations Go Green to Help the Poor

State governments are not the only organizations using green building practices to provide housing for the nation's poor and low-income citizens. In 2004, The Enterprise Foundation launched a five-year, \$555 million program to build green affordable housing across the country. In the first year of the Green Communities Project, Enterprise, with



## Solar Power Statistics

partners including household names like BP America, Citigroup, Fannie Mae, Freddie Mac and JPMorgan Chase, has supported 77 Green Communities with 4,300 homes. An additional 16 developments with 800 homes are under review. In all, 21 states have at least one Green Community.

Low-income families living in these communities are expected to save up to \$1.5 million in energy bills, while more than 5,000 tons of greenhouse gas emissions are avoided. In addition, the developments will save 30 million gallons of water. Green technologies being used in the Green Communities include solar-powered heating and water heating systems, Energy Star labeled lighting and appliances, and formaldehyde-free particleboard cabinets. In addition to using green building practices in its developments, the Green Communities program has worked with more than a dozen states and cities to help these governments incorporate green designs in their housing subsidy programs.

The Enterprise Foundation isn't the only national nonprofit dedicated to forwarding environmentally friendly building designs. Global Green USA, the American division of Mikhail Gorbachev's international environmental organization, has made headlines recently for a unique project it is sponsoring along the hurricane ravaged Gulf Coast. Global Green and its celebrity partner, Brad Pitt, recently unveiled the design team that

won a competition to create sustainable housing developments in New Orleans.

The competition's selection criteria included creation of net-zero and/or carbon-neutral buildings, disaster resistant designs, the incorporation of LEED standards, the use of passive solar heating and cooling systems, solar thermal and solar electric systems, the incorporation of healthy building materials and the use of energy efficient construction, systems, appliances and lighting. The winning designs will be constructed as part of the rebuilding effort in Holy Cross, a mid- to low-income neighborhood in the Lower Ninth Ward. Once completed, the development will provide low-maintenance and low energy cost housing for residents.

While many state and foundation efforts to encourage environmentally friendly building practices are tied to low-income and public housing construction projects, efforts to use green building technology to ease the burden of energy costs in existing homes are also surfacing. The BP Solar Neighbors program is one such effort. As part of the Solar Neighbors project, which began in 2003, in partnership with actor Edward Norton, BP donates one solar power system to a low-income Los Angeles household for every system purchased by a celebrity. To date, 26 systems have been donated, thereby dramatically reducing, if not eliminating, most of the recipient family's electric bills.

## Popularity of Green Building Will Only Grow

Much of the focus surrounding the use of green building practices is centered on the benefits such technologies provide for state funded and low-income construction projects. Most state support for sustainable development practices is built into subsidy and public housing or school construction projects. Similarly, charitable foundation work in the area seeks to benefit lower income families by using green technologies to dramatically reduce energy and maintenance costs. However, as concern over rising energy prices and demands increases and as the attention garnered by global warming concerns grows, the use of green technology by private citizens and businesses will likely increase as well. This trend is already evident in the increasing number of state rebate and tax credit programs available.

While a little star power never hurts, as is clear with efforts like Global Green's New Orleans project and the Solar Neighbors program, in most cases, it is state governments and private foundations quietly working to incorporate and encourage green building practices that are leading the way to a future where environmentally friendly buildings are the norm.

*Krista Rinehart is environmental policy project manager at The Council of State Governments.*



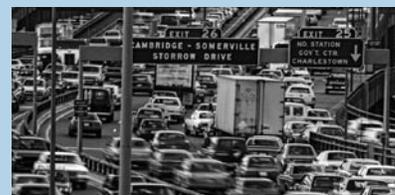
In one hour, the earth receives more solar energy than the world population consumes in one year.



A 2.5 kW solar system can reduce CO<sub>2</sub> emissions equivalent to planting one acre of trees or the amount emitted by a passenger car driving 7,800 miles/year.



PV powering 1 million homes would result in 4.3 tons less CO<sub>2</sub> emissions each year—or the equivalent of taking 850,000 cars off the road.



# CSG-WEST Annual Conference Convenes Colorado River Forum

by Edgar Ruiz

Management of the Colorado River was on the minds of many who attended a forum at the 59th Annual Meeting of The Council of State Governments-*WEST* in Breckenridge, Colo., Aug. 10–13.

The daylong Colorado River Basin Forum gave participating legislators the opportunity to learn and discuss the latest on the management of the river, including the seven states' shortage plan and conjunctive reservoir management, current water supply and demand challenges, perspectives from upper and lower basin states, and international management issues.

The seven states that comprise the Colorado River Basin are California, Arizona and Nevada in the lower basin, and Colorado, Wyoming, Utah and New Mexico in the upper basin.

CSG-*WEST* staff provided an overview of the collection of compacts, agreements, contracts, treaties, state and federal legislation, court decrees and federal administrative actions that divide and regulate the use and management of the Colorado River, also referred to as the "Law of the River."

The forum included an impressive list of speakers from all seven Colorado River Basin states, as well as key federal officials. Participating speakers represented a varied mix of urban, rural, environmental, academic, regional and international stakeholders that play a critical role in the management of this important water system.

Major discussion points included:

- The Colorado River Basin is the fastest growing region in the country. Population growth in the lower and upper basins is expected at 39 percent and 26 percent, respectively, by 2025.
- The Colorado River is over-appropriated by 1.8 to 4.0 million acre-feet of water. The Colorado River is over-appropriated by 1.8 to 4.0 million acre-feet of water due to increased water appropriations among urban, agricultural, industrial, environmental, and tribal land users.
- Drought conditions (the Basin experienced five years of extreme drought in 2000–2004), along with climate change variability (warmer temperatures and declining snow pack), have affected water supply, particularly at Lake Powell and Lake Mead.
- Basin states need to cooperate more closely to avoid conflicts and perpetual litigation



The Colorado River in the eastern end of Grand Canyon National Park—below desert view overlook. (Photo and caption, National Park Service)

on deliveries during drought/shortage situations, reservoir management and supply augmentation. The recent Seven Basin Agreement on shortage criteria and conjunctive reservoir management is a first step toward a renewed collaborative approach to water management on the Colorado River.

- Consideration of long-term augmentation through conservation, weather modification, desalination, efficient water management practices, conjunctive management, storage and other programs such as interim surplus guidelines and agricultural-to-urban transfers.
- Consideration of the potential implications of the Quantification Settlement Agreement, lining of the All-American

Canal, and Interim Surplus Guidelines on water deliveries to Mexico per the 1944 U.S.-Mexico Water Treaty.

- Need for enhanced binational coordination through the International Boundary and Water Commission's U.S. and Mexico sections and the seven basin states.
- Copies of the PowerPoint presentations can be obtained at the CSG-WEST Annual Meeting Web site at [www.state.co.us/gov\\_dir/leg\\_dir/lcstaff/CSG2006/Powerpoint.html](http://www.state.co.us/gov_dir/leg_dir/lcstaff/CSG2006/Powerpoint.html). Just click on "Colorado River Basin Forum."*

*If you have any questions about the Colorado River Basin Forum, please contact Edgar Ruiz, CSG-WEST Water Policy Staff, at telephone number (916) 553-4423.*

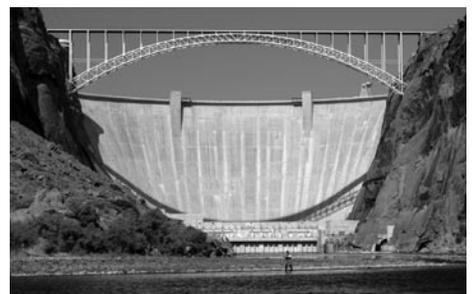
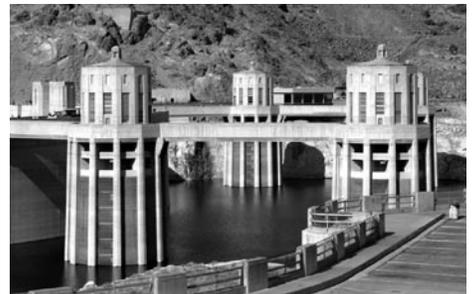
# Colorado River Quick Facts

- The Colorado River, which commences in the craggy peaks of the Colorado Rocky Mountains, gathers force from tributaries and water runoff as it tumbles more than 1,400 miles, carving a channel through the southwestern U.S. and Mexico before reaching the Sea of Cortez.
- More than 25 million people and 3.5 million acres of farmland—as well as numerous species of plants, fish and wildlife—in seven states rely, at least in part, on Colorado River water.
- The Colorado River is subject to varying temperatures. Temperatures can range from 60 degrees below zero Fahrenheit in the high mountains to a blistering 125 degrees in the desert valleys.
- Based on the 1922 Colorado River Compact, the lower and upper basins each have a right to 7.5 million acre-feet of water annually. In accordance with the 1944 Water Treaty with Mexico, the U.S. must provide a minimum of 1.5 million acre-feet of water annually south of the border.
- The river's facilities produce 10 billion kilowatt hours of hydroelectric generation, enough electricity to meet all electricity needs of 3 million people or the partial needs of 9 million to 12 million people.
- The amount of concrete in Hoover Dam, power plant and associated structures: 4,400,000 cubic yards—enough to pave a 16-foot wide road from San Francisco to New York City.
- The 110-mile long Lake Mead has 550 miles of shoreline and has about 10 million recreational users a year.
- Lake Powell, which holds a maximum of 26 million acre-feet of water, has about 3 million visitors a year.
- Number of major dams and storage reservoirs: 10;  
Number of hydropower facilities on the Colorado River system: 11;  
Total storage on the Colorado River system: 60 million acre-feet.

Source: Colorado River Facts, Water Education Foundation



National Park Service



# CSG-WEST Energy and Public Lands Committee Discusses Energy Independence and Conservation at Annual Meeting

by Rich Lindsey

Energy independence and U.S. national security relative to current energy suppliers were on the mind of Utah Sen. Mike Dimitrich when planning the CSG-*WEST* annual Energy and Public Lands committee meeting in Breckenridge, Colo.

It was one of three areas of focus at the meeting. Energy conservation and western demands for electricity were also on the agenda.

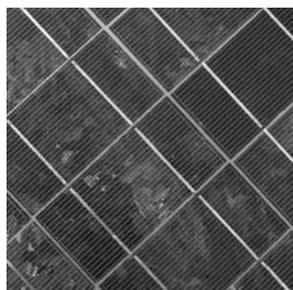
Murray Smith, minister-counselor of Alberta, Canada, said today Alberta supplies more than 11 percent of U.S. crude oil imports and 60 percent of U.S. natural gas imports. He said Alberta's vast supply of tar sands, an oil supply even greater than that of Saudi Arabia, could benefit the U.S. even more in the future.

He reminded the committee that Alberta offers a secure and stable political and economic environment for all aspects of oil and gas exploration and production. This secure energy supply has made Alberta an increasingly important strategic player in the global energy economy. Asian countries are closely examining Alberta as a future supplier of energy as well because of Alberta's political stability, according to Smith.

Dimitrich, chairman of the energy committee, observed that although much of the world's attention is on the Middle East, perhaps more attention should be paid to our neighbors to the north for greater energy security.

Roya Stanley of the National Renewable Energy Laboratory in Golden, Colo., discussed cutting-edge research and conservation measures by local communities. Stanley covered areas including new applications of thin film solar technologies, hybrid energy systems, biomass electricity generation, fuel cells and new approaches to building technology. All these technologies could have significant impacts on the diversity of U.S. energy resources in the near future.

Stanley also discussed the community effort in Austin, Texas, to reduce energy consumption. By enforcing energy efficient building codes, offering rebates for high efficiency appliances, and a series of other conservation policies, Austin was able to take a coal-fired plant off the utility's planning books. Similar efforts and successes in conservation can be made in smaller rural



communities as was evidenced by the work in Osage, Iowa, a small Midwestern town.

Roger Kranenberg, policy director for the Edison Electric Institute, gave an excellent overview of electricity in the U.S. from generation to consumption. Consumption is at an all-time high today and is expected to increase 45 percent by 2030.

Kranenberg outlined future challenges to electricity supply, including fuel diversity and coal transportation. Rising fuel costs and the need for fuel upgrades and new infrastructure additions add to concerns. Ninety-five percent of all increased utility operation and maintenance costs are due to rising fuel costs. The price of coal, for example, has risen more than 20 percent in the last two years. Coal provides 50 percent of the fuel

used to generate electricity. Because of this trend, many utilities have taken a leading role in energy efficiency and demand response programs for consumers.

Future infrastructure needs will play an increasingly important role for the delivery of electricity. The need to replace aging distribution infrastructure, coupled with continued population increases and demand growth, will require increased investments in distribution systems, something over \$14.5 billion, in the next 10 years. Rate structures will need to be adjusted to account for ever increasing infrastructure needs.

*For more information on the topics discussed at this meeting, contact Rich Lindsey at [rlindsey@wyoming.com](mailto:rlindsey@wyoming.com).*

# E-News Briefs

- In the absence of federal action to combat global warming, several states are addressing the matter themselves. California Gov. Arnold Schwarzenegger, who recently signed legislation capping the state's greenhouse emissions, announced his state will join seven Northeastern states in their efforts to reduce emissions. The Northeast program is designed to reduce greenhouse gas emissions by 10 percent. Power plant emissions reductions will begin in 2009, by allowing plants to trade emission credits. Schwarzenegger hopes that by joining the Northeast group, it will be easier for California power plants to meet their reduced emissions standards. The California law is the nation's first statewide cap on greenhouse gas emissions.
- The U.S. Departments of Energy and Agriculture recently joined forces to host the Advancing Renewable Energy Conference in St. Louis. The conference featured presentations on renewable energy research in areas including biomass, ethanol, wind and solar power. The conference was used to announce several new federal initiatives including \$17 million in DOE grants for biomass research and \$13 million to fund solar energy research.
- The U.S. Environmental Protection Agency and the Department of Agriculture recently signed a water quality credit trading agreement. Under the proposed system, a market-based approach will offer incentives to farmers and ranchers using conservation practices to improve area water quality. When farmers and ranchers reduce their pollution, they will earn credits they can then trade or sell to municipal and industrial facilities governed by the Clean Water Act.
- After a two-decade legal battle, the U.S. Fish and Wildlife Service has approved the creation of a silver and copper mine in north-west Montana. The 10,000-ton-per-day mine, owned by Revett Minerals, will tap into deposits below the Cabinet Mountain Wilderness, one of the first areas protected under the landmark 1964 Wilderness Act. Conservation groups have been fighting the planned mine because the Montana Cabinets are home to grizzly bears, a species protected under the Endangered Species Act, and a declining bull trout population. Ultimately, the Fish and Wildlife Service ruled that the mine would not adversely affect the area's wildlife population. Conservation groups are expected to continue fighting the mine and will likely challenge the Fish and Wildlife ruling in court.
- One of the largest environmental cleanup efforts in New York state history was announced recently, as aerospace giant Honeywell Inc. agreed to pay \$451 million to clean up Lake Onondaga. In 1999, Honeywell purchased Allied-Signal, the company responsible for releasing mercury, solvents, calcium and other pollutants into the lake. The cleanup plan, which must still be approved by a federal court, requires the company to dredge the lake and seal the lake floor with gravel and sand. Honeywell will also conduct environmental studies and habitat restoration. Lake Onondaga is a critical waterway and sacred site for the Onondaga Nation, one of six Native American tribes comprising the Iroquois Confederacy. Representatives of the Onondaga Nation have called the Honeywell remediation plan insufficient.
- The World Health Organization recently announced that around 2 million premature deaths a year are caused by air pollution. WHO's new air quality guidelines encourage cities around the world to reduce the harmful pollution by cutting the levels of particulate matter, ozone and sulfur dioxide. Of these pollutants, particulate matter was of the greatest concern to WHO officials. Particulate matter is produced mainly through burning fossil fuels and has been increasingly linked to a number of respiratory illnesses and heart disease.



## EcOs Will Go Paperless in '07

**When?:** Starting with the Winter 2007 issue.

**Where?:** The winter issue will be available on the CSG Web site at [www.csg.org/pubs/pubs\\_ecos.aspx](http://www.csg.org/pubs/pubs_ecos.aspx) in PDF format.

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**What if I responded to the subscription renewal request printed in the Summer 2006 issue?:** If you provided an e-mail address at that time, you automatically will be included on the e-mail subscription list.

**Who should I contact if I have questions?:** You can contact **Krista Rinehart**, editor of *EcOs*, at **(859) 244-8249** or [krinehart@csg.org](mailto:krinehart@csg.org).

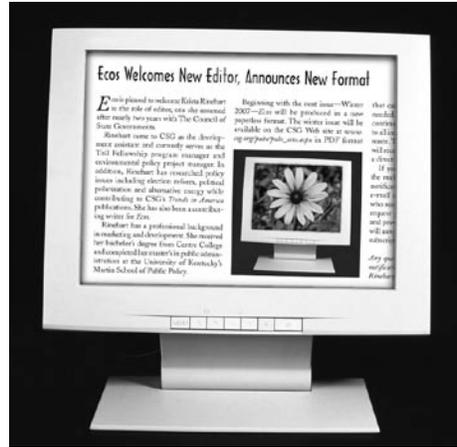
# Ecos Welcomes New Editor, Announces New Format

*Ecos* is pleased to welcome Krista Rinehart to the role of editor, one she assumed after nearly two years with The Council of State Governments.

Rinehart came to CSG as the development assistant and currently serves as the Toll Fellowship program manager and environmental policy project manager. In addition, Rinehart has researched policy issues including election reform, political polarization and alternative energy while contributing to CSG's *Trends in America* publications. She has also been a contributing writer for *Ecos*.

Rinehart has a professional background in marketing and development. She received her bachelor's degree from Centre College and completed her master's in public administration at the University of Kentucky's Martin School of Public Policy.

Beginning with the next issue—Winter 2007—*Ecos* will be produced in a new paperless format. The winter issue will be available on the CSG Web site at [www.csg.org/pubs/pubs\\_ecos.aspx](http://www.csg.org/pubs/pubs_ecos.aspx) in PDF format



that can be read online or printed out as needed. The new format will allow CSG to continue producing *Ecos*, making it available to all interested parties but with less physical waste. Those subscribing to the publication will receive e-mail notifications that include a direct link when a new issue is available.

If you are currently receiving *Ecos* in the mail and would like to receive e-mail notifications of new issues, please send your e-mail address to [krinehart@csg.org](mailto:krinehart@csg.org). Those who responded to the subscription renewal request printed in the Summer 2006 issue and provided an e-mail address at that time will automatically be included on the e-mail subscription list.

*Any questions regarding the new format or notification procedures can directed to Krista Rinehart at (859) 244-8249.*



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