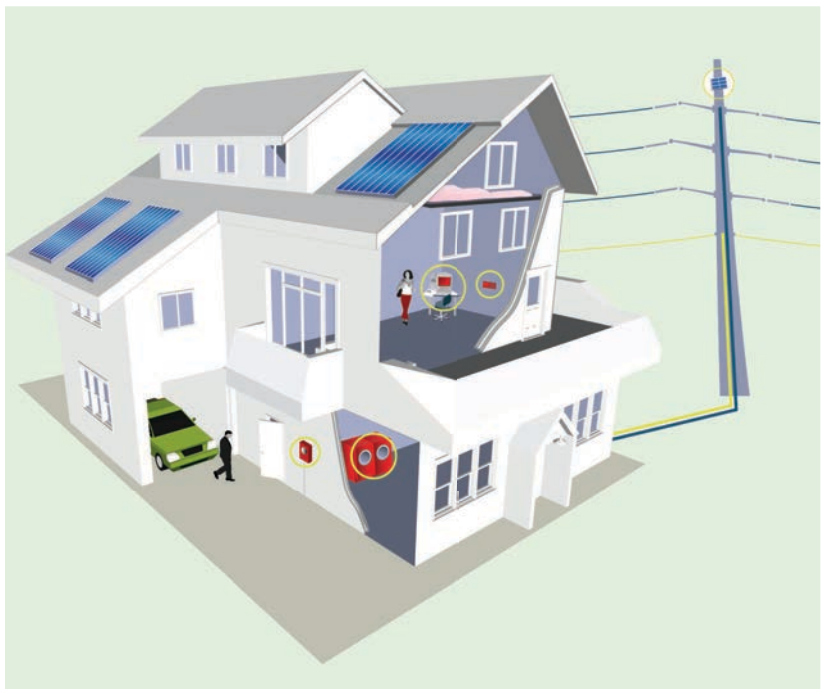
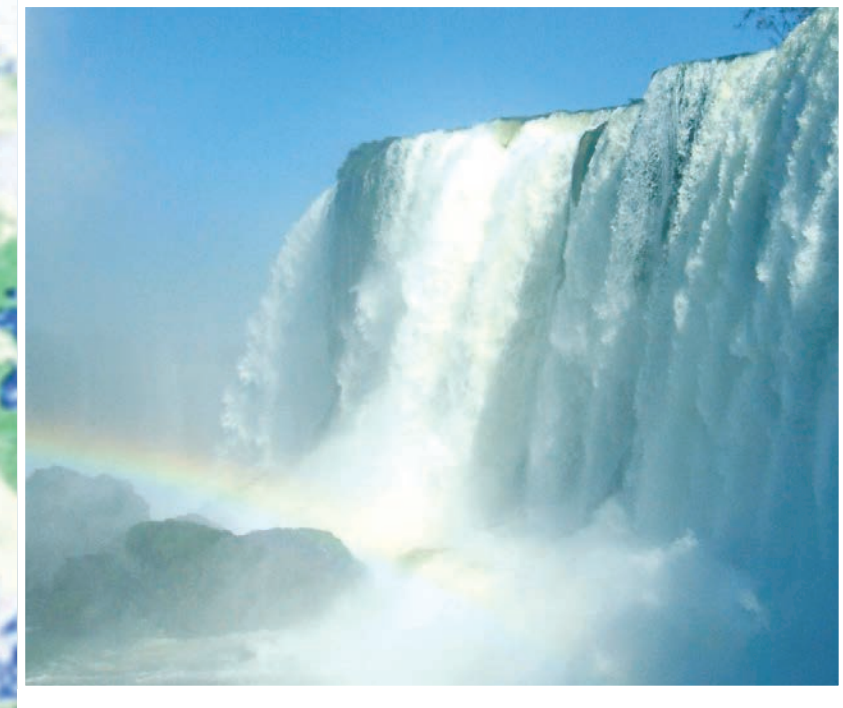
BOULDER COUNTY BUSINESS REPORT
June 6-19, 2008
SECTION B

GREEN ECONOMY

Building a sustainable marketplace



House for the Smart Grid 4B



The water-energy nexus 6B

Developing renewable energy 11B

The carbon footprint debate 12B

'Green Economy' highlights facets of burgeoning sector

It's known by a variety of different names: the Green Sector. The Clean Energy Cluster. Sustainable business. The New Energy Economy.

Whatever it's called, it's clear that green-oriented businesses have caught economic-development fire like few other sectors in the Boulder Valley. That's why the Boulder County Business Report undertook this section, published to coincide with our first Green Summit, June 6, in Boulder.

PUBLISHER'S NOTEBOOK
Christopher Wood

The "Green Economy," as this section is called, is intended to take a comprehensive look at what's driving the emergence of environmentally oriented technologies, services, products and employers. It includes:

- An overview of the green economy, ranging from clean-energy companies setting up shop locally to green building, eco-friendly waste-management, transportation, etc.
- A look at Xcel Energy's plans for the Smart Grid City in Boulder.
- An examination of what Sandia National Laboratories called the "Energy-Water Nexus." Production of energy requires an abundance of water, with the electricity industry second only to agriculture as the largest user of water in the United States. What does the future hold for the West, where booming populations — and demand for electricity — come face to face with deficiency of water?
- A look at how to get started in implementing sustainable business practices.
- An in-depth article on how to take your sustainable business practices to the next level, by fostering change management within your organization, so that employees, managers and suppliers all begin to think "green."
- An article describing the emerging "Clean Energy Cluster" in Boulder and Broomfield counties, with companies such as ConocoPhillips, RES Americas Inc. and others all setting up shop in the region.
- An examination of green-building trends and resources available to developers and brokers dealing with new government mandates and increased market demand.
- An article exploring the pros and cons of carbon credits.
- A look at green technologies, products and services emerging from Boulder Valley companies.
- An exploration of trends in development of renewable energies.

We hope you enjoy this special section. Please send any additional ideas for coverage of the green sector to me at cwood@bcbr.com.

Green economy hot business trend, but will it last?

Sustainability rests on ability to create cost-effective solutions

BY DOUG STORUM
Managing Editor

The green economy is a hot business trend that is touching nearly every industry worldwide, and companies and local governments in the Boulder Valley are chipping in by implementing plans to do what's right for the environment without jeopardizing the bottom line.

The green economy is taking shape, bringing with it the promise of well-paying manufacturing jobs; of management and sales opportunities with huge growth potential; and lots of niche positions for enterprising students and job seekers looking for alternative careers.

Experts contend the green economy is not just about the environment - it's about creative people finding alternative ways to work and live with the least environmental impact.

The belief that man and industry are negatively affecting climate change, which in turn is damaging nature, is driving the economy in this direction. Experts still debate whether or not scientific proof exists, but more and more people are taking action as if definitive proof exists.

COURTESY SIEMENS

Creating alternative energy sources such as wind power is one of several key elements in the movement toward a green economy.

Jeff Fiedler, a federal relations specialist at the University Center for Atmospheric Research in Boulder said about global warming, "If we wait until we understand this perfectly, we'll be toast."

Venture capitalists sense it, backing companies in the energy industry to devise technologies to create renewable products. Federal, state and local governments sense it, offering incentives to companies to pursue the manufacturing of clean technologies, use alternative energies, recycle waste and pass laws that dictate changes in how we serve as Earth stewards. Companies sense it, looking for ways they can 'go green' and not break the bank, or cash in on the growing demand for natural and environmentally friendly products.

FROM COLORADO GOV. BILL RITTER'S efforts through new legislation designed to steer the state toward a "New Energy Economy" to Eric Wiesenfeld of Longmont founding the Colorado Green Tech Group where "green techies" can meet, network and pitch their ideas to venture capitalists is evidence that the will exists to find a way to make a green economy work.

Will this green trend last? What remains to be seen is if the career ladders appearing in every sector, from green building to organic farming, solar installation and sustainable marketing,

➤ See **Trend, 15B**

Smart Grid designed for frugal use of energy

Boulder test market will provide insight on how well it works

BY CHRISTINE WEEBER
Business Report Correspondent

BOULDER—Energy generation, delivery and use in Boulder will get smarter with the development of Xcel Energy's first Smart Grid City.

Smart Grid is a comprehensive plan for revamping the grid to take advantage of automated technologies and incorporate distributed energy generation, such as wind, solar and battery power.

But what does Smart Grid really mean for customers in Boulder? That's a question Xcel Energy can't answer yet because the set of specific programs and devices to be implemented is still to be determined.

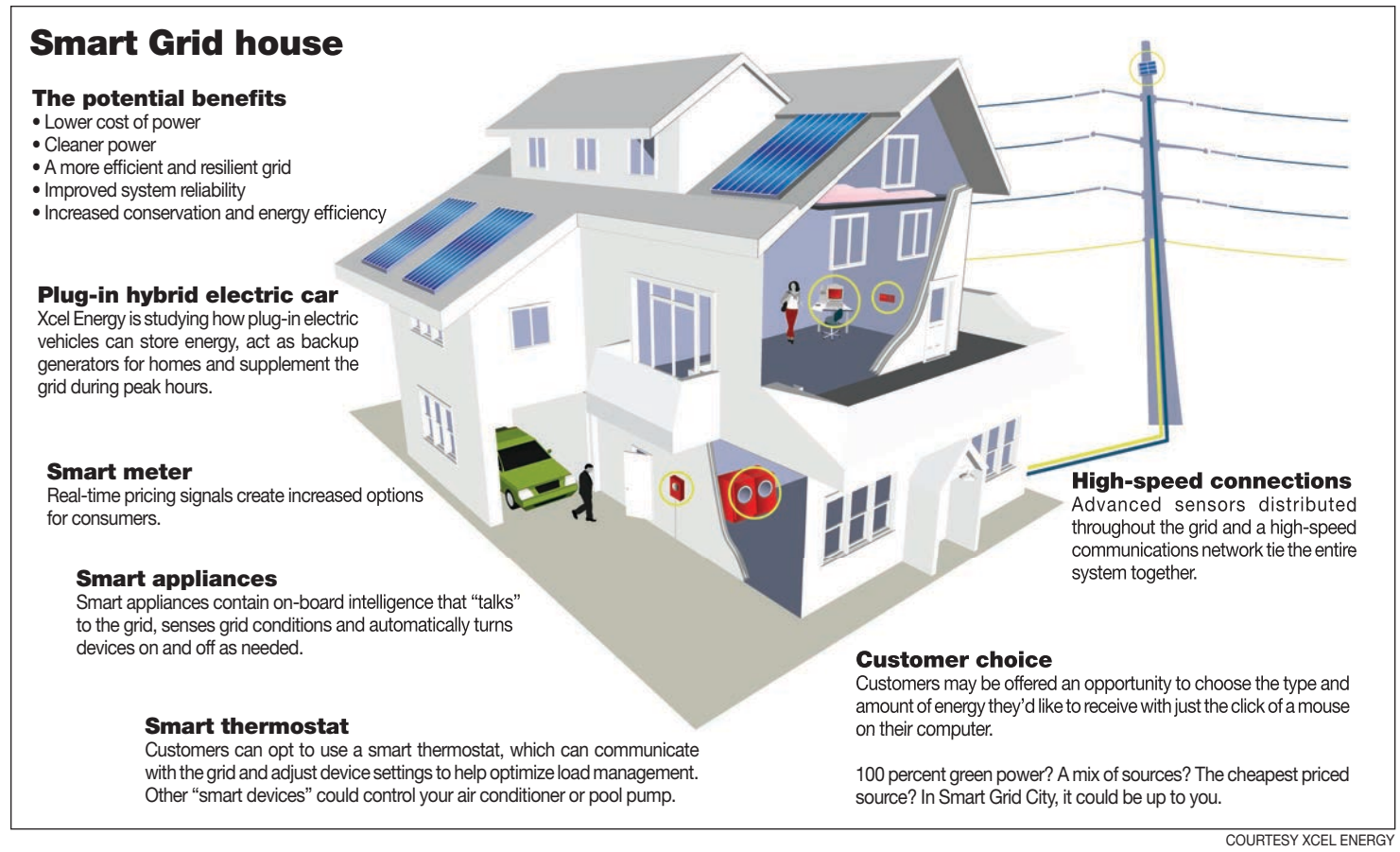
At minimum, most customers will receive a new meter that tells them how much energy they use. The meters also will provide two-way communication with a central station, so power outages will be shorter or eliminated altogether.

In the future, participating customers will be able to automatically run appliances when energy prices are lowest or automatically switch to wind power when it is available. Customers may be able to plug in electric vehicles at their homes or at a Park-n-Ride, use the battery as a backup during an outage or sell the energy back to Xcel during peak demand hours.

Behind-the-scenes changes to the grid will bring greater reliability, more efficiency in the delivery of electricity, time-of-use pricing and the use of more renewable energy sources.

"We're pioneering what the best Smart Grid program looks like, so there will be several different kinds of devices and programs," said Roy Palmer, Xcel Energy's managing director of government and regulatory affairs. Smart Grid means the whole city will be enabled, he said, but participa-

➤ See **Smart, 5B**



COURTESY XCEL ENERGY

Xcel Energy envisions a homeowner to be able to tap into the Smart Grid to communicate energy choices and automatically receive electricity based on personal needs.

SMART from **4B**

tion in specific programs will be voluntary.

Xcel will not charge a fee for new meters or for the programs, Palmer said. The company will offer incentives to encourage off-peak energy use and reduction in overall energy use. Where things go from there will depend on the consumer, Palmer said.

"We don't want to try to force people to do anything. We want to provide choices and create value based on what consumers see as value, whether that's environmental or lowering their bill."

The project is expected to cost about $100 million, with Xcel contributing $15 million. The company will receive contributions from its partners and is seeking grants and private funding. Its partners - Accenture, Current Group, GridPoint, Schweitzer Engineering Laboratories and Ventyx - will contribute guidance, and products and services in return for a share of the intellectual property rights and enhancements of their products and services.

In Phase I, which began in March and runs through August, Xcel will install 15,000 new meters for residential, commercial and light industrial customers. The city has a total of about 50,000 meters, Palmer said. The meters, two substations, and five feeders, which are secondary lines out of the substations, will be automated to allow for two-way communication with the central network in Golden.

The improved system will adjust energy use within the city and minimize the impact of peak loads. As a result,

Xcel may be able to avoid building more power plants in the future by dispersing peak loads and delivering energy more efficiently.

Smart Grid will be comprehensive enough to incorporate new technologies at nearly every stage of the process, yet it is being built to remain flexible enough to handle future innovations that save energy, give more control to consumers and decrease impacts on the environment.

The flexibility of Smart Grid is part of what convinced Boulder's leaders to jump on board. Since the new grid will better be able to incorporate renewable energy generated in dispersed sites, such as from home-based solar panels, the new system is a good match for the city's Climate Action Plan.

> **"We're pioneering what the best Smart Grid program looks like, so there will be several different kinds of devices and programs."**
>
> **Roy Palmer**
> MANAGING DIRECTOR OF GOVERNMENT AND REGULATORY AFFAIRS, XCEL ENERGY

"We're looking to take advantage of demand-side management programs, such as incentives and rebates," said Jonathon Koehn, environmental affairs manager for the city of Boulder, "and to ramp up our ability as an organization to produce as much power as we're consuming."

In the next six months, the city of Boulder has several solar projects that will come online, Koehn said. Looking ahead, he added, Smart Grid would allow the city to use energy from microwind turbines, large-scale wind purchases, building-integrated wind systems and concentrated solar systems — all of which would reduce greenhouse gas emissions, the primary goal of the Climate Action Plan.

Even if Boulder generates much of its own electricity, this doesn't mean it should municipalize its energy, Koehn said. The city still would have to purchase power on the open market to make sure it supplied consistent, backup power. By working with Xcel, Boulder can have input on the process so that Smart Grid "can be an enabler for new and creative and innovative solutions to our energy needs," he said.

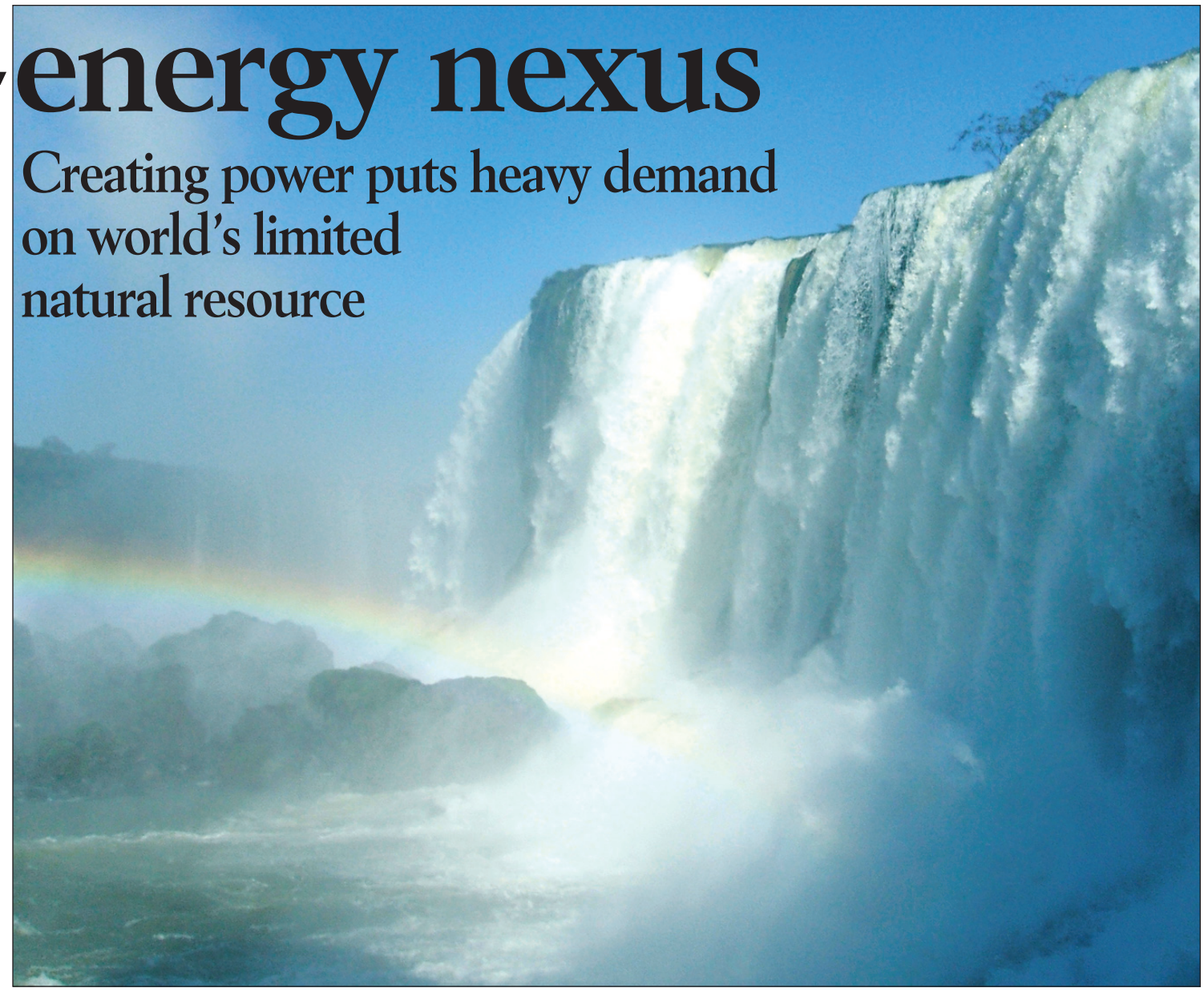
Palmer and Koehn agreed that regulatory changes such as a national carbon tax would help maximize the benefits of Smart Grid. Not only will this new system focus on the amount and type of energy used, but it would also allow many of the financial incentives of a carbon tax to be passed on to consumers. Palmer pointed out that federal subsidies to help customers purchase, for example, hybrid vehicles that could plug into the grid, would increase the benefits of a Smart Grid City.

In its first Smart Grid City, Xcel wants to find out what works before rolling out the program across its eight-state territory, Palmer said. Xcel has met with the University of Colorado, the National Renewable Energy Labs in Golden, the Department of Energy, and General Motors to encourage them to help build the Smart Grid City and deploy their own innovative technologies.

"Our hook to them is, for the first time ever," he said, "You have a whole city that can accommodate some of this stuff, so you can really try things out."

Water-energy nexus

Creating power puts heavy demand on world's limited natural resource



COURTESY WATSON INTERNATIONAL SCHOLARS

Water provides the power for hydroelectric plants, and water use permeates the energy industry from extracting oil shale to ethanol creation from corn.

BY JEFF THOMAS
Business Report Correspondent

If water is to life as what energy is to industrialized society, then perhaps it was destined the two would collide in conflict amid a burgeoning human population.

Many experts believe that's exactly what's happing in the arid American West, where rising energy needs from increasing population may collide with decreasing availability and storage of water.

According to information from the Sandia National Laboratory in Albuquerque, N.M., if the water use of energy development across the nation continues along its present course, by 2035 it will rank second to only agricultural use of fresh water, having surpassed both domestic and industrial use.

"If we take business as usual, we are going to need a lot more water for electricity and power plants," said Mike Hightower, a water and energy expert from the laboratory. "During the 1970s and '80s we still had a lot of excess reservoir capacity, but what has happened in the last 25 years is there really hasn't been any increases (in reservoir capacity), and there's a lot more environmental regulations on surface water

➤ See **Nexus, 7B**

Auto Enthusiast
VW's CUV Tiguan handles like a champ
36A

EXECSTYLE

Stepping out
Bimbamboo Asian restaurant is inexpensive, tasty
37A

Perfect harmony

JONATHAN CASTNER/COURTESY TIMBERLINERS

The Timberliners chorus has 25 regular members, including two full-time barbershop quartets, the Ponderosa Vigilantes, seen here from left, Joe Arnold, Cole Kairsey, Bill Jones and Allan Barker, and a newer group, "Surrounded by Reality."

Boulder barbershop chorus sings in unison to make beautiful music

BY KEELY BROWN
Business Report Correspondent

When Bill Jones was a professor of mathematics at the University of Colorado at Boulder, he had what he calls a "life-changing event" thanks to a visit from a barbershop quartet.

"I was in Boulder Memorial Hospital trying to recover from a back strain, which had debilitated me, and one evening a barbershop quartet came through the hospital to sing for the patients," he said. "It was such an emotionally uplifting experience that I asked them if they belong to an organization, and they told me about the Timberliners.

"I got leave from the hospital and went to a meeting that same week, and it helped me recover."

For more than three decades Jones has sung with the Boulder Timberliners. The group meets for two-and-a-half-hours of music making every Tuesday evening. Now retired after 35 years at the university, Jones said that the joy of creating beautiful a cappella harmonies every Tuesday night helped him through the daily challenges of his career.

"I had a very demanding job, but being with the Timberliners opened up the other possibilities in my life that I needed," he said.

Since 1949 the Timberliners have been the local chapter of the Barbershop Harmony Society (formerly the Society for the Preservation and Encouragement of Barbershop Quartet Singing in America). Today, the Barbershop Harmony Society is the world's largest all-male singing organization, with more than 30,000 members singing in more than 800 chapters throughout the U.S. and Canada. There are another 4,000 participating in affiliated organizations throughout Europe.

While barbershop singing may seem a strictly male domain, women have an opportunity to participate as well with their own international group, The Sweet Adelines, which has chapters throughout Colorado, including Boulder County.

"This group is for people from all walks of life, people who simply like to sing," said Don Reimer, Timberliners vice president of external communications.

The Timberliners chorus has 25 regular members, including two full-time barbershop quartets, the "Ponderosa Vigilantes" (of which Bill Jones is a founding member) and a newer group, "Surrounded by Reality."

Reimer said members range in age from 14 to older than 75. While half the singers are retirees, the rest are business professionals in a myriad of careers — as music director Chad Boltz discovered when he first began working with the group.

"I've got engineers, doctors, IT guys, professors and accountants in here. In fact, I lose one of my members every year because of tax season," Boltz said.

As a University of Colorado voice performance graduate with a local private voice studio, Boltz began his affiliation with the Timberliners while working as a voice coach for several of its members.

"I literally knew nothing about barbershop singing when I started," Boltz said. "I was a vocal performance major, and my experience was classical. I initially did private coaching with some of the members to improve their technique and musicianship, and then I transitioned into working with the entire group."

➤ See **Harmony, 38A**

On tap

On Saturday, June 28, at 7 p.m., the Boulder Timberliners along with the Rocky Mountain Revels will present "In the Good Old Summertime," an evening of singing and Irish step dancing, at the Boulder Chautauqua Auditorium, 900 Baseline Road. Tickets are $12 for adults, $6 for children.

On Saturday, July 26, at 7 p.m., the Boulder Timberliners will present its annual "Barbershoppers Harmony Festival" at the Chautauqua Auditorium. Tickets are $15 for adults, and $10 for children, students and seniors. For more information on both of these concerts, call 303-440-7666 or go online at www.chautauqua.com

and on intake structures. We really don't have the water resources we had 25 years ago."

Most of us equate water and energy needs with hydroelectric plants, which don't actually diminish fresh-water supplies, but in fact water use permeates much of the energy industry. Power plants use water to varying degrees for cooling towers and well as emission controls. Extraction of fossil fuels also requires water, and in Colorado extraction of oil shale could be a huge water user, as could ethanol creation from corn.

In the United States, the Sandia Lab team says there already is some conflict between water availability and energy use in four of five sections of the nation, with the exception of the Northeast. So the problem is expected to extend even to the Pacific Northwest, which has historically produced much of its energy from hydroelectric plants.

The problems extends to Europe and Asia, as well, and Hightower noted the United Nations is also taking a serious look at the issue.

Hightower said the Southwest, including Colorado, is looking at a 100 percent increase in energy use by 2035, including meeting huge demands in California, which increasingly has relied on coal-fired plants from other parts of the West.

"So we may be at a crossroads for diminishing availability of water for energy," Hightower noted. "We can't use it the way that we have the last 100 years. But it's easier to make changes now than to go down the road 25 years and try to make changes at that time."

For Lee Rozakolis, a founder of Boulder's Hydrosphere, which recently was purchased and rolled into AMEC's Earth & Environmental division, the questions posed are interesting, but don't necessarily look that different than other water conservation problems.

"In one sense the growing demand for energy is not very different than the growing demand for human use, where we have to acknowledge the water needs of environmental and nonhuman use," Rozakolis said. "Water demand for energy is part of the same puzzle, and the systems are to some degree already set up to deal with this."

Both Rozakolis and Hightower look to increased water conservation in energy development and more regional water planning.

"If you look at oil shale, the way that people were looking at developing this are quite different than they were 25 years ago (and could be accomplished with less water)," Rozakolis said. "This isn't Colorado's first energy boom, and many of the same players are the same that they were 25 years ago. Energy companies, for the most part, realize they have to develop new water rights or acquire old water rights."

For everyone involved, the major wild card in the deck is climate change and how that may change water supplies.

"Supply has become more uncertain with climate change and has the potential for greater variability," Rozakolis said. He noted some water managers say that will require greater storage, but if there is actually less water available, big new reservoirs may not fill.

"If water is coming off earlier, then maybe we need to look at smaller reservoirs in headwater areas for farmers," he said. "But if the need for storage is driven by the needs of agriculture you will have to look at the economic viability, too."

For energy development, Rozakolis noted there are more opportunities to address supplies through reuse and reusing municipal effluents than there are in may other water-use areas.

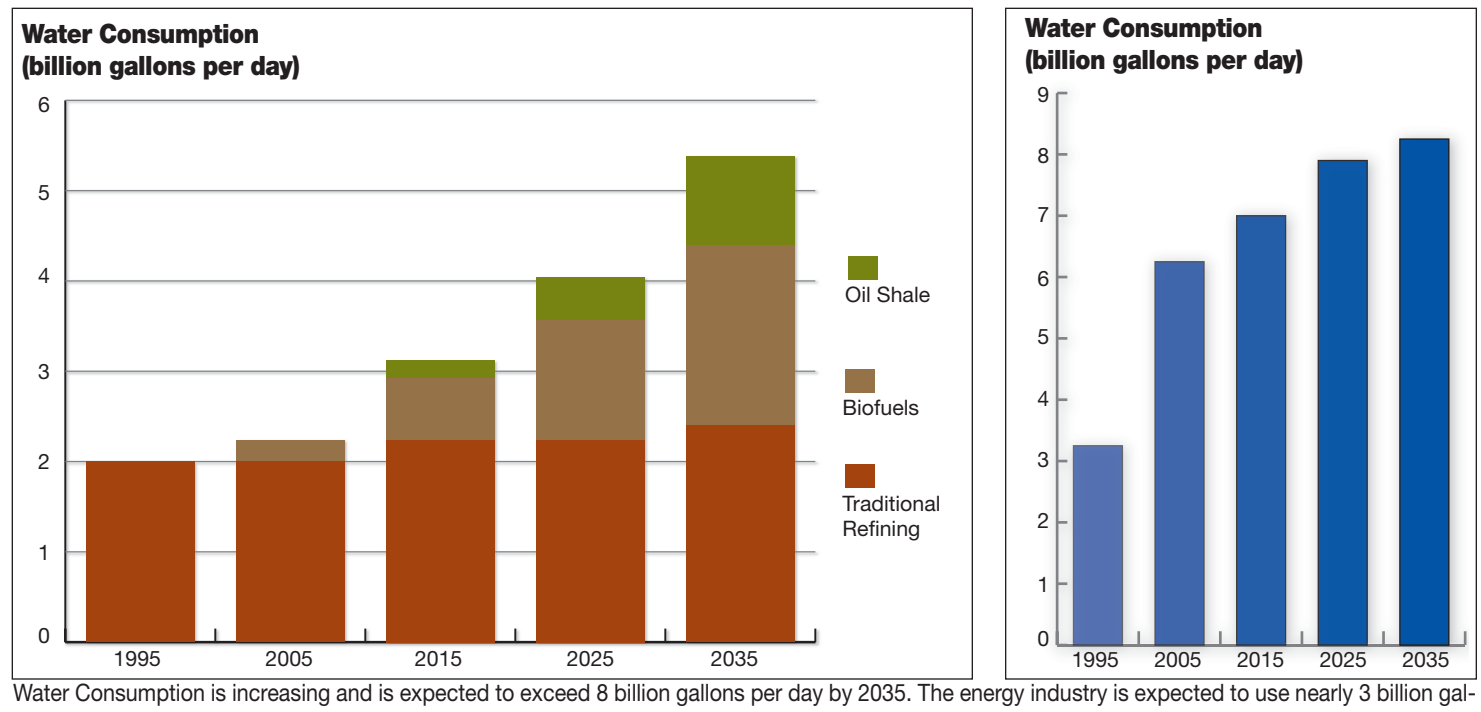
Rozakolis said wind and solar systems are coming around much more quickly than many experts expected, and he expected that those two areas could contribute as much as 25 percent of Colorado's total energy package in 25 years.

But that still leaves the problem of baseload energy, said Hightower, noting that many of the renewable energy supplies, such as solar and wind, can't add electricity to the grid in the steady way that power plants do today.

Water use in the West is an energy consumer, when treatment, pumping and other transport are taken into consideration. But in Boulder, the 3,000- to 4,000-foot drop between the water supply and the end user sees hydroelectric power being created in the water lines.

And everyone agrees that the kind of planning and efficient use that will have to be in place 25 years down the road.

"We're going to have to look in terms of the carrying capacity of the land," Hightower said. "We're going to have to be much more efficient."



Water Consumption is increasing and is expected to exceed 8 billion gallons per day by 2035. The energy industry is expected to use nearly 3 billion gallons per day in 2035.

"If we take business as usual, we are going to need a lot more water for electricity and power plants."

Mike Hightower
WATER AND ENERGY EXPERT,
SANDIA NATIONAL LABORATORIES

Clean energy cluster grows in Boulder Valley

Homegrown, transplanted companies form partnerships with universities, national labs

BY LYLA D. HAMILTON
Business Report Correspondent

BOULDER — When it comes to clean energy, the Boulder Valley region has muscle, observed Frances Draper, executive director of the Boulder Economic Council.

What it needs is coordination. "The challenge is how to organize what is going on," she said.

The economic council, the city of Boulder, the Boulder Chamber of Commerce and the Colorado Green Tech Group are among the organizations working to advance clean energy in the region. Statewide, Gov. Bill Ritter has made a "New Energy Economy" a theme of his administration.

Forms of energy generally deemed "clean" are renewable sources, including wind and solar, as well as some biofuels. The sector encompasses infrastructure and management as well as generation and storage of energy.

"There's a great deal of diversity," said Linda Olsson, program manager for renewable energy at the Boulder Innovation Center, which works with the University of Colorado at Boulder's technology transfer office to support entrepreneurial ventures in Boulder County. "We have initiatives in biofuels, transportation, energy storage and carbon capture."

Global competition abounds.

"Hundreds and thousands of places are trying to become clean energy clusters," Olsson said.

Harvard Business School professor Michael Porter, who coined the term, describes a business cluster as "a geographic concentration of interconnected companies, specialized suppliers, service providers and associated institutions in a particular field."

California's Silicon Valley and North Carolina's Research Triangle are familiar examples of business clusters.

According to Ron Bernal, a partner with venture capital firm Sequel Venture Partners in Boulder, clean technology, of which clean energy is the largest subset, has entered a new phase.

"It's becoming fundamental rather than cyclical," he said. Drivers are higher energy prices, national security issues and global climate change.

The experience of California and Massachusetts shows that collaboration between advanced research institutions and the business community are crucial to the formation of a vibrant business cluster, he added. "You need human capital in the forms of both technical and business knowledge," he said.

Depending on its focus, a clean-energy business might need technical expertise in software, nanotechnology, photonics, advanced materials or bioscience.

Colorado is well positioned in the clean energy sector in part because of the presence of the National Renewable Energy Laboratory in Golden and the National Institute of Standards and Technology in Boulder, as well as the University of Colorado in Boulder, Colorado State University in Fort Collins and the Colorado School of Mines in Golden.

COURTESY INTERWEST ENERGY ALLIANCE

Colorado Gov. Bill Ritter has made a "New Energy Economy" a theme of his administration. Here he is seen signing two bills - HB 1281 and SB 100 - into law at the National Wind Technology Center in March of 2007. The bills help advance clean and renewable energy efforts. Behind Ritter are, from left, Senate President Joan Fitz-Gerald, D-Golden; Rep. Liane "Buffie" McFadyen, D-Pueblo; Rep. Rob Witwer, R-Genesee; Sen. Gail Schwartz, D-Snowmass; and Rep. Jack Pommer, D-Boulder.

Boulder and Broomfield counties already boast transplanted and homegrown companies that may form the commercial nexus of a clean energy cluster.

The largest is Houston-based ConocoPhillips Co. On the former StorageTek campus in Louisville, it plans a global research and development center focused on renewable energy and high-tech carbon fuels recovery. According to Mary Manning, the executive responsible for the project, Colorado's institutions of higher education, the proximity of the National Renewable Energy Laboratory and the state's familiarity with the energy industry were factors in the decision to build here.

Renewable Energy Systems Americas Inc., which builds wind energy facilities, moved its corporate headquarters and 70 employees to Broomfield in March.

Also in Broomfield, Real Goods Solar Inc., which installs residential and small commercial solar energy systems, recently went public at $10 per share. Its parent is Broomfield-based Gaiam Inc.

In Boulder, Tendril Networks Inc., which provides energy-management solutions, recently garnered $12 million in venture funding. Tony Bamonti, vice president of business development, said the firm's product, now in beta release, "gives consumers real-time information about the cost and their consumption of energy. They can choose to use energy when the price is lower or when more renewables are being used."

A successful business cluster requires appropriate financial resources and incentives, said Frank Amoroso, who leads SVB Silicon Valley Bank's clean technology practice for the company's central division. That, he suggested, may pose some challenges for the region.

> **"You need human capital in the forms of both technical and business knowledge."**
>
> **Ron Bernal**
> PARTNER,
> SEQUEL VENTURE PARTNERS

Early-stage companies here are likely to need more funding than local venture capital firms can supply. Later-stage companies may be lured elsewhere by economic development incentives.

When Broomfield ethanol producer Range Fuels Inc. recently raised a reported $166 million in Series B funding, for example, Passport Capital LLC of San Francisco led the round.

The region must retain clean energy companies when they move from the pilot stage to into production, as has happened with AVA Solar Inc., a Northern Colorado manufacturer of solar photovoltaic modules.

Too often, when clean energy companies consider locations for production facilities, Amoroso said, "Colorado is not on their radar because it is not competitive with other states regarding financial incentives."

Clean energy companies

ConocoPhillips Co.
600 N. Dairy Ashford Road
Houston, TX 77079
281-293-1000
www.conocophillips.com
Ownership: public
Principal business: energy

Renewable Energy Systems Americas Inc.
11101 W. 120th Ave., Suite 400
Broomfield, CO 80027
303-439-4200
www.res-americas.com
Ownership: subsidiary of United Kingdom-based Renewable Energy Systems Ltd.
Primary business: development, construction and operation of wind energy projects.

Real Goods Solar Inc.
360 Interlocken Blvd.
Broomfield, CO 80021
303-222-3600
www.realgoodssolar.com
Ownership: subsidiary of Gaiam Inc., Broomfield
Principal business: residential and small commercial solar energy systems in Colorado and California.

Tendril Networks Inc.
5700 Flatiron Parkway, Suite 5700-D
Boulder, CO 80301
www.tendrilinc.com
Ownership: privately held
Principal business: energy management

Range Fuels Inc.
11101 W. 120th Ave., Suite 200
Broomfield, CO 80021
303-410-2100
www.rangefuels.com
Ownership: privately held
Principal business: ethanol production

AVA Solar Inc.
4563 Denrose Court
Fort Collins, CO 80524
970-472-1580
www.avasolar.com
Ownership: privately held
Principal business: development and manufacture of thin-film photovoltaic modules for solar energy

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BOULDER COUNTY BUSINESS REPORT

Green builders face new codes, legal issues

Attorneys find 'collisions' between city, county, state, federal requirements

BY DAVID CLUCAS
Staff Writer

Within the past year, Boulder County, Boulder and Longmont have instituted new residential green building codes, increasing the energy-efficiency, building material and recycling requirements for new construction.

Additional green building codes in the commercial real estate sector and new codes for other cities in the Boulder Valley are likely in the near future.

Local builders are working to familiarize themselves with the new green regulations and legal issues.

"The majority of our builders in the area have been doing green building in some form for several years, but now it's more about learning the different details with each of these programs," said Julie Herman, executive director of the Boulder Green Building Guild.

She said builders and contractors should start by visiting the Web sites that the county and cities have put together outlining the new codes. The sites can be used to answer questions and advertise free workshops about green building.

"They need to be sure to read through them," Herman said. "The cities' and county's codes are similar, but they are definitely different."

The Boulder Green Building Guild can be a source for builders, and it puts on several workshops about green building in general. Many of the workshops bring together builders to discuss what's worked and what hasn't in green building, Herman said.

Beyond the individual government codes, a more united green building effort could arise from a consortium of all municipalities in Boulder and Broomfield counties working on a sustainable energy plan. The task force of elected officials recently released recommendations to reduce energy emissions, which include implementing new green construction codes for both commercial and residential buildings.

DAVID CLUCAS

Local city and county governments are beginning to institute green building codes for residential buildings. Commercial buildings may be next. Some builders voluntarily have made their buildings green. The shell and core of the new mixed-use office building at 1155 Canyon Blvd. in Boulder received silver certification under Leadership in Energy and Environmental Design guidelines.

> **"The majority of our builders in the area have been doing green building in some form for several years, but now it's more about learning the different details with each of these programs"**
>
> **Julie Herman**
> EXECUTIVE DIRECTOR ,
> BOULDER GREEN BUILDING GUILD

Each municipality is using the plan as a guide to draft its own green codes. In Broomfield, the city and county recently approved the latest 2006 International Building Code standards and is awaiting the organization's New Model Energy Code final draft to possibly adopt it as a sustainable building code.

Painter

On the legal, tax and financing side of green building, many law firms are creating green-focused services to help businesses pursue green projects.

The attorneys can help with maximizing tax incentives, finding the right insurance and dealing with liability issues, said Marc Painter, a partner for the real estate, finance and sustainability business group at Holland & Hart LLP in Boulder.

"All of these are fairly new laws and incentives on the city, county, state and federal level – and we're finding some collisions among them," Painter said. In some cases, a rebate could be gained at the federal level for a type of green building, but that practice may be banned at the local level — even a neighborhood homeowners association can get in the way, he said.

The key is to have a good plan right from the start by setting the green building and financial goals from beginning to end, Painter said. If a project gets off track along the way, it may not be able to meet the initial green building standards. That could lead to a failure to get certification and then cause loss of the expected tax rebates. Builders also need to make sure that the green tax rebates that exist now will still exist when they do the project.

Herman

Insurance is another issue that is beginning to change with green building. Many builders are familiar with the standard commercial building insurance but could be unaware that it will not cover certain aspects of green building.

If a building is damaged, many standard insurance policies won't cover the costs to recertify the building green. Some insurance policies will also look to replace the building at the cheaper costs bypassing some extra costs, such as recycling and using green materials. Painter said insurance companies are beginning to offer green plans that will cover these items.

Liability is another issue companies need to look out for when building green, Painter said. Similar to 'organic' foods, there can sometimes be a difference in how people interpret the word green.

"Be careful what you say about being green," he said. "Be ready to clearly define how your building is green to tenants and clients."

Finally, while a landlord may take the extra efforts to build green that doesn't guarantee that the tenant will follow with sustainable practices. Painter said some landlords are starting to put together green leases or covenants that require tenants to finish their offices green as well.

Contact David Clucas at 303-440-4950 or dclucas@bcbr.com.

Green codes

New green building codes in Boulder County and some of its municipalities are now required for most new residential construction and redevelopments. Builders can find out more about the new green laws, workshops and seminars on these Web sites:

- Boulder County - www.bouldercounty.org/lu/buildsmart/
- Boulder - www.bouldergreenpoints.com
- Longmont - www.ci.longmont.co.us/bldginsp/
- Boulder Green Building Guild – www.bgbg.org

Move over coal, renewables poised for their time in sun

BY PAM MARTIN
Staff Writer

An economic infrastructure based on renewable energy generated $477.3 billion in revenues worldwide in 2007, according to research conducted by New Energy Finance.

New technologies, abundant capital, encouraging legislation and increasing demand are factors spurring last year's roughly 40 percent jump in industry revenue growth.

For example, in Europe and Asia, utilities pay consumers for solar power that is returned to the power grid. These incentives have created demand for solar power systems in Germany, Spain and Japan, according to Jim Welch, president of Bella Energy based in Louisville.

"Those consumers pay two to three times more per kilowatt-hour (for electricity) than we do here in Colorado," said Welch. Foreign markets are driving renewable sector growth due to their historically higher energy costs.

High European and Asian demand for solar, coupled with the high cost of semiconductor grade silicon, which solar photovoltaic needs to compete head-to-head with the computer chip market, have driven up the cost of solar (a typical four kilowatt system installation can cost up to $30,000, but with a utility rebate of $18,000, and federal income tax credit of $2,000, the cost falls to a more manageable $10,000).

Newer technologies, which include thin-film silicon in the near future, and nanotechnologies in the more distant future, will be less expensive due to their reduced silicon needs. Welch expects prices to drop on photovoltaics in late 2009.

According to Clean Edge Inc., a clean-tech research and publishing firm, biofuels accounted for 13 billion gallons of ethanol and 2 billion gallons of biodiesel production worldwide. Corn- and soybean-based biofuels have been slammed in the press lately for taking food out of the mouths of the hungry and causing food prices to rise globally. Cellulose-based biofuels (from grasses), while better for the world's food supply, have fallen under attack from environmentalists for introducing invasive species where they don't belong.

COURTESY RADIANCE CORP.

A crew with Radiance Corp. in Nederland prepares to drill and excavate a trench as part of the installation process of a geothermal system. These systems that tap into the heat below the Earth's surface are more expensive if drilling must be vertical as opposed to horizontal. The depth of drilling is dictated by how much land can be tapped.

While there may yet be some bugs in the renewable resource, the industry is undergoing serious advancements. A grant recently awarded to University of Colorado at Boulder spinoff OPX Biotechnologies Inc., allows the company an exclusive license for a cutting-edge technology to develop new strains of microbes for biorefining and biofuel applications.

"The idea is to engineer microbial strains so that they can effectively convert cheap biomass to useable products," said Professor Ryan Gill, member of the OPX Biotechnolgies advisory board, in a statement.

Dubbed SCALEs, the microbial technology will speed the process by several orders of magnitude, said Gill, thereby reducing production costs and enhancing efficiency significantly.

James Richmond, president of Radiance Corp. in Nederland and an energy consultant since 1999, admits there's very little local competition in the geothermal market (that takes advantage of the solar energy stored year-round just beneath the Earth's surface).

But due to its high cost as compared with conventional heating and cooling systems (three to four times, according to Richmond), the systems remain out of the reach of the middle class.

If customers own a lot of property, a system can be installed using horizontal trenches (about twice the square footage of the house in land area, said Richmond), but in Boulder County, where land is at a premium, vertical trenches are required, between 200 and 300 feet deep, driving up overall cost, since more than half of the price for the system is in the drilling and excavation.

Most geothermal units are installed in residential new builds as opposed to retrofits so the cost can be rolled into the mortgage for this reason.

But the consumer will save between 60 to 70 percent on his or her utility bills, and the system uses electricity between 3 and 4 times more efficiently. "It is the most efficient way to heat and cool a home. Period," said Richmond.

According to Clean Edge data, global cumulative installed wind power capacity exceeded 94,000 megawatts, with wind leading the pack with more than $30 billion in revenues in 2007.

Xcel Energy (NYSE: XEL), an electric power and natural gas utility, is capitalizing on the trend. It has become the number one provider of wind energy in the nation according to company spokesman, Tom Henley. Currently producing 1,080 megawatts in wind capacity, the utility is in the process of adding another 800 megawatts by 2015. Current requests for proposals are looking to add 100 megawatts in capacity at a time.

"We are well ahead of the government's latest 20 percent renewable energy sourcing demands by 2020," Henley said.

Xcel is ramping up its solar capacity, having issued an request for proposal for a 200 megawatt solar farm. Current solar capacity for the utility is now at 8 megawatts, he said.

The upfront capital costs of a 1 gigawatt nuclear power plant, according to Clean Edge, currently range between $2 billion and $6 billion and comparable geothermal and wind-power plant construction both fall below $2 billion. A 1 gigawatt solar plant costs between $5 billion and $10 billion and a coal plant generating 1 gigawatt can cost $1.4 million to build.

The U.S. can perhaps look to France as the model for what the future holds in store, where coal and nuclear plant production are on the decline with 47,000 megawatts of wind energy added since the year 2000, as compared to only 9,600 megawatts of coal and 1,200 megawatts of nuclear energy, according to Clean Edge data.

Credit, off-set programs face challenge of proving they reduce carbon footprint

BY BRITTANY RAUCH
Staff Writer

The fight against global warming has created a global carbon-aware movement.

Reflected in the Kyoto Protocol — an agreement for countries to commit to reducing greenhouse gases — carbon credits are used as a way of offsetting shortfalls in carbon reduction.

The popularity of carbon credit programs grows alongside the popularity of becoming green. Individuals, companies and legislation are turning toward these programs to help reduce what is known as their carbon footprint or the amount of carbon dioxide released into the environment.

Carbon credits and carbon offsets are assigned a monetary value through either a regulatory program such as Regional Greenhouse Gas Initiative or the Western Climate Initiative or through voluntary programs such as the new Colorado Carbon Fund or programs available through Carbonfund.org.

These programs have people questioning the validity of carbon offsets — causing many to feel that carbon offsets are nothing more than "feel good" schemes.

Jeff Fiedler, federal relations specialist in the Government Affairs Office, said, "It is useful to draw a distinction between offsets that are part of a bigger regulatory program and voluntary programs."

Fiedler focuses primarily on federal funding for climate change and has worked with a variety of carbon-offset programs over the past seven years.

> **"A huge concern that I have with the voluntary market is that for an individual or a company there isn't really any way to know what they are buying that is why I personally I think those markets are too small and loose to have a real impact on climate change."**
>
> **Jeff Fiedler**
> FEDERAL RELATIONS SPECIALIST
> THE GOVERNMENT AFFAIRS OFFICE

"If you're a company that is going to be regulated under either the Western Climate Initiative or Regional Greenhouse Gas Initiative the offsets that you might use in compliance are controlled by state regulators through a cap-and-trade system."

Companies within cap-and-trade systems are given a cap on the total amount of carbon dioxide they are allowed to emit. Carbon offsets are purchased as a way of offsetting companies that fail to meet their carbon quota.

Voluntary offset organizations are part of an uncontrolled market. Voluntary programs generally promise to invest in renewable energy, clean technologies, reforestation and other carbon-reducing projects.

"A huge concern that I have with the voluntary market is that for an individual or a company there isn't really any way to know what they are buying," Fiedler said. "That is why I personally I think those markets are too small and loose to have a real impact on climate change."

The Colorado Carbon Fund, established through the Governor's Energy Office, is a voluntary carbon-offset program scheduled to be fully operating this summer.

Susan Innis, Colorado Carbon Fund manager, believes that using carbon offsets is a last resort after individuals shrink their carbon footprint.

"We believe that everyone should take steps toward reducing the amount of carbon dioxide and other greenhouse gases. Once we educate and help individuals and companies reduce carbon dioxide, than they can use carbon offsets," Innis said. "We understand that not everyone can reduce their emissions down to zero — carbon offsets will help offset what we can't

➤ See **Footprint, 15B**

First steps for going green can be taken to trash bin

BY KEELY BROWN
Business Report Correspondent

For small-business owners, implementing environmentally friendly business practices can be a daunting task.

Addressing issues such as waste reduction and energy conservation all at once can be an overwhelming prospect, unless you know exactly what you're doing.

According to the experts in the field, it doesn't have to be that way. You can make a great start simply by going through your garbage.

"First of all, business owners can look at what's in their trash, and determine how much is recyclable," recommended Sarah Van Pelt, environmental sustainability coordinator for the city of Boulder. "And if they don't have a recycling program, they might want to look more closely at their trash and see if they want to hire a full-scale recycle service, or just one for specific separate pick-up items like cardboard boxes."

Many business owners engage the services of waste reduction and recycling firms such as Western Disposal, a Boulder-based company that has been providing waste reduction and recycling services for more than 35 years.

Bryce Isaacson, Western Disposal's vice president of sales and marketing, said the cost of hiring such a service is the top concern for many new customers. That's why it's important for smaller-sized businesses to manage everything internally first, in order to make recycling more cost effective.

"If you're a small business you might not have a custodial service that comes in at night, so you have to see if you can motivate the office enough to get things into the right containers, either inside or outside the building," Isaacson said.

To make this strategy successful, Isaacson said, the motivation has to come from the top management, and travel all the way down the employee chain.

"The person who takes out the trash and recycles it usually isn't very high up on the totem pole, and if you haven't instilled this commitment in them, it doesn't really matter whether you have the containers or not," he said. "If they don't care, they'll contaminate multiple containers because they think that one is as good as the other — and you haven't accomplished what you needed to."

> **"First of all, business owners can look at what's in their trash, and determine how much is recyclable. … They might want to look more closely at their trash and see if they want to hire a full-scale recycle service, or just one for specific separate pick-up items like cardboard boxes."**
>
> **Sarah Van Pelt**
> ENVIRONMENTAL SUSTAINABILITY COORDINATOR, CITY OF BOULDER.

Western Disposal President Gary Horton said hiring a comprehensive waste-reduction service can make going green a much simpler prospect for any business.

"We can have a business or organization set up recycling and composting within a week, and they'll have positive benefits immediately," he said. "We'll explain to the office staff how to keep materials separated because we don't want them to have to guess what's compostable and what's recyclable. We do a good job educating them."

Another thing that companies can do on their own, Horton said, is to buy office products — such as copy paper — that contain recycled content.

"When you're buying materials, look at what the packaging is like," Horton added. "A lot of times you get stuff in blister wrap that can't be recycled, so pay a little attention as to how stuff is packaged."

Van Pelt said that by taking a closer look at business supplies, companies can not only save money but can also help save the environment.

"Companies can look at what they're buying — what's coming in and what's leaving the business — and what they're spending their money on," Van Pelt said. "Whether it's custodial cleaning products or paper products, or water and energy use — there's no limit as to how broad a look you can take."

That broader look can include making a commitment toward purchasing zero-waste products, according to Marti Matsch, communications director for Boulder-based Eco-Cycle, one of the largest nonprofit recycling organizations in the country. Eco-Cycle recently created a new e-store on its Web site, www.ecocycle.org, where business owners can purchase everything from copy paper to cleaning supplies — all either nontoxic or made from recycled products.

Matsch said it's important to remember that little things — like plastic forks and Styrofoam cups — can add up to a lot when it comes to greenhouse gases and global warming.

"Make sure your company is set up to avoid disposables," she said. "This can include things like putting a towel service in your bathroom instead of using paper towels, or setting up the kitchen area with reusable coffee mugs instead of Styrofoam mugs.

➤ See **First, 15B**

Turning deep green needs to be sustainable corporate policy

BY KEELY BROWN
Business Report Correspondent

It's time to give yourself a pat on the back — your company has already gotten to the second phase of "going green."

You've reduced waste, implemented renewable-energy resources and even facilitated carpooling and other alternative transportation methods among your employees.

But now, what's next? How do you maintain the momentum and continue your sustainability practices — and perhaps even get to the next level?

According to Mary Jo Lockbaum, principal of The Sustainability Group based in Berthoud, a consultation firm that specializes in helping businesses and organizations implement sustainability practices, the second phase of staying green can only sustain itself if it continues to be done in a cost-effective manner.

"Even though you might want to do this because it's the right thing, it absolutely has to be sustainable environmentally, socially and economically," she said. "In these hard economic times, if it's not sustainable from an economic standpoint, the program will either stall, or it will be the first thing to get cut."

The key to avoiding this, Lockbaum said, is in careful, practical strategic planning, establishing both short- and long-term goals. Using these, a company can stay focused on the business advantages that can come from the policies it implements.

Another key factor, Lockbaum said, is to make sure that the sustainability program is part of a corporate policy, which means that a portion of the company mission statement should include its sustainability concepts.

Once a company is totally committed, from the top down, to growing its sustainability practices, Lockbaum said it's a good time to take advantage of the passion and enthusiasm shown by employees and staff members and channel it into continued growth.

At the University of Colorado at Boulder, Environmental Center associate director Marianne Martin said the passion and activism of the student body has been an important factor in the success of its ongoing sustainability programs.

"We have a track record of our students walking the walk by being at the forefront of starting new recycling initiatives," she said. "It's always been about passion — and a leadership that involves all sectors of the campus and community."

> **"Even though you might want to do this because it's the right thing, it absolutely has to be sustainable environmentally, socially and economically. In these hard economic times, if it's not sustainable from an economic standpoint, the program will either stall, or it will be the first thing to get cut."**
>
> **Mary Jo Lockbaum**
> PRINCIPAL, THE SUSTAINABILITY GROUP

This leadership includes not only students, but administrative staff as well. In February of 2007, university Chancellor G.P. Peterson was one of a handful of university presidents nationwide to sign the American College and University Presidents Climate Commitment, insuring that the university will continue to grow its sustainability practices.

WhiteWave Foods, based in Broomfield, has maintained a track record of sustainable environmental practices since its founding more than 20 years ago. Specializing in natural and organic foods, WhiteWave markets brands such as Land O Lakes, Rachel's, Horizon Organic and Silk.

Three years ago, WhiteWave formalized its commitment to the environment by creating a Department of Responsible Livelihood. According to department Vice President Ellen Feeney, the company's sustainability practices run on parallel tracks, with one involving the internal workings of the food distribution business, and the other involved in keeping the employees motivated and engaged with green practices and community service.

To facilitate the latter, WhiteWave recently created the Values in Action, or VIA, program, which rewards points to employees for outside activities such as community activism, as well as internal activities such as riding the bus or bike to work, or even taking the stairs instead of the elevator.

Last year, WhiteWave started an initiative by rewarding extra paid time off. Employees who participated in local charity events such as the Community Foodshare Corporate Challenge not only were given paid time off to do so, but also were given extra paid time off as a reward.

"This initiative sends a message to our

➤ See **Deep, 15B**

Companies innovate to move into 'green' space

BY BARBARA HEY
Business Report Correspondent

Being "green" is good business in this era of increasing demand for planet-preserving products and services.

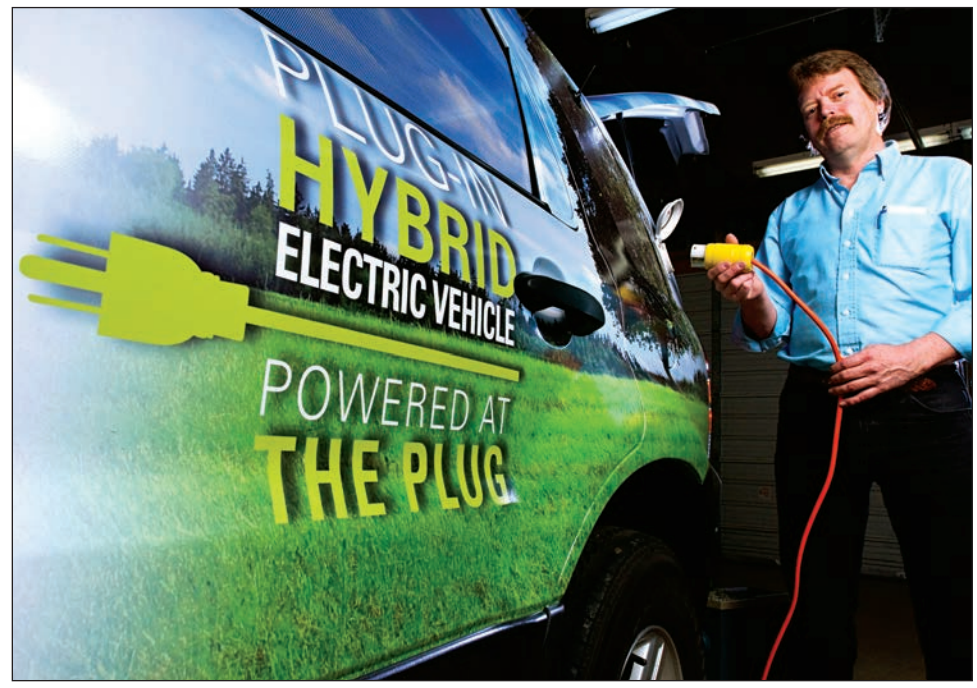
But green alone is not enough to ensure success. To thrive, a company must appeal to a broad base of customers, not just the environmentally conscious. And, like any business, its offering needs to possess a host of sterling qualities — efficiency, performance, for instance — to prevail.

"The green piece should be just another point of value," said Dave Ryan, managing director of Green Sparks Ventures, a Denver-based cleantech venture capital firm. "I look for a compelling investment opportunity first, then green."

True, the tide has turned for all things green.

"I see entrepreneurs in two camps — those who've been working in these areas for 20 years, thrilled that now the business climate makes it viable," Ryan said. In the other are newcomers, birthing businesses with the support of such formidable resources as NREL and the Deming Center for Entrepreneurship at the CU Leeds School of Business.

But, sustainability — being able to maintain a business for the long haul — is a pragmatic goal. And green entrepreneurs are particularly adept at identifying strategic opportunities and opening new markets, developing businesses that meet the needs of a rapidly changing world, according to Paul Jerde, executive director of the Deming Center.



JONATHAN CASTNER

Companies are carving out green niches in established and emerging industries. Carl Lawrence, chief executive of Hybrids Plus, is leading the Boulder-based high-tech company with a converter kit that can boost gas mileage in hybrid cars from 50 to 100 miles per gallon.

"Three years ago if you used the word 'sustainable' you had to fend off skeptics. Now when I say 'green' it's about a better way to do business," he said. "As Ray Lane, managing partner of venture capital firm Kleiner Perkins Caufield & Byers, said at last fall's sustainability summit, 'Sustainability is the perfect storm of business opportunities.'"

Two Boulder companies, for example, took on a green cast after the meltdown of the telecommunications market. Zolo Technologies and Albeo Technologies exited telecommunications and adapted their technologies for other uses, creating products with plentiful selling points, green just one of many.

Zolo Technologies put its laser-based technology into a sensor for coal-fired power plants to optimize combustion efficiency. This product serves two purposes. It improves fuel-burning efficiency and reduces emissions, helping plants comply with EPA limits for nitrogen oxides and sulphur oxides, polluting byproducts of coal combustion.

Coal still provides the bulk of energy in the U.S., but plants primarily are concerned with cost savings. "Coal-fired plants are more motivated by reliability than just being green," said Ronald Zimmerman, marketing manager. But, with Zolo technology, power plants reap both benefits anyway. Plants are prepared to comply with EPA regulations to come, such as on carbon dioxide emissions, which could be mandated in the future.

Albeo Technologies still uses its core technology — semiconductors — but shifted to LED lighting systems for commercial and industrial users. The benefits of LED light are plenty — they are more energy efficient and last longer than incandescent or even fluorescent bulbs, and do not contain mercury or other hazardous materials found in traditional lamps, according to Tracy Earles, vice president of marketing and sales.

Albeo uses a "platinum triangle" concept, adjusting the characteristics of LEDs — brightness, energy efficiency, cost effectiveness — to create a system meeting each client's specific needs. Convention centers, for instance, need low-maintenance lighting because if bulbs

➤ See Innovation, 15B

INNOVATION from 14B

burn out in a ceiling fixture, replacement is costly, labor-intensive and unwieldy to undertake during a show.

A manufacturing facility might value brightness foremost, and another client might be drawn to the greenness of LED to differentiate itself as an eco-friendly business.

Other companies find an opportunity, then get creative. Oberon FMR of Idaho Springs offers a product — fish meal replacement for farmed fish — made from waste generated by food or beverage companies. This solves a pricey problem for manufacturers — disposal of bacterial waste leftover from wastewater treatment — and provides multiple environmental perks.

"The aquaculture market is growing in double digits, but feed supply can't keep up," according to Chief Executive Randy Swenson. Traditionally, fish meal is made from smaller fish, but bait fish supplies are dwindling and yields a less-than-pure product.

Oberon's technology takes bacteria-laden waste, turns it into a food product with about 65 percent protein, making it a prime ingredient for fish food. Plus, it's free of pesticides and chemicals — an add-on benefit. If the farmed fish industry adopts an organic labeling system, which according to Swenson is under discussion, Oberon FMR will have even brighter potential.

Since its debut more than three years ago, Namaste Solar Electric in Boulder has had a singular purpose — to provide solar-electric systems for residential and commercial customers.

"We decided to be a one-trick pony," said Blake Jones, the company's president. While the employee-owned company considered adding solar thermal or energy audits, it opted to stick with what it does best. "We believe solar electric is best for the world, the country, the state and the company," he said.

There are risks with a sole focus, particularly in an industry that boomed thanks to mandated financial incentives. "If something happened to those incentives it could impact our business," Jones said.

As for prevention, Namaste takes an advocacy role. "We have one employee dedicated full time and about five others part-time to policy issues and legislation, working with the Colorado Public Utilities Commission and the Governor's Energy Office."

Employees also do outreach in schools, community fairs and businesses (including builders, bankers, real estate agents, accountants) to educate about the benefits of solar-electric systems.

For Namaste and other green businesses satisfaction comes from offering a viable solution that both sustains the company's coffers and counters the ills of climate change.

"It's wonderful to be able to do what you love, what you feel passionate about," Jones said.

FOOTPRINT from 12B

avoid using."

The Colorado Carbon Fund is the first state-backed voluntary carbon-offset program in the country. "We are a Colorado focused company and aim to enable consumer confidence in our program," Innis said.

The Colorado Carbon Fund plans to invest carbon-offset money toward renewable energy projects. Innis said some of these projects may include "solar hot water panels, biomass projects and agricultural processes." Like many other voluntary programs, the Colorado Carbon Fund is planning to provide consumers with a carbon-footprint calculator that allows individuals to calculate their carbon footprint and what it is worth to offset it.

"Is there really any way to know for sure if the carbon credits are worth anything" The answer is no," said Melina Marquis, a research associate for NOAA/Earth Systems Research Laboratory and CU's Cooperative Research Institute for Research in the Environmental Sciences.

"For each market you would have to have a regional study of the regional emissions compared to the offsets that the market provides," Marquis said.

In the current voluntary market it is very hard for consumers to know whether or not the credits they purchase are worth anything or to track what their purchase is or isn't funding — whether it is renewable energy, forest planting, or nothing at all.

Fiedler agreed.

"Every offset provider has their own set of procedures and rules. I would say that I think it is virtually impossible for an individual to know or try to verify whether or not that company if doing a good job. You basically have to take on trust. There is no agreed standard in the voluntary market — there is no agreed mark of what a real offset means."

McStain Neighborhoods, a Louisville-based homebuilder, announced in March it is partnering with Carbonfund.org to further reduce its carbon footprint.

In McStain's March 31, 2008 press release, President and Chief Executive Erick Wittenberg said, "McStain homes produce significantly less carbon dioxide than the typical new home built to state code. This partnership provides an opportunity to extend the work McStain does to protect and preserve our natural environment."

Carbonfund.org ensures the validity of its offsets by providing project audits to ensure the carbon offsets purchased by consumers match the project donations.

"These programs definitely have a lot of individuals and consumers thinking about the issue, so, I think there is a great public education role," Fiedler said.

TREND from 3B

are available to all or to a select few.

The Boulder Valley is home to myriad companies keen on the concept of either developing clean technologies or incorporating green policies in their day-to-day operations.

With finite supplies of oil and coal, coupled with a limited supply of water used to generate power, energy producers face the challenge of creating alternative and renewable energy.

Boulder, with its progressive green thinking, was selected by Xcel Energy to be the company's first Smart Grid City in the country. This plan will revamp the power grid to take advantage of automated technologies and incorporate ways to distribute energy generated by wind, solar and battery power.

From Colorado Gov. Bill Ritter's efforts through new legislation designed to steer the state toward a "New Energy Economy" to Eric Wiesenfeld of Longmont founding the Colorado Green Tech Group where "green techies" can meet, network and pitch their ideas to venture capitalists is evidence that the will exists to find a way to make a green economy work.

Local governments are embracing green building by enacting new codes, and law firms are establishing green-focused services to help people and companies navigate through the new legal issues that arise from these new green codes and laws.

Marc Painter, a partner for Holland & Hart LLP, said attorneys can help with maximizing tax incentives, finding the right insurance and dealing with liability issues.

Will all elements of the green movement survive? While the popularity of carbon credit and offset programs grows, a debate exists on whether they will succeed at doing what they are intended to do - reduce carbon dioxide and greenhouse gas emissions.

The programs have their supporters and doubters. Melina Marquis, a research associate for NOAA/Earth Systems Research Laboratory, said as the programs currently exist there is no quantitative way to know whether or not if carbon credits are worth anything.

The biggest challenge facing the green movement is the cost factor, from instituting a zero-waste program at a business without negatively affecting the bottom line to producing renewable fuels that people can afford.

FIRST from 13B

"There's a tremendous amount of waste in a break room — not just with disposables but also with food waste," she added. "It's a great idea to include a compost bin in your company break room and even in the bathrooms."

Another good idea, Matsch said, is to take control of what's being used by your company cleaning service.

"Make sure that your cleaning service uses nontoxic products, or you can supply the cleaning service with your own nontoxic cleaning products," she said. "But just make sure that it's in the contract to use those materials that you've provided."

However you choose to start implementing sustainability practices, there's plenty of help to be found if you need it. There are numerous resources for business owners throughout Boulder County such as Partners for a Clean Environment, or PACE. This group offers green practice and sustainability guidance for all types of businesses through its business outreach program, as well as through information posted on its Web site, www.pacepartners.com

"It's a good idea to just start small, and utilize the city and county programs such as PACE," Van Pelt said.

DEEP from 13B

employees that we're really rewarding them in a way that makes a difference," Feeney said.

White Wave will also soon launch an online module training program, "Sustainability 101," a software program that employees can access at their leisure.

Feeney said that the sustainability goals for WhiteWave are deeply embedded in its strategic growth plans, which means that every employee is involved, whether they work in administration or food distribution.

"Sustainability can overwhelm people because it's so broad," she said. "It involves every aspect of your business. The important thing is to choose the priorities that will have the greatest impact in the shortest amount of time.

"And if you continue to celebrate the inroads as you make them," she added, "It will keep the level of enthusiasm high."

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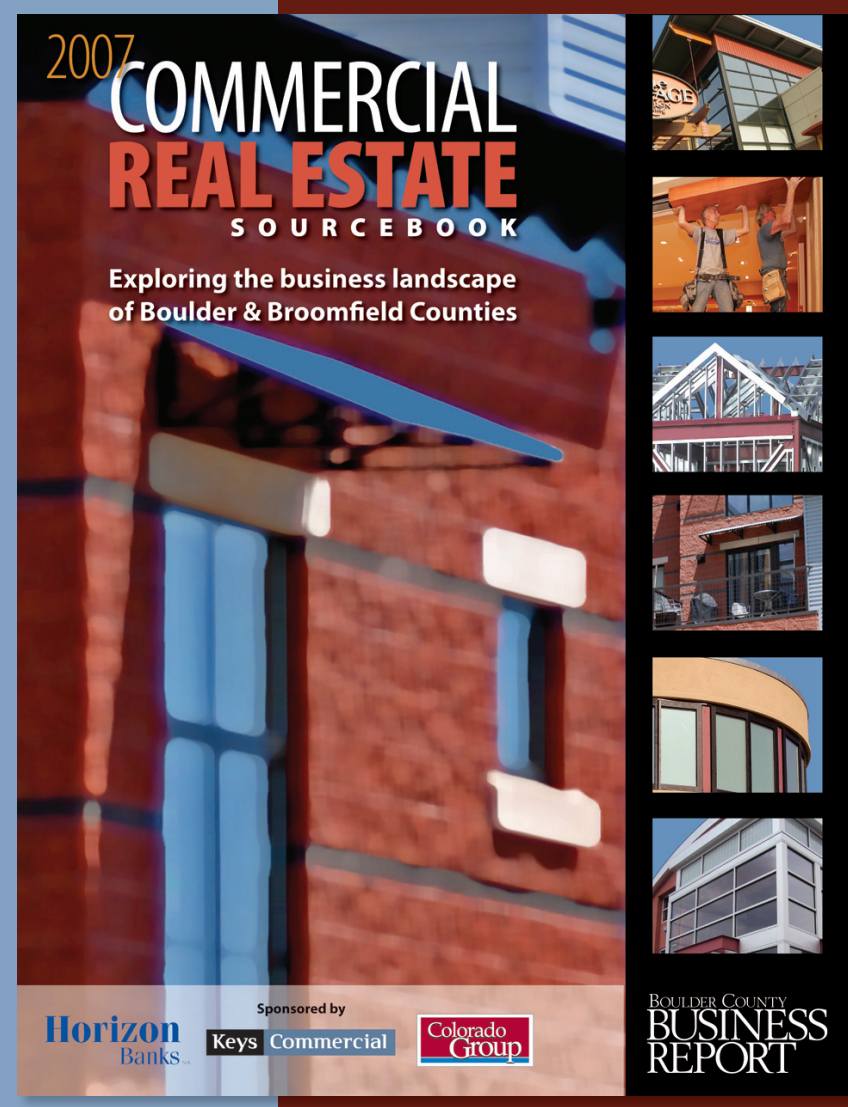

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