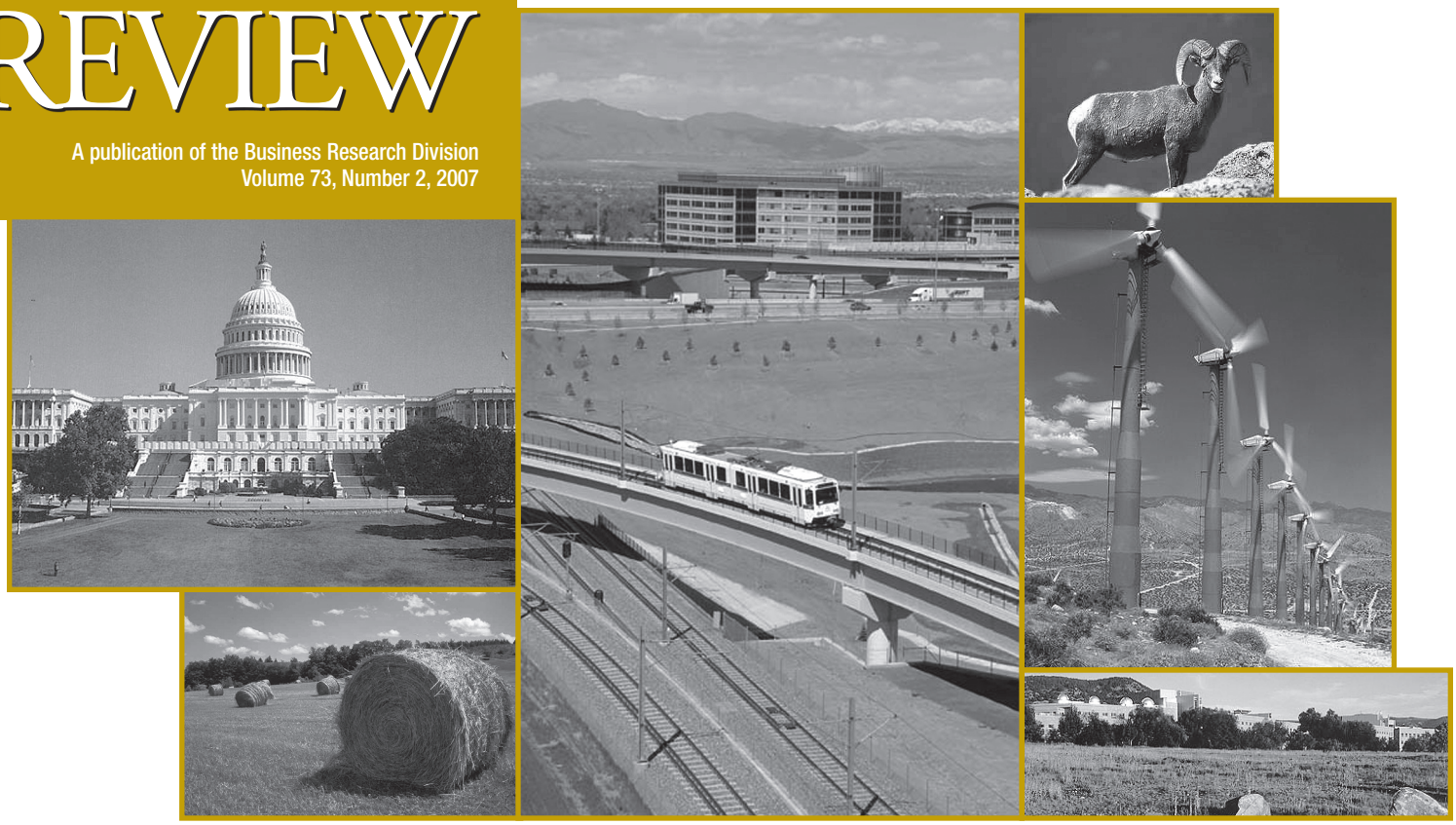
UNIVERSITY OF COLORADO AT BOULDER LEEDS SCHOOL OF BUSINESS

COLORADO BUSINESS REVIEW

A publication of the Business Research Division
Volume 73, Number 2, 2007

Inside: Results of federal facilities impact analysis on this page. Denver Federal Executive Board on page 2. Colorado Leveraging Assets to Better Science—CO-LABS—on page 3. Western Area Power Administration begins on page 4.



Federal Facilities: An Economic Imperative for Colorado

Brian Lewandowski

Metro Denver federal facilities are a substantial contributor to Colorado's economy, with nearly 40,000 jobs and $8.4 billion in net economic benefits to the state in 2006. Working for 125 agencies, many of which have additional field offices around the Metro region, these employees support federal government services for Colorado and surrounding states, functioning as a regional federal hub. Immeasurable other benefits that cannot be fully conveyed by monetary impact take the form of private company spinouts from federal facilities, employee volunteerism, and employee donations. The historical stability of the government sector has also reduced the economic ebb and flow generated by the Denver Metro high-tech industries. The past decade, however, points to a governmental shift in Colorado. Federal employment fell by nearly 3% from 1997 through 2005, while local and state government increased 45.4% and 10.5%, respectively. Understanding the substantial net impact on the economic tiers of the Colorado economy, from local to county to state, points to the employment stability provided by the government sector.

This economic and intangible impact analysis was conducted by the Business Research Division at the University of Colorado at Boulder on behalf of the Denver Federal Executive Board. The board commissioned the Business Research Division to study the impact of the federal facilities in the Denver Metro region, including the counties of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson. The comprehensive study included primary research data derived from surveys sent directly to federal facilities and secondary research.

Of the $8.4 billion net economic benefit to the state in 2006, $6.8 billion was to the seven Metro Denver counties alone. The greatest portion of economic benefits was derived from facility operations (including wages) and the indirect benefits from the multiplier effect of facility expenditures and employee wages. The federal employees earn on average $59,059 per year, excluding benefits. This salary is above average for Colorado, which reflects the education and skill base of the large number of engineers, financiers, researchers, and scientists who work in the labs. The nearly 40,000 federal full-

continued on back page

University of Colorado at Boulder
Colorado LEEDS School of Business
BUSINESS RESEARCH DIVISION
Think Broadly.
Act Boldly.

From the Editor

The federal facilities located in the Denver area are examined in this issue. In the lead article, Brian Lewandowski details the results of an impact analysis of the facilities on the seven-county metro region. On this page, Larry Grandison of the Denver Federal Executive Board explains what the board is and discusses its goals and activities. In the article on page 3, Cindy Schmidt describes the mission of a newly formed coalition of scientific laboratories, institutions of higher education, private industry, chambers of commerce, economic development offices, and state leaders—CO-LABS. The final article, starting on page 4, presents an overview of the Western Area Power Administration, one of four power marketing administrations within the Department of Energy.

Look for our midyear update of the Colorado economy in our July issue.

As always, we are interested in your suggestions for topics of future issues. Please contact me directly at 303-492-1147.

Richard Wobbekind

The Denver Federal Executive Board—Making an Impact!

Larry Grandison

You may be wondering what the Denver Federal Executive Board (DFEB) is and what it does. In short, the full board consists of the leaders of each federal agency located in the seven-county Denver metropolitan area (Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson counties). This board represents approximately 40,000 federal employees. The DFEB also provides service to all federal agencies located in the states of Region VIII (Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.) The board is governed by officers elected by the membership who serve as chairperson, vice chairperson, directors, and ex-officios; the staff of the DFEB is also included in this governing body. The DFEB staff manages the day-to-day operations and consists of an executive director and an administrative assistant. Together, these officials encompass the decision-making body of the board; they outline and guide the focus of the DFEB, set policy in bimonthly meetings, and conduct the DFEB's daily business. In simple terms, we, the federal employees in the Denver metro area, are the Denver Federal Executive Board.

Federal Executive Boards were created in 1961, an idea born of President John F. Kennedy. His idea was to improve internal federal management practices and to provide a central focus for federal participation in civic affairs in major metropolitan areas outside Washington, D.C. The mission of the boards also included improving communications in the federal government between the field and Washington, D.C.; reducing costs through economies of scale; improving efficiency; facilitating service delivery; partnering with local government, private entities, and community groups; and coordinating emergency services.

The DFEB is all about the public servant and public service! The 40,000 local federal employees have an economic impact of approximately $8.4 billion on the seven-county Denver/Boulder metropolitan area. According to an economic study conducted by the Leeds School of Business at the University of Colorado and requisitioned by the DFEB, the areas of impact included income, spending, construction, and contracts, as well as intangible benefits such as employment stability, technological transfer, and above-average employee educational attainment. The study encompassed federal and military agencies and employees in the seven-county metro area. The facts show that not only are we significant in our roles as public servants, but we also have a significant impact on our communities.

The DFEB creates opportunities for public servants to participate in communities through committees, activities, programs, and share services—the programs only succeed with the participation of agencies and volunteers that pull together to accomplish a goal. Some of the opportunities to participate are through the American Indian Program Council; the Asian/Pacific Islander Program Committee; the Black Employment Program Committee; the Gay, Lesbian, Bi-sexual, Transgender Program Committee; the Hispanic Employment Program Committee; the Alternative Dispute Resolution Consortium; the Federal Training Committee; the EEO Workforce Diversity Council; the Federal Personal Council; the Emergency Situation Program; the Combined Federal Campaign; and many others. The DFEB coined the phrase "FED Force," which represents the federal employees in the Denver/Boulder area and their combined strength in participating in activities that support the local community. Local activities currently include the Colorado Dragon Boat Festival; the Denver March Pow-Wow for the Native American Community; the Denver Furry Scurry; and the Out-of-Darkness Suicide Prevention Walk. Moreover, many federal employees take part in "Feds Make a Difference Day" (Columbus Day), where federal employees donate their holiday time to serve the community in hands-on projects to benefit people and local charities, including the Children's Hospital, Project Angel Heart, and Wilderness on Wheels. On an individual level, the DFEB creates an environment to network, communicate with peers in other agencies, achieve personal growth, and develop lasting friendships. In short, DFEB helps build a stronger federal community.

The Denver Federal Executive Board is about making an economic impact and providing opportunities for public servants to be more effective for the benefit of our customers, our communities, our government, and our country. And finally, it is about providing a positive impact of public servants—because they are the Denver Federal Executive Board!

For more information about the DFEB, volunteer opportunities, or partnerships, please contact the DFEB office at 303-676-7009.

Larry Grandison is the Executive Director of the Denver Federal Executive Board. He can be contacted at larry.grandison@dfas.mil.

Colorado Seeks to Leverage Federal R&D Investments

Cindy Schmidt

In 2004, the State of Oklahoma attempted to move two NOAA weather laboratories out of Boulder to Norman. If a coalition of stakeholders, including the Colorado congressional delegation, had not formed quickly and successfully to fend off the attempt, a number of our research meteorologists, and a chunk of our current federal R&D resources, might be calling Oklahoma home today.

Colorado has one of the highest concentrations of federally funded science facilities in the nation. Labs along the Front Range are world leaders in climate, weather, solar, geophysical, and renewable energy research, as well as measurement and telecommunications science. It is unlikely that Oklahoma will be the last state to look with envy on these assets. In order to protect and enhance them, the original coalition of stakeholders that assembled in 2004 is forming Colorado Leveraging Assets to Better Science, or CO-LABS, a coalition of scientific laboratories, institutions of higher education, private industry, chambers of commerce, economic development offices, and state leaders. The mission of CO-LABS will be to maintain Colorado's position as a leading center for research and development and to provide opportunities to enhance Colorado's scientific capabilities.

CO-LABS will accomplish this mission by creating awareness of the labs and their contributions to the state; building and maintaining a synergistic connection between the labs and the Colorado business, academic, and policy-making communities; and leveraging these assets through increased opportunities for technology transfer, job creation, and infrastructure development. We have seen how the creation of the Colorado Space Coalition has helped to build and preserve the intellectual and physical infrastructure that defines the space industry in Colorado. With CO-LABS, we have an opportunity to do something equally beneficial for the state through the federally funded labs that address atmospheric, geophysical, renewable energy, measurement, and telecommunications science.

The following northern Front Range laboratories, from Golden to Fort Collins, currently fall within the CO-LABS effort:

- National Renewable Energy Laboratory (NREL)
- National Institute of Standards and Technology (NIST)
- National Oceanic and Atmospheric Administration (NOAA)
- Cooperative Institute for Research in the Atmosphere (CIRA) at Colorado State University
- Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado
- National Telecommunications and Information Administration (NTIA) and the Institute for Telecommunications Studies (ITS)
- University Corporation for Atmospheric Research (UCAR) and the National Center for Atmospheric Research (NCAR)

These labs have combined operating budgets of $700 million and employ 4,500 workers with an average salary of $78,000. Loss of any part of these laboratories has a negative, reverberating impact on the economy of the immediate community, as well as on the state's economy.

These labs have combined operating budgets of $700 million and employ 4,500 workers with an average salary of $78,000.

In 2000, the Business Research Division of the University of Colorado Leeds School of Business prepared a study on the impact of the federal labs on the Colorado economy. At the time the study was conducted, the net economic benefit to Colorado of the NOAA labs alone was $2 billion over five years. The study cited additional benefits, including "…the economic stability that the labs provide to the community as a result of their ties to the security and economy of the United States, and the fact that their funding comes from a variety of sources. Other contributions include the cultivation of an environment that encourages and develops emerging high-tech companies… and an increase in the intellectual firepower imparted to the community."

As economic drivers, the labs provide fertile ground for business innovation with resulting economic growth, and help to attract and retain a highly skilled workforce. They provide natural synergies with university research efforts, as well as with key private-industry collaborators who can take cutting-edge technologies developed in the labs to market. There is no question that the existence of federally funded labs in Colorado strengthens the scientific programs of the state's research universities. This collaboration creates an intellectual community that enables entrepreneurs to flourish and attracts related business that would otherwise almost certainly locate elsewhere. Examples of technologies that have been transferred from these laboratories to Colorado businesses are numerous. A very small sample includes the Range Standardization and Automation Weather System (NOAA and the Lockheed-Martin Corporation); the Winter Maintenance Decision Support System (NCAR and the Colorado Department of Transportation, E-470 Public Road Authority, the City and County of Denver and Vaisala); and the CloudSat Satellite Mission (CIRA and Ball Aerospace).

Colorado's federally funded labs have a socio-economic, academic, and environmental impact that we simply must protect and nurture if we want to continue our scientific and technological leadership position and maintain our quality of life. If we get behind CO-LABS, it will positively enhance Colorado's reputation for science and technology leadership, and buttress our state's technology-based economy for decades to come. Watch for announcements about the formal establishment of CO-LABS and ways in which you can become involved.

Cindy Schmidt is the Director of Development and Government Affairs at the University Corporation for Atmospheric Research (UCAR) in Boulder and 2007 Chair of the Boulder Chamber of Commerce Board of Directors. She can be reached at cschmidt@ucar.edu.

Western Area Power Administration—Energy, People, and Service

Randy Wilkerson

As one of four power marketing administrations within the Department of Energy, Western Area Power Administration markets and delivers electricity primarily generated from hydropower projects located at federally owned dams. Working around the clock, Western's power system dispatchers coordinate the ebb and flow of electricity, so that when you need lights for your home or energy to run your computer, it's there.

Western plays a major role in allowing people all over the western United States to take energy for granted. The simple act of turning on a light entails the intricate coordination of many powerplant operators, dispatchers, and maintenance and communication crews who command our nation's power grid. To transport power from the generating plants to the homes and businesses that depend on its instant availability, these workers balance supply and demand and coordinate power flow across 150,000 miles of transmission lines managed by 130 different control areas nationwide.

Western's Capacity and Markets

Western markets and transmits about 10,000 megawatts of power from 56 hydropower plants. Western also markets the U.S. 547-MW entitlement from the coal-fired Navajo Generating Station near Page, Arizona. Western sells about 40% of regional hydroelectric generation in a service area that covers 1.3 million square miles in 15 states. Various laws require Western to give a preference to certain types of nonprofit organizations seeking to purchase federal power. Those entitled to this preference include cities and towns, state and federal agencies, irrigation districts, public utility districts, Native American tribes, and rural electric cooperatives. Customers benefit from purchasing federal hydropower because rates are lower than from other sources. Western's ability to set lower rates stems from several factors, including the lower embedded capital cost of the hydropower plants.

Legislation requires that the U.S. Treasury be repaid by those who purchase Western's services, so power sales must produce enough revenue to cover power users' share of annual operation and maintenance project costs. Western sets power rates to recover all costs associated with its activities, as well as the federal investment in the power facilities, with interest, and certain costs assigned to power for repayment, such as aid to irrigation development.

Key Focus on Reliable Transmission

Until 1977, the Bureau of Reclamation operated dams and power plants, along with the vast transmission system that carried energy where needed. With the passage of the Department of Energy Organization Act, the newly created Western Area Power Administration took over power marketing and transmission responsibilities, serving a 15-state region in the central and western United States.

Transmission is central to Western's mission. Western provides reliable, cost-based transmission using an integrated 17,000 circuit-mile, high-voltage system, spanning most of the western half of the United States. Western is pursuing a number of initiatives to increase transmission capacity and reliability that will support evolving regional needs, such as increased interest in renewable resources and requests from many developers for interconnections to Western's system.

Western sells about 40% of regional hydroelectric generation in a service area that covers 1.3 million square miles in 15 states.

Transmission system modernization is necessary to support cost-effective wholesale electricity markets. Robust regional planning processes identifying both economic and reliability needs of the grid are in place, encouraging partnerships for transmission development. Joint ownership of transmission projects has resulted in a highly integrated system that has fostered extensive cooperation and economic coordination among transmission partners.

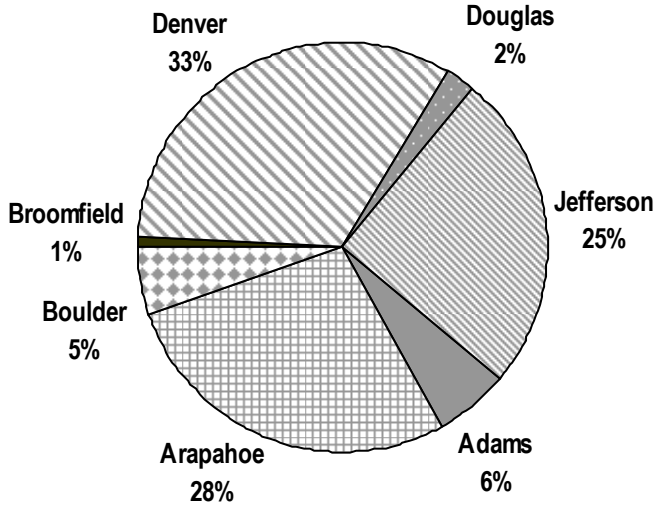
In 2004, Western constructed the Path 15 Upgrade Project in central California to relieve a major transmission bottleneck. Currently, Western is involved in expanding the regional transmission network in eastern Colorado and western Kansas in a partnership with Tri-State Generation and Transmission Association. Funding for these joint efforts is provided primarily by nonfederal partners. The Energy Policy Act of 2005 expanded Western's authority to use nonfederal funding to construct, or participate in the construction of, new transmission that will relieve bottlenecks in "national interest electric transmission corridors," or when it is necessary to accommodate an actual or projected increase in demand for transmission capacity.

Western Looks to the Future

Through state-of-the-art technology and equipment enhancements, Western continues to improve transmission system capability, as well as performance and

continued on page 5

Share of Net Economic Benefit of Federal Facilities to Metro Denver Counties



WESTERN AREA POWER ADMINISTRATION, CONTINUED FROM PAGE 4

reliable operation of the federal system. These enhancements mitigate some constraints without adding new lines to the grid. Western continues to field test high-capacity composite conductors designed to significantly increase the transfer capacity of existing transmission lines in relieving system congestion.

Wind generation and other renewable energy options look promising to Western's customers as solutions to increasing energy needs. Wind energy is the world's fastest-growing energy technology. With the recent passage of the Energy Policy Act of 2005, average annual wind capacity may expand at rates exceeding 20%. The two-year extension of the Production Tax Credit for renewable resources assures that requests for transmission service and interconnection to Western's transmission system, mainly from wind generation developers, will continue. However, reinforcement and system upgrades will be necessary to meet these requests and maintain grid reliability.

Western's Energy Services Program helps customers improve energy efficiency, explore and use renewable energy options, find new technologies, and learn about programs and techniques at other utilities. Services include an equipment loan program, technical assistance, and a full menu of publications. Through its Renewable Resources for Federal Agencies Program, Western coordinates renewable energy purchases and associated environmental benefits, or "green tags," for other federal agencies.

Employees Make a Difference

Western's 483 employees in Colorado contribute to its mission to market and deliver low-cost, reliable, cost-based hydroelectric power and related services. The Rocky Mountain Region, based in Loveland, operates and maintains transmission facilities in Colorado, Wyoming, Nebraska, and Kansas to market power from the Loveland Area Projects. It also manages a control area operations center in Loveland. Maintenance crews are based in Loveland, Montrose, Craig, and Brush. Staff at Western's Energy Management and Marketing Office in Montrose schedule transmission, purchase energy, and sell surplus energy to meet customer's energy needs. Employees at the Corporate Services Office in Lakewood provide administrative and technical guidance, as well as support to Western's field offices and staff.

Western employees participate actively in their communities with their time and money. Among the many volunteer and charitable efforts throughout Western, employees at the Rocky Mountain Regional Office cosponsor the Rocky Mountain Regional Science Bowl and volunteer their time to conduct the event, which encourages high school students to pursue careers in math and science. Employees at Western's Corporate Services Office in Lakewood donated more than $72,000 to this year's Combined Federal Campaign.

Randy Wilkerson is a Public Affairs Specialist in Corporate Communications at WAPA. He can be reached at Wilkerson@wapa.gov.

COLORADO BUSINESS REVIEW

Nonprofit Org
US Postage
PAID
Boulder CO
Permit No. 257

The CBR is a bimonthly publication of the Business Research Division at CU–Boulder. Opinions and conclusions expressed in the CBR are those of the authors and are not endorsed by the BRD, the Leeds School of Business faculty, or the officials of CU.

View our Web site: http://leeds.colorado.edu/brd/

Richard L. Wobbekind, editor; Cindy DiPersio, assistant editor; Gary Horvath, technical advisor; Lynn Reed, design.

This report is not produced at taxpayer expense. The University of Colorado at Boulder is an equal opportunity/affirmative action institution.

For information/address change:
Business Research Division
420 UCB, University of Colorado at Boulder
Boulder, CO 80309-0420 • 303-492-8227

FEDERAL FACILITIES, CONTINUED FROM PAGE 1

time equivalent employees resulted in 62,000 additional secondary employees in the local economies through the multiplier effect.

Colorado's federal employees generally have a higher educational attainment, and thus earn wages above the Colorado average. Surveys revealed that approximately 55% of the Metro Denver federal employees have achieved a bachelor's degree, compared to 35.5% for the state and 18.1% for the nation. Additionally, 19% have a master's degree and 5% a doctorate, compared to 2005 national averages of 6.8% and 1.2%, respectively. These wages have a compounding economic impact that reverberates throughout the cities, counties, and state due to spending on durable (homes, appliances, etc.) and nondurable goods and services (food, cleaning supplies, and so forth), which in turn support employment and wages in those industries.

In addition to the economic impacts, federal employees contribute to their communities through intangible benefits, as evidenced by the volunteerism of employees at schools, blood drives, financial donations, search and rescue, and others. Some employees assisted in the Katrina relief effort, while others have been actively involved in the Adopt-a-School program. Perhaps most outstanding is the amount Colorado's federal employees contribute to the Combined Federal Campaign (CFC), which facilitates donations to 501(c)3 nonprofit organizations. Federal employees from Metro Denver facilities contributing to the CFC donated more than $3.7 million in 2005, with average donor contributions 59.5% above the national average.

Complementary public/private relationships have facilitated the growth of impressive industry clusters in the state of Colorado, including aerospace, defense, and homeland security. Lockheed Martin, Raytheon, Northrop Grumman, Boeing, and Ball Aerospace are all major employers in the Denver region, and want to be located near their governmental counterparts. These industry leaders are then supported by small businesses, resulting in a multiplier effect that goes far beyond the government agency.

In addition to cluster facilitation is the spin-out of private companies (Materials Research and Coherent Technologies, for example) from government organizations such as NOAA, NIST, and NREL.

These private/public symbiotic relationships extend beyond the high-tech and defense industries. Federal government organizations like the National Park Service, the Bureau of Land Management, and the U.S. Fish and Wildlife Service contribute to the strength of Colorado's tourism and outdoor recreation industries. CBR

Brian Lewandowski is a graduate research assistant with the Business Research Division. He may be contacted at Brian.Lewandowski@Colorado.EDU.