Metro Denver
Economic Development Corporation

Climate Prosperity

Economic opportunity through a sustainability lens

Metro Denver Economic
Development Corporation

May 2011

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ABOUT THE METRO DENVER CLIMATE PROSPERITY PROJECT

The seven-county Metro Denver region and two-county Northern Colorado area is one of the original eight pilot regions in the country selected by the Rockefeller Brothers Fund to develop a regional climate prosperity, or "greenprint," strategy. The Fund established Climate Prosperity, Inc. in 2009 to advance community and regional efforts to address the challenges of climate change from the perspective of economic development opportunities.

The Metro Denver Economic Development Corporation (Metro Denver EDC) serves as the local organizer for the project. Partners include the City and County of Denver, research universities, private businesses, 70 city and county economic development agencies from across the region, and the state of Colorado.

Colorado is already a leader in the new energy economy. For example, the state passed 57 pieces of legislation from 2006 through 2010 to establish the framework for building out the cleantech sector. The Colorado Energy Coalition (CEC), formed in 2006, works to create a balanced energy economy for all sectors of the industry. The Colorado Renewable Energy Collaboratory, created in 2007, is a partnership among the National Renewable Energy Laboratory (NREL), Colorado State University (CSU), University of Colorado at Boulder (CU), and Colorado School of Mines (Mines) to expedite commercialization of new innovations. The Colorado Cleantech Industry Association (CCIA), founded in 2008, works to establish Colorado as a world leader in clean technologies through representation and advocacy, a unified voice, and capacity development.

There are still opportunities to capture new jobs and businesses and improve the competitiveness of companies in the region. The Climate Prosperity Project provided the region with an avenue to engage partners and local stakeholders to build on past success, accelerate innovation, and produce greater economic prosperity in the years ahead.

This climate prosperity strategy is unique to the Metro Denver region and Colorado, incorporating the vernacular that has developed in the state over the last four years. For example:

- **New energy economy,** a phrase coined by Governor Bill Ritter, Jr., describes the integration of renewable resources such as wind, solar, and biomass, as well as resource efficiency measures, into Colorado's energy portfolio. The definition was expanded in 2010 to include natural gas after the passage of the Clean Air, Clean Jobs Act.
- As defined by CCIA, clean technology, or **cleantech**, includes renewable energy manufacturers and providers as well as products and services that make Colorado's current energy production systems more efficient. Cleantech also includes products and technologies that help consumers and industries use natural resources such as energy, water, and waste more effectively. Cleantech is a major industry in Metro Denver.
- **Renewable energy** refers to renewable natural resources such as wind, solar, and biomass feedstock.
- **Green or sustainable** refers to any goods and services that fill the needs of the populace, while reducing or eliminating depletion of natural resources at the same time as reducing or eliminating harmful effects to the environment.

The Sustainability Committee of the CEC comprised the working group for climate prosperity. Members are:

Anne Hayes, Westfield Company, Inc., Committee Chair
Ryan Christ, Sherman & Howard
Peter Dignan, Connected Organizations for Responsible Economy (CORE)
Don Fitzmartin, Fitzmartin Consulting
Steve Grund, Consultant
John Hall, City of Westminster
Tim Heaton, Coolerado Corporation
Mary Jeffreys, Metro Denver Economic Development Corporation
Susan Jorgensen, Leo A Daly
Dana Kose, The Weidt Group
Janet Lawler McDaniel, Isaacson Rosenbaum
Noel Mattison, Xcel Energy
Ryan Peacock, Dovetail Solutions
Pam Reichert, Metro Denver Economic Development Corporation
Christopher Smith, City and County of Denver, Office of Economic Development
Rich von Luhrte, RNL Design

EXECUTIVE SUMMARY

What is climate prosperity?

Climate prosperity is the simultaneous expansion of economic opportunity and reduction of greenhouse gas emissions. It is the result of purposeful strategies by business, government, education, and the community to generate substantial economic and employment growth, sustainable business, and community development. Through innovation, efficiency, and conservation in the use and reuse of natural and human resource it will increase jobs, incomes, productivity, and competitiveness.

For the Metro Denver region, climate prosperity provides a framework for describing and increasing the economic and environmental benefits for the area. While the region is already a leader in cleantech and sustainability, there are still opportunities to capture new jobs and businesses that produce green goods and services, as well as improve the competitiveness of companies that use these goods and services. Many Metro Denver residents could benefit directly from a growing green economy in terms of financial savings from energy efficiency and economic opportunity from new job creation.

In the 21st century, climate prosperity is the way people and places become richer. Businesses and households can save money by using resources more efficiently and make money as innovations are adopted across all sectors of the economy and community while also improving the regional quality of life and addressing global climate change.

How is climate prosperity different from other approaches?

Climate prosperity goes beyond the concept of climate protection seeking out specific ways to grow and capture the economic benefits of environmental policies. It also offers an alternative to those who regard climate action as primarily an economic burden and source of job loss. Climate prosperity rejects the notion that the economy and environment are incompatible, and embraces the belief that through innovation we can find ways to strengthen both at the same time.

Climate prosperity recognizes that steps can be taken towards sustainability by reducing emissions through better energy efficiency and greater use of lower-emission alternatives. It also recognizes that innovation—which has opened up new frontiers in other fields such as information technology and biotechnology—can transform the energy field. A new wave of innovation can be a catalyst for prosperity that both addresses climate change and creates economic opportunity for people and communities.

Metro Denver selected as a climate prosperity pilot community

Because of Metro Denver's innovation and future potential and willingness to work together across jurisdictional and sector boundaries, the region was chosen as a pilot community of the national Climate Prosperity Project. This national organization is working with select regions across the country to align and advance economic development and environmental actions to reduce emissions while stimulating economic growth. Metro Denver has a strong foundation of policy, public-private partnerships, and progress on which to build. The region has made investments and taken actions in recent years that have propelled the area to the forefront of regions and states in terms of climate prosperity.

Climate Prosperity recognizes Metro Denver's competitive advantage and concentrates its efforts in key areas.

The Climate Prosperity Project helps the Metro Denver region build on existing partnerships and programs, and encourages the region to fill gaps, expand participation, and break new ground to grow economic and environmental benefits. Metro Denver, in partnership with the state of Colorado, has been actively building its New Energy Economy and innovation assets. Colorado-based organizations such as the CEC and the CCIA, as well as national groups including the Pew Charitable Trusts, National Governors' Association, Urban Land Institute (ULI), Building Owners and Managers Association (BOMA) and the National Association of Industrial and Office Properties (NAIOP) have recognized the strong assets of the region and state. These assets provide the foundation for the region's climate prosperity strategy.

Government funding and public policy will also influence the nine-county region's energy cluster in the coming years. Federal stimulus funds from the American Recovery and Reinvestment Act (ARRA) are pumping more than $542 million into Colorado for energy efficiency and renewable energy projects. Colorado's share of this federal funding has been used to develop programs including energy efficiency and conservation block grants, research and development grants, and weatherization assistance grants.

Past, present, and future investment, progressive policies, and the private sector's involvement in the region provides a strong foundation for Metro Denver's climate prosperity strategy.

Metro Denver's climate prosperity strategy: Four priority actions

More than 50 leaders from the public, private, and nonprofit sectors helped develop Metro Denver's regional climate prosperity strategy. Many of them signed on as "champions" to help implement specific actions in key priority areas. Almost universally, they agreed that only regional collaboration can deliver on the promise of climate prosperity—substantial reductions in emissions coupled with substantial gains in jobs and economic prosperity across the region.

These leaders developed four priority actions to drive the Metro Denver climate prosperity strategy:

Priority Action: Market

Metro Denver's climate prosperity strategy will build awareness in user markets by expanding adoption of green products and services (e.g., energy efficiency, green building design and construction) in the region's user markets, from residential to commercial to industrial, including government and business sectors. By strategically educating consumers on the benefits of green products and services demand will increase and, in turn, stimulate expansion of local companies in this sector.

Priority Action: Value Chain

Metro Denver will strategically identify and promote the cleantech value chain by developing and recruiting industries and firms that support each other in providing not only a range of green products and services, but diverse economic opportunities for residents. By focusing on opportunities to develop and recruit companies that provide cleantech components and green products and services, the region will build on its existing base of cleantech companies to fill niches and stimulate local business and job growth.

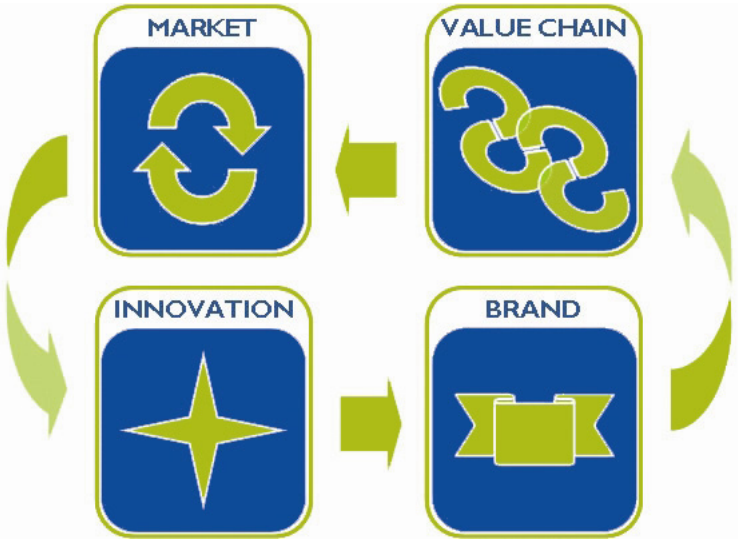
Priority Action: Innovation

The Metro Denver region will build on existing research and development (R&D) and commercialization networks to accelerate the flow of innovative products and companies from the region's R&D institutions to the marketplace—innovations that can take root and grow in the region. Metro Denver will work with its partners to focus on specific opportunities to accelerate green technology commercialization.

Priority Action: Brand

A branding campaign will increase awareness and interest in Metro Denver's cleantech assets and industry strengths. The campaign will have two purposes: 1) to demonstrate the area's competitive advantages, and 2) to encourage firms to locate or expand their operations in the region, thereby creating new cleantech jobs. It will have both an external orientation and a regionally-focused element. The regional element will build political and business support for the climate prosperity concept and the Metro Denver climate prosperity strategy.

Together, these priority actions—Market, Value Chain, Innovation, and Brand—will provide a powerful catalyst for climate prosperity in Metro Denver. The CEC, under the leadership of its Sustainability Committee, will direct the effort to launch, support, and assess the impact of these initiatives as they move forward. Each of these priority actions will inform and build on the others.



I. METRO DENVER'S SELECTION AS A PILOT REGION

Because of Metro Denver's innovation and future potential and a willingness to work together across jurisdictional and sector boundaries, the nine-county region was chosen as a pilot community of the national Climate Prosperity Project. This organization is working with select regions across the country to align and advance economic development and environmental actions to reduce emissions while stimulating economic prosperity.

The selection as a pilot region has provided Metro Denver with an opportunity to bring partners together to identify key actions to accelerate climate prosperity in the region. Metro Denver has a strong foundation of policy, public-private partnerships, and progress on which to build. Investments and actions taken in recent years have propelled the region to the forefront of regions and states in terms of climate prosperity. The opportunity now is to build on this track record with strategic initiatives that drive action to attain the next level of economic and environmental success.

What are the region's assets for climate prosperity?

The Metro Denver region, in partnership with the state of Colorado, has been actively building its new energy economy and innovation assets. A growing base of jobs and companies, expanding energy R&D and venture capital investments, supportive public policies, and private sector activity have been documented in a growing number of studies and reports. Colorado-based organizations such as the CEC and the CCIA, as well as national groups such as the Pew Charitable Trusts, National Governors' Association (NGA), Urban Land Institute (ULI), Building Owners and Managers Association (BOMA), and the National Association of Industrial and Office Properties (NAIOP) have recognized the strong assets of the region and state. These assets provide the foundation for the region's climate prosperity strategy.

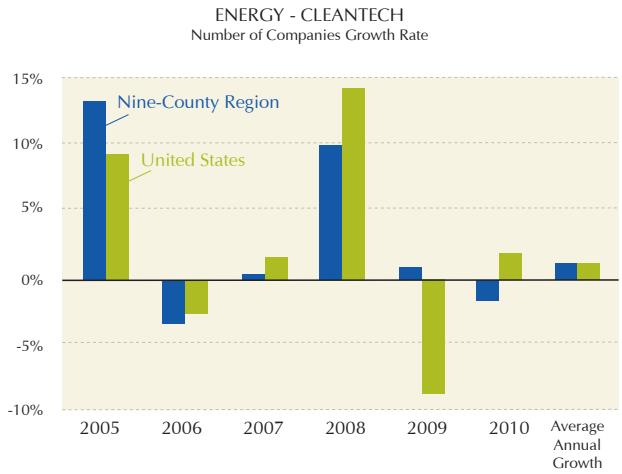
The nine-county region has a growing base of cleantech jobs and companies driving its new energy economy.

According to the Metro Denver EDC, cleantech industries directly employ almost 17,000 residents in the nine-county region, with job growth in these industries of 33.4 percent between 2005 and 2010. Cleantech employment is dispersed throughout the region's counties, with 36 percent of the region's cleantech jobs in Jefferson County, 17 percent in Boulder County, and 14 percent in the City and County of Denver. These jobs have an average annual salary of more than $76,000, generating a total payroll of almost $1.2 billion in the region.

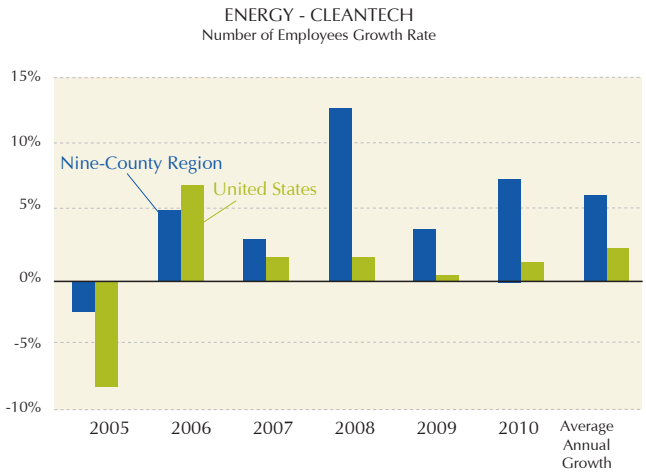
There are 1,150 cleantech companies operating in the nine-county region, increasing job growth by 5.9 percent per year between 2005 and 2010. About 79 percent of these companies are small, entrepreneurial enterprises, employing fewer than 10 residents. The region has abundant energy resources and is attracting companies in wind and solar.

The Metro Denver region is quickly becoming a national center for cleantech development with several companies that have built, expanded, or are planning major facilities including Vestas Wind Systems and key suppliers (e.g., SGB USA, Creative Foam, GE Energy, Hexcel Corporation, Bach Composite Industry, PMC Technology A/S, Aluwind), REPower USA, SMA Solar Technology, SunRun, Ascent Solar, and Abound Solar. These relocations and expansions created about 3,200 new cleantech jobs in the Metro Denver region in 2010.

ConocoPhilips is developing its new Global Technology and Corporate Learning Center in the region as the hub for its R&D in making liquid fuels from renewable sources. Conoco's center will provide training for thousands of employees on new energy applications.



Source: Dun & Bradstreet, Inc. Marketplace database, July-Sept 2004-2010



Source: Dun & Bradstreet, Inc. Marketplace database, July-Sept 2004-2010

The region is a leader in energy innovation.

The Colorado Renewable Energy Collaboratory is a partnership among NREL, CU, CSU, and Mines. The Collaboratory conducts world-class research through its six research centers, developing new energy technologies and helping transfer them to the private sector. The centers include the Colorado Center for Biorefining and Biofuels (C2B2), the Center for Revolutionary Solar Photoconversion (CRSP), the Solar Technology Acceleration Center (SolarTAC), the Center for Research and Education in Wind (CREW), the Carbon Management Center, and the Energy Efficiency and Management Center.

NREL received $193 million under the American Recovery and Reinvestment Act (ARRA). Of the total award, $93 million goes toward research and development of improved wind turbine components, testing of new technologies, and sponsorship of public-private collaborations on wind energy research.

The U.S. Department of Energy (DOE) selected NREL as one of 46 Energy Frontier Research Centers to study various areas of scientific research over a five-year period. NREL will participate with six additional centers led by other organizations. NREL expects to receive $20 million in funding over the next five years to establish its Energy Frontier Research Center.

DOE's Golden field office is the primary field agent for the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE). The global market for energy and environmental technologies is estimated at $425 billion. Golden is working to ensure U.S. industry captures a majority of that market. The estimated fiscal year 2011 funding for Golden's 500 personnel and projects is expected to be about $800 million.

The region is also a leading innovator in SmartGrid technology. Xcel Energy's SmartGridCity project in Boulder is a testbed for more than 60 new technologies that will allow Boulder residents to monitor and control their energy usage through a web portal. Smart grid technology includes mechanisms that optimize power distribution by automatically detecting and moving power around bottlenecks in the grid, and remotely diagnosing and repairing any issues with the system. Boulder-based Power Tagging Technologies, Inc. won a $2 million National Science Foundation grant that will speed the company's development of high-tech spatial tools for smart grids.

SolarTAC broke ground at the Aurora Campus for Renewable Energy in 2010. The 74-acre facility for solar testing will be one of the largest of its kind nationwide.

Colorado attracted nearly $832 million in venture capital in 2008 (among all industries), ranking Colorado third in the U.S. Colorado ranked fifth in the nation for venture capital secured by renewable energy companies between 2006 and 2008, according to a 2009 report released by The Pew Charitable Trusts.

The region and state have a strong record in policy innovation and private sector action.

Colorado became the first state in the U.S. to create a Renewable Energy Standard (RES) by ballot initiative when voters approved Amendment 37 in November 2004. The original RES of 10 percent by 2020 was increased with the passage of two subsequent measures, raising the RES for investor-owned utilities to its current 30 percent by 2020. Colorado also created the first-ever Climate Action Plan in 2007.

Local efforts such as Greenprint Denver, a comprehensive sustainability initiative, also promote innovation. In fact, the U.S. Chamber of Commerce's Business Civic Leadership Center recognized Greenprint Denver as a national model for energy conservation and clean energy technology. Private sector initiatives, such as the CEC and the CCIA, are working to advance Colorado's diverse energy industry.

Government funding and public policy will also influence the region's energy cluster in the coming years. Federal stimulus funds are pumping more than $542 million into Colorado over four years for energy efficiency and renewable energy projects. Colorado's share of federal funding has been used to develop programs including energy efficiency and conservation block grants, research and development grants, and weatherization assistance grants.

Federal funding has been an important tool in stimulating activity in Colorado's cleantech sector. However, stimulus funding is not sustainable over the long term and will not ultimately lead to widespread adoption of energy efficiency. The Metro Denver region is building awareness among developers, brokers, building owners, and tenants regarding the significant return on investment (ROI) from deploying energy-efficient systems. Understanding this ROI is the key to widespread adoption of energy efficiency.

The region and state have abundant renewable resources for energy production.

Colorado has excellent solar and wind resources. Among the 50 states, Colorado ranked third in generated solar energy and seventh in generated wind energy in 2009. The state also has abundant natural resources for biofuels, nuclear, natural gas, and rare earths—all of which play an important role in Colorado's New Energy Economy.

Where does Metro Denver go from here?

Metro Denver, in partnership with the state of Colorado, has emerged as one of the nation's leading regions in cleantech innovation, jobs, and companies. It is also clear that the competition for future leadership among other regions, nationally and internationally, is fierce. With its long history of working across jurisdictions and sectors, Metro Denver is well-positioned to build on past success, accelerate innovation, and produce greater climate prosperity in the years ahead.

The Metro Denver region understands that regional collaboration:

- **Creates a larger impact.** By working together, the region can focus its resources on scaling-up the most effective strategies, spreading the economic and environmental benefits widely, and creating a growing regional market for homegrown green products and services. Collaboration among jurisdictions, industries, and individuals leads to greater economic prosperity for the region.

- **Promotes shared progress.** Job creation and community benefits are shared broadly among all communities in the region, demographically as well as geographically.

- **Produces more innovation.** By tapping into the broader regional pool of talent, ideas, and ingenuity, Metro Denver can further expand and accelerate its rate of innovation. Real breakthroughs come at the intersection of different disciplines and diverse viewpoints, and the region is the right scale for innovation—not too large to preclude face-to-face interaction but not too small to limit the variety of people and ideas.

- **Keeps pace with the competition.** Metropolitan regions are competing for leadership in the national and global green economy. The competition for investment, companies, and top talent is intensifying as regions worldwide view the cleantech industry as one of the most promising sources of economic prosperity. By combining collective assets Metro Denver has been able to compete with other regions.

- **Promotes progressive policies.** Colorado passed 57 pieces of cleantech legislation from 2006 through 2010, including the 30 percent RES. Colorado businesses and residents are participating in and benefiting from this growing sector of the economy, and it is expected to continue to create innovative policies that keep Metro Denver and Colorado at the forefront of the new energy economy.

Private sector action

Xcel Energy launched SmartGridCity in Boulder in 2007 as a pilot to test more than 60 smart-grid tools and technologies in a real-world setting. Technologies tested include smart grid infrastructure, a two-way high-speed communications system that allows Xcel to sense and predict grid conditions, smart meters that collect and share electricity use data with consumers, and in-home smart devices such as two-way thermostats and smart plugs. These technologies allow consumers to monitor and understand their energy use and change behaviors to reduce energy consumption.

II. FOUR PRIORITIES TO ACCELERATE CLIMATE PROSPERITY IN THE METRO DENVER REGION

Climate Prosperity is a practical approach that recognizes Metro Denver's competitive advantages and concentrates the region's efforts in key areas. It builds from existing partnerships and programs, and encourages the region to fill gaps, expand participation, and break new ground to grow economic and environmental benefits.

Metro Denver's leaders recognize the necessity of collaboration to sustain the region's leadership position and deliver substantial economic and environmental benefits to its residents. More than 50 leaders from the public, private, and nonprofit sectors helped develop a regional climate prosperity strategy. Many of them have signed on as "champions" to help implement specific actions in key priority areas. Universally, they agreed that regional collaboration will deliver on the promise of climate prosperity—substantial reductions in emissions coupled with substantial gains in jobs and economic prosperity across the region.

The Metro Denver region connects its best individual ideas and local initiatives in ways that create positive benefits for the region in terms of job creation and economic prosperity across all of its cities and neighborhoods. The Climate Prosperity Project provides a framework that helps the region stay on course. Four specific priorities were chosen to accelerate climate prosperity in the Metro Denver region.

Developing the strategy

Between June and December 2010, leaders from business, government, higher education, federal laboratories, and other local and regional organizations came together to develop a regional climate prosperity strategy. The national Climate Prosperity Project provided technical assistance to the group, with an overview of the framework and practices from across the country.

The first task was to identify likely sources of future climate prosperity specifically for the Metro Denver region. The group discussed many possibilities, including technologies and industries with growing markets in the region and globally:

- **Alternative/renewable** energy
- **Energy storage,** particularly batteries supporting electric vehicles
- **Energy efficiency/conservation/standards**
- **Smart grid/information technology**
- **Retrofits of existing buildings**
- **Consumer markets** for green products, services, and sustainable practices
- **Building out** cleantech supplier chains based on the region's strengths
- **Integration** of different technologies, products, and services into solutions (e.g., energy efficiency and renewable energy)
- **Setting a standard** for sustainable design and construction
- **Establishing incentives** to enhance the adoption of energy efficiency

The group also envisioned a stronger cleantech commercialization process in the region that will serve as a catalyst for future climate prosperity:

- **Stronger connections** among R&D, testing, and business support (incubation/capitalization, legal/accounting, management assistance)
- **Federal labs and universities** as stronger magnets for outside companies coming to the region, and partners in future innovation
- **Testbeds and demonstration projects** that provide opportunities to experiment and refine innovations, linking public and private sectors, universities, and federal laboratories

Using the Climate Prosperity framework: Build the market and expand the base

Based on a scan of communities, regions, and states across the country, the national network offered the following framework to serve as a guide for regional collaboration. The regional climate prosperity framework includes both demand and supply components that together produce multiple economic and environmental benefits.

- **The demand component** involves building the regional market for green products and services. Activities that create regional demand—from building rating systems and standards to incentives to regulatory policies—are the most common climate prosperity strategies to date.

- **The supply component** involves growing the regional base of the cleantech industry. While a region can increase its market for cleantech, this demand can be met by local firms or firms based outside the region. The more that regional demand is met by local firms, the more economic benefits accrue to the region.

When a region actively encourages cleantech demand and supply simultaneously, it can maximize its environmental and economic benefits including reducing greenhouse gas emissions, improving energy savings, expanding business opportunities, and growing cleantech talent and jobs.

The framework also suggests an organizational component to connect and align both demand and supply strategies, and track economic and environmental benefits. A regional climate prosperity council can take many forms, but should reflect the unique characteristics of each region. A diverse set of regions across the country from Portland-Vancouver to Silicon Valley to St. Louis to Denver have created or are in the process of developing these councils.

The group considered two fundamental ways to create climate prosperity: how best to build the regional market for cleantech, and how best to expand the base of the cleantech industry and companies to serve regional and global markets.

Build the market. A combination of user education and assistance, supportive policy, and new infrastructure (i.e., the smart grid) will be required to build the market for green products and services in the region, including:

- **Conduct consumer education** on the ROI to create demand for energy efficient construction and products and renewable energy sources in residential and commercial settings.

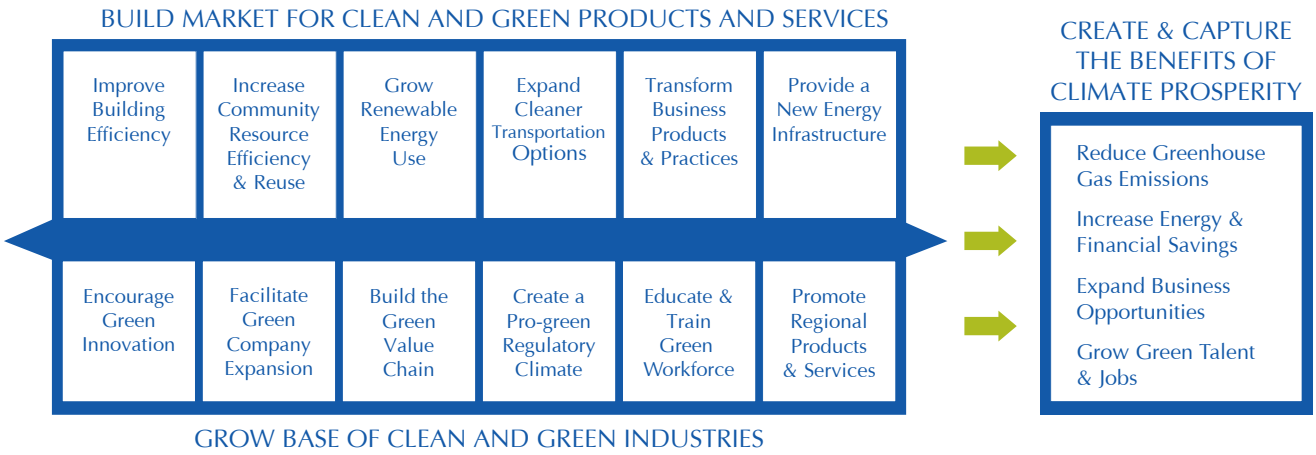
- **Promote a new energy infrastructure.** Colorado is at the center for smart grid demonstration projects. Boulder's SmartGrid City was the first project of its kind in the country.

- **Promote and align policies** that influence the success of the cleantech market such as building efficiency standards and targets, siting and integration of renewable energy sources, and permitting processes.

Grow the base. A combination of developing and commercializing the region's R&D assets, building out the green value chain in key industries, and promoting the region globally as a top cleantech location will effectively grow the base of companies in the region. Tactics include:

- **Build out the green value chain**, including connecting existing buyers and suppliers, expanding the supplier base, and filling gaps in existing regional value chain through strategic business recruitment and retention.

- **Leverage and commercialize R&D assets** by providing local government funding mechanisms that support



research institution spin-offs and cleantech start-ups. Focus R&D on products and services for innovations for buildings, and enabling better access to R&D for entrepreneurs and larger companies

- **Launch a coordinated outreach marketing campaign** to showcase regional strengths to outside companies. Coordinate the campaign, strategic recruitment efforts, and incentives. "Brand" the region to allow companies who are here, or want to be here, to leverage the benefits of locating here. Coordinate with state-level campaigns and incentives to communicate Colorado's assets worldwide.

Taking into account the climate prosperity framework and the unique assets and goals of the Metro Denver region, the group identified the following four priority actions:

- **Market:** expand user education, including information, demonstrations, and test beds
- **Value Chain:** build out the cleantech value chain
- **Innovation:** leverage and commercialize the region's R&D assets
- **Brand:** launch an external campaign branding the region and providing assistance to companies that seek to expand in the region

Priority Action: Market

Metro Denver's Climate Prosperity Strategy will build awareness in user markets by expanding adoption of green products and services (e.g., energy efficiency, green building design and construction) in the region's user markets from residential to commercial to industrial, including government and business sectors. By strategically educating consumers on the benefits of green products and services, demand will increase and stimulate expansion of local companies in the sector.

The Market priority has four elements:

- **A one-stop resource for information** about local green products and services for users, case studies documenting ROI, and guidance on utility and other resources to help in adoption of new products and practices.
- **The CEC, under the leadership of its Sustainability Committee, will serve as a focal point** for the Metro Denver Climate Prosperity Project to raise awareness among users, for users to share experiences, and provide peer support and advice in implementing new green products and practices.
- **Facilitate partnerships** among property owners, developers, designers, bankers, and suppliers to design and execute specific projects that provide tangible demonstrations of ROI in key commercial, industrial, and government projects.
- **Influence procurement and incentives policies**, and make recommendations to policymakers on steps local jurisdictions, large institutional purchasers, and others can take to build demand for green products and services in the region.

Successful implementation of the Market priority will produce several key outcomes:

- **Greater user information and awareness.** Evidence includes a growing number of documented cases of ROI from new energy-efficient buildings, retrofits of existing buildings, and other green product adoptions, increasing user understanding of ROI for energy efficiency upgrades, wider user recognition of the range and quality of locally-made green products they could adopt.

The Research Support Facility (RSF) at NREL is one of the largest net-zero, LEED Platinum office buildings, and is reported to be one of the most energy-efficient buildings in the world. The first of three buildings was completed in 2010. It is a 222,000-square-foot office building utilizing passive building technologies and efficient mechanical systems, resulting in energy savings of more than 50 percent over conventionally constructed office buildings.

- **Growing volume of users.** Outcomes include increases in regional purchasing of regional green products and services, increases in volume of retrofit building applications, changes in wide range of buildings (especially smaller buildings of 50,000 square feet or less), growing user interest and investment from outside the region.

- **Growing user impacts.** Results include reductions in energy consumption, increases in financial savings from greater energy efficiency, expansion of businesses and jobs in green product and services sectors as well as user industries, reductions in carbon emissions.

Priority Action: Value Chain

The Metro Denver region will strategically identify and promote the cleantech value chain by developing and recruiting a network of interdependent industries and firms that can provide not only a range of products and services, but diverse economic opportunities for residents across the region. By focusing on opportunities to develop and recruit companies that provide cleantech components and green products and services, the region will build on its existing base of cleantech companies to niches and stimulate local business and job growth.

The strategies developed provide a focal point for finding potential suppliers, forming partnerships, and sharing experiences critical to building out the cleantech value chain in the Metro Denver region. It will spearhead the following:

- **Map the Metro Denver cleantech value chain.** Identify gaps and opportunities for the formation, expansion, and recruitment of cleantech companies to the region, and inventory the assets that support value chain development (e.g. workforce development system, economic development resources, local institutions, and state government value chain efforts).

- **Create a roadmap for cleantech value chain development** in Metro Denver. This will serve as an action plan among our partners that identifies specific steps to promote cleantech value chain growth, including targets and timelines for filling value chain gaps.

- **Mobilize business, government, and community leaders** to implement the cleantech value chain roadmap for Metro Denver. Assemble public-private teams, tap assets, drive implementation, and measure results as roadmap priorities are achieved.

Vestas Wind Systems developed four major manufacturing facilities in Colorado from 2007 – 2010. The company has invested more than $1 billion and created approximately 2,500 net new jobs in the region. To date, the Metro Denver region also benefitted from new facilities of numerous of Vestas' European suppliers. Building the cleantech value chain is a priority for the region and the state. Various efforts are underway to map and develop the supply chain with which the Metro Denver Climate Prosperity Project will collaborate.

- **Document the Metro Denver cleantech value chain.** Describe the elements of the current and potential value chain in the region and identify key companies (especially major cleantech companies attracted to the region in the last five years) and their suppliers inside and outside the region. This activity will document gaps and opportunities for the formation, expansion, or recruitment of suppliers to the region, and inventory the assets that could support value chain development (e.g., workforce development system, economic development resources, local institutions, and state government green value chain efforts).

Successful implementation of the value chain priority will produce the following key outcomes:

- **National leadership.** Metro Denver will become recognized as the top region for cleantech value chain development, with assets working together better than any other region through workforce development, economic development, and regional and state cooperation.

- **Growing companies and jobs along the value chain.** Results include measurable expansion of green supplier companies and employment, greater volume of local company-to-company buyer-supplier relationships, and growth in the diversity of business functions such as design, manufacturing, installation, and services.

Priority Action: Innovation

The Metro Denver region will build on existing R&D and commercialization networks to accelerate the flow of innovative products and companies from the region's R&D institutions to the marketplace. These innovations take root and grow in the region. Metro Denver will work with its partners—Colorado Renewable Energy Collaboratory, NREL, CleanLaunch Technology Incubator, Engines and Energy Conversion Laboratory at Colorado State University, and others—to focus on specific opportunities to accelerate green technology commercialization.

The Innovation priority will play two major roles:

- **Internal promotion.** Promote the expansion of policies, incentives, and activities within institutions to encourage commercialization of innovations, such as documenting and sharing successful case studies of commercialization, holding peer-to-peer forums, providing targeted information to researchers about how to find commercialization partners, partnering with others on existing events designed to showcase capabilities and innovations for potential outside partners, and allocating specific funding to promote commercialization among researchers.

- **External attraction.** Align and collaborate with existing efforts, to expand access to local institutions' technologies that are ready for commercialization. Actions may include holding investor roundtables, identifying and attracting a continuum of private and public funding sources (e.g. micro financing for proof-of-concept for promising technologies), and maintaining a network that continues to broker partnerships among inventors, investors, and other support professionals.

Successful implementation of the Innovation priority will produce several key outcomes:

- **Increased partnering activity.** Results include growing numbers of collaborations among institutions, researchers, investors, entrepreneurs, and professional services focused on commercializing specific innovations.

- **Growing regional product commercialization.** Evidence includes growing number of regionally-grown product and company launches, especially those with roots in local R&D facilities, increasing the number of exclusive licenses to Colorado-based companies.

- **Growing volume of investment in regional commercialization.** Outcomes include expansion of venture capital investments, successful funding of growing number of cleantech start-ups, and growing number of investors in the cleantech field.

- **Growing regional impacts from successful commercialization.** Results include growth of companies and cleantech jobs, growing regional product diversity, growing ability to attract key talent, and growing recognition of the region as a cleantech center both among outsiders and political and other leaders in the region.

Colorado has a strong commercialization network. For example, Colorado State University's Engines and Energy Conversion Laboratory (EECL) focuses on engine technology, smart electric grids, advanced biofuels, and energy technology for the developing world. Solix Biofuels and Envirofit are two companies that came out of the EECL. In September 2010, Popular Science magazine ranked the EECL sixth-best among all university laboratories in the U.S.

Priority Action: Brand

A branding campaign will increase awareness and interest in Metro Denver's cleantech assets and industry strengths. The campaign will have two purposes: 1) to demonstrate the area's competitive advantages, and 2) to encourage firms to locate or expand their operations in the region, thereby creating new cleantech jobs. The campaign will have both an external orientation and a regionally-focused element. The regional element will build political and business support for the climate prosperity concept and the Metro Denver Climate Prosperity Project.

The Brand priority will involve the following:

- **Market intelligence and messaging.** The Metro Denver Climate Prosperity Project will continue to collect and analyze information on potential target markets and cross-marketing opportunities, develop and test messaging options, and develop target lists for communications including business categories, trade shows, media outlets, and others.

- **Marketing materials and communications strategies.** The Metro Denver Climate Prosperity Project will develop marketing materials as needed, including promotional documents, testimonials, lists of incentives, talking points for government and business leaders, etc., as well as develop specific communications strategies targeted to different audiences (both external and regional groups).

- **Launch and sustain campaign.** The Metro Denver EDC launched the Colorado Cleantech Hub website (www.cleantechhub.com) in May 2010. This communications effort is continuously assessed and updated for its effectiveness and currency. The Metro Denver Climate Prosperity Project will launch a second wave of communications strategies, and sustain a cycle of external and regional marketing.

The successful implementation of the Brand priority will deliver the following results:

- **Growing support for and involvement in Metro Denver's Climate Prosperity Strategy.** Outcomes include increased participation and funding for the Metro Denver region's four priority areas including growing understanding and support from local political leaders for climate prosperity efforts.

1800 Larimer Street, completed in 2010, is the largest speculative LEED Platinum office building in the U.S. It is an example of a new class of office building focused on the livability and productivity of its inhabitants, as well as its impacts on the environment. Capital investments were made in energy- and water-saving strategies, the use of renewable, local, and low-VOC materials, and easy access to multimodal transportation options. These energy-efficient features have attracted tenants in a tough real estate market, resulting in a 90 percent occupancy rate.

- **Growing awareness of Metro Denver as a leader in Climate Prosperity.** Results include an increase in green business owners that view Metro Denver as one of the country's top locations for their firms, and a growing number of industry trade shows or conferences that select the region as a host.

- **Growing business and job impacts.** Evidenced by new businesses and jobs that are attracted to the region as a result of the campaign, and increases in regional and state support that helps drive new business and job growth.

Together, these priority actions—Market, Value Chain, Innovation, and Brand—will provide a powerful catalyst for climate prosperity in the Metro Denver region. The CEC, under the leadership of its Sustainability Committee, is prepared to launch, support, and assess the impact of these initiatives as they move forward.

III. CLIMATE PROSPERITY LEADERSHIP COUNCIL

The CEC, under the leadership of its Sustainability Committee, will serve as the leadership council for the Metro Denver Climate Prosperity Project. CEC is an initiative of the Metro Denver EDC.

The Metro Denver EDC is a national model for successful regional economic development programs in which many area economic development groups have joined together to represent and further the interests of an entire region. Partners include 70 cities, counties, and economic development organizations in the nine-county region. The Metro Denver EDC's work to create a competitive environment that attracts companies and jobs is backed by the region's business community, with primary funding coming from private-sector investors, as well as participating cities and counties.

The CEC, formed in 2006, is a diverse organization dedicated to strengthening the business climate in Colorado that supports all sectors within the energy industry—fossil fuels, renewable resources, energy efficiency, conservation, and transmission. Members of the CEC represent the industry, finance, law, government, education, economic development, and the public workforce system.

There are currently five committees under the CEC, each of which operates as a task force with specific goals, deliverables and timelines. Committees include Competitive Analysis, Education, Finance, Infrastructure, and Sustainability.

The CEC Sustainability Committee will develop the action steps under each of the four priorities—Market, Value Chain, Innovation, and Brand—and collaborate with other CEC committees to implement those actions.

The Sustainability Committee's accomplishments to date include mapping the region's sustainability assets; developing case studies of energy-efficient buildings to demonstrate the value of sustainability in the marketplace; and building the brand for Metro Denver. The committee's work dovetails with the goals and objectives of the Climate Prosperity Project.

The Climate Prosperity Project will have the benefit of additional champions from among the 50 stakeholders who contributed to this plan. The Metro Denver Climate Prosperity Project champions are:

Richard Adams, Colorado Renewable Energy and Economic Development
John Armstrong, Enserca LLC
Joe Danko, CH2M Hill
Judy Dorsey, Colorado Clean Energy Cluster
Don Fitzmartin, Fitzmartin Consulting
Mark Gouin, Wells Fargo
Steve Grund, Consultant
John Hall, City of Westminster
Eric Harris, City of Lakewood
Anne Hayes, Westfield Development
Ed Hegwood, ProPlan, Inc.
David Hiller, Colorado Renewable Energy Collaboratory
Georgia Howard, City of Denver
Noel Mattison, Xcel Energy
George Pond, Denver Zoo
Janice Rooney, National Renewable Energy Laboratory
Bart Sayyah, South Metro Denver EDC
Christine Shapard, Colorado Cleantech Industry Association
Drew Torbin, ProLogis
Rich von Luhrte, RNL Design
Michele Weingarden, City of Denver
Eric Wittenberg, Solar City
Trent Yang, Renewable and Sustainable Energy Institute
Julie Zinn Patti, Spirae

IV. THE NATIONAL CLIMATE PROSPERITY PROJECT

What is climate prosperity?

Climate prosperity is the simultaneous expansion of economic opportunity and reduction of greenhouse gas emissions. It is the result of purposeful strategies by business, government, education, and the community to generate substantial economic and employment growth and sustainable business and community development. Through innovation, efficiency, and conservation in the use and reuse of natural and human resources, it will increase jobs, incomes, productivity, and competitiveness.

Why has climate prosperity become so important?
The world faces a "perfect storm" of environmental, energy, and economic challenges. Climate prosperity offers the potential to address climate change, volatile energy costs, and uncertainty in the market at the same time. At its core, climate prosperity posits that these challenges can be addressed together and in ways that create multiple environmental and economic benefits. In fact, by tying the economy and environment together, climate prosperity increases the odds that improvements in both areas will be sustainable over the long term.

Climate prosperity offers an alternative to those who believe that action to address global warming will cost too much during a recession, or that one must lower economic aspirations in order to save the planet. In particular, the recent global financial crisis has prompted commentators to suggest that investments in renewable energy and cleantech should be postponed because they may delay economic recovery.

In the 21st century, climate prosperity is the way people and places become richer: businesses and families can save money by using resources more efficiently, and businesses can make money as innovations are adopted across all sectors of the economy and community. All while improving the regional quality of life and addressing global climate change.

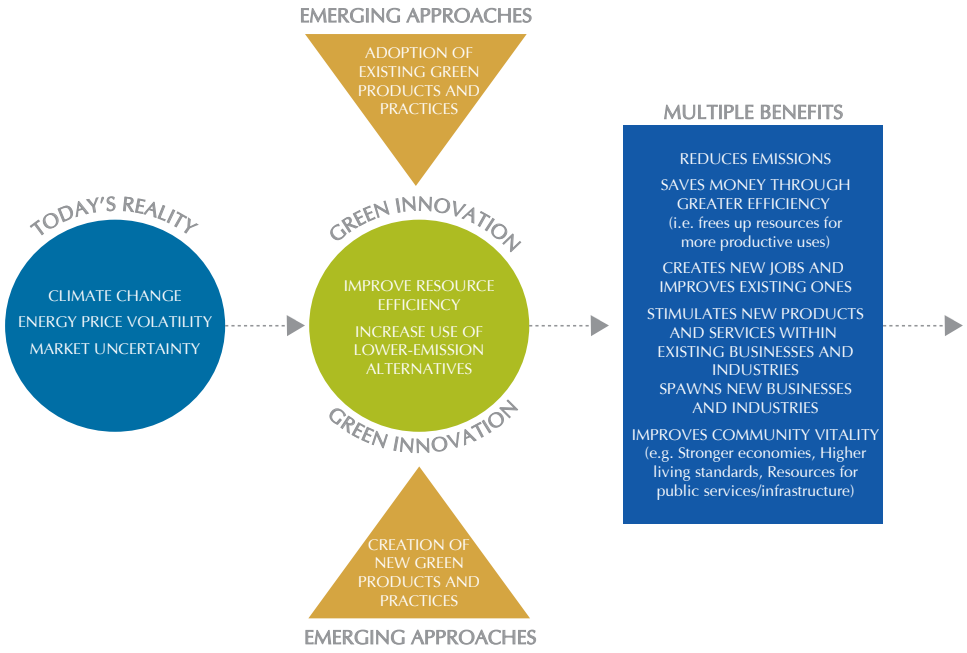
Climate prosperity is a proven approach that has produced results.

It is based on both historical precedent and recent evidence from across the country that environmental and economic progress can be achieved together. An earlier generation of environmental technologies not only cleaned up the nation's air and water, but produced economic benefits far in excess of the costs of developing and deploying those technologies. In the energy field, some states and regions have demonstrated that they can simultaneously improve energy efficiency, increase the use of renewable energy, and maintain a growing economy.

In short, climate prosperity is a new effort to define a productive relationship between the environment, energy, and the economy in challenging times.

The figure below illustrates the path to Climate Prosperity—how cleantech innovation can address today's realities and creates benefits for people, businesses, communities, and the environment.

THE PATH TO CLIMATE PROSPERITY



Climate prosperity is distinct from other approaches.

It goes beyond the concept of climate protection, seeking out specific ways to grow and capture the economic benefits of environmental policies. It also offers an alternative to those that regard climate action as primarily an economic burden and source of job loss. Climate prosperity rejects the notion that the economy and environment are incompatible, and embraces the belief that through innovation one can find ways to strengthen both at the same time.

Climate prosperity is a hybrid of environmental sustainability and economic innovation.

It recognizes that steps can be taken towards sustainability by reducing emissions through better energy efficiency and greater use of lower-emission alternatives. It also recognizes that innovation—which has opened up new frontiers in other fields such as information technology and biotechnology—can transform the energy field. A new wave of innovation can be a catalyst for prosperity that both addresses climate change and creates economic opportunity for people and communities.

Climate prosperity is an approach that is widely applicable as every community, region, and state can improve energy efficiency and expand the use of low-emission alternatives in their homes, industries, and government. Some places will undoubtedly emerge as the cleantech centers in the years ahead, but every place can adopt sustainable products and practices, and develop their own version of climate prosperity.

What does climate prosperity look like?

Climate prosperity is about increasing financial and energy savings, expanding employment and business opportunities, and improving regional and community vitality, while reducing carbon emissions. Specific examples include:

- **Saving money through greater energy efficiency.** Business, government, and individuals can free up resources for more productive uses by adopting existing energy efficiency measures. McKinsey & Company reviewed a wide range of efforts to curb greenhouse gas emissions and found that a large number of basic efficiency measures in building, lighting, and electronics will produce a positive return on investment due to savings in energy costs.

- **Creating new jobs.** New occupations such as solar installers have emerged, but these and other cleantech jobs are only the tip of the iceberg. New jobs are being created not only in new cleantech firms, but in the growing number of companies that provide green products and services that help users adopt and make optimum use of sustainable products and practices (e.g., energy efficiency consulting, building materials, and environmental sensors). Jobs are being created across the occupational spectrum from entry-level to executive positions.

- **Improving existing jobs.** Many existing occupations are being transformed by adding new skills to apply, manage, repair, and otherwise maintain new products (e.g., electricians, construction trades, machinery maintenance, architects, and engineers). Adding new knowledge and skills to serve growing markets improves job security and wage potential for a wide range of occupations.

- **Stimulating new products and services in existing businesses and industries.** A growing number of diverse industries, from construction to semiconductors to automobiles, are integrating cleantech into their business models. These innovations are helping them enter new markets in the U.S. and globally.

- **Spawning new businesses and industries.** Since the beginning of the decade, a new wave of firms and industries has appeared including solar, wind, biofuels, advanced batteries, hybrid systems, emissions control, monitoring, trading, and offsets. These innovations have attracted growing amounts of private venture capital and public funding, and have taken root across many states.

- **Improving regional and community vitality.** All of the above outcomes are producing stronger economies and higher living standards for people, as well as resources for public services and infrastructure. Ultimately, climate prosperity helps preserve and enhance the quality of life for people and communities.

THE NATIONAL CLIMATE PROSPERITY PROJECT NETWORK

The national Climate Prosperity Project is a network of regions that are pursuing strategies to grow their green economies while reducing greenhouse gas emissions. Including the Metro Denver region, six regions have been designated Pilot Communities, each one committed to developing and launching a regional climate prosperity strategy. While the Pilot Communities are in various stages of development, some of the early outcomes achieved thus far include:

- **Hosted by the St. Louis Chamber and Growth Association**, the St. Louis Green Business Challenge was launched to encourage businesses to adopt sustainable practices that improve energy efficiency and indoor air quality, reduce waste and water consumption, as well as increase clean transportation options. More than 40 area companies participated in the inaugural challenge.

- **The St. Louis Climate Prosperity Project** is collaborating with the area workforce investment boards, businesses, college and universities, and union training centers to form a regional Green Talent Strategy. The Green Talent Strategy is identifying growth in green occupations in the St. Louis region, aligning job training providers with employers in green industries, and developing action plans to meet the growing talent needs of the regional green economy.

- **The Portland-Vancouver metro area** completed its Greenprint, which lays out a six-part regional strategy for climate prosperity—including establishing new finance mechanisms for green innovation, accelerating energy and resource efficiency, commercializing cleantech, cultivating a cleantech cluster, developing a pipeline of green talent, and building support and communicating results.

- **Silicon Valley's Climate Prosperity Council's strategy** includes organizing an energy storage symposium and technology showcase to discuss the future of energy storage, and how the region can work together to be the center of innovative energy storage technologies. Nearly 100 attendees from energy storage, solar, smart grid, consulting, research, venture capital, government, design, and academia focus on specific actions to grow this sector.

- **The Silicon Valley Council** also organized a cleantech funding roundtable to identify innovative new ways to finance cleantech from technology inception to mass commercialization in all sectors of the industry.

- **Silicon Valley** held a regional mayor's summit, with San Jose Mayor Chuck Reed convening the first ever meeting of Silicon Valley mayors to discuss how local governments can work together to support the growth of clean technology industries and markets.

Metro Denver Economic Development Corporation
1445 Market Street
Denver, CO 80202

www.metrodenver.org