

New Energy Economy Community Assessment

Archuleta, Dolores, La Plata, Montezuma and San Juan Counties

Submitted by the Four Corners Office for Resource Efficiency (4CORE)



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June 15th, 2010

Updated July 8, 2010

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Background

4CORE convened a Resource and Energy Action Plan (REAP) Advisory Board consisting of community representatives to include elected officials, ranchers, farmers, utilities, businesses, oil and gas representatives, non-profits, bankers, planners, educators, economic development, subject matter experts, and other sector representatives.

Information for this report was gathered by interviewing GEO representatives and county and city officials, and conducting a SWOT Analysis (included at the end of this report) with REAP Advisory Board members.

REAP Mission

Ensure Southwest Colorado uses resources and energy effectively and efficiently to create economic opportunities and improve quality of life by developing and implementing the Resource & Energy Action Plan.

REAP Vision

Southwest Colorado will REAP the benefits of effective use of resources and sustain a thriving region of rural, agricultural, and mountainous communities.

Community Assessment Matrix

New Energy Economy Indicator	Development Target	Policies / Implementation Strategies	Governor's Energy Office Assistance	Community Assessment as of Date: 1=Little or No Evidence; 2= Some Elements; 3=Fully Implemented	Training needed Y/N? Other Community Needs?
Goal Setting		Set goals to reduce energy, water, petroleum consumption	Greening Government Executive Order can guide the process	2	Y: Engagement/ education of public building officials
Reduce environmental impact / energy dependence of local government operations	Reduce energy and water consumption to meet or exceed goal	Record, track energy and water consumption in local government and school buildings	EnergyCAP tool selected through the state's competitive process. Available through price agreement	1	Y: Engagement/ education of public building officials
		Energy Performance Contract (EPC) or alternate strategy to reduce energy and water consumption	Energy Services Companies (ESCO) were selected through state's competitive process. Turnkey project assistance available to local governments at no cost through GEO's EPC program	2 (See list of projects below)	Y: Engagement/ education of public building officials, especially school officials
		Adopt High Performance Building standards (such as LEED) for new construction and major renovations	Free technical assistance available to local governments through GEO High Performance Building program	2 (See list of projects below)	Y: Engagement/ education of public building officials; need evidence that LEED is value for funds expended or building to

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Reduce environmental impact / energy dependence of local government operations					standards without certificate is acceptable
	Reduce petroleum consumption to meet or exceed goal	Record and track petroleum consumption	The State uses a fuel card vendor to track this data.	1 La Plata County tracks data with fuel cards and averages 16 miles per gallon for their fleet vehicles.	Y: Engagement/ education of public building officials
		Written strategy to reduce petroleum consumption	The State's strategy is available as a template.	1 La Plata County idling policy in place, buy hybrids if possible.	Y: Engagement/ education of public building officials
	Reduce environmental impact of operations	Adopt an Environmentally Preferable Purchasing (EPP) policy	The State's EPP is available as a guide.	2 La Plata County is using a 5% Local and environmentally friendly products (5% over the cost of other bids)	Y: Engagement/ education of public building officials

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		Adopt telework policies and/or offer incentives for employees to reduce single-occupied vehicle commutes	See the State’s policies , which are available as a guide.	2 (see “Beanpole Initiative” below)	Y: Engagement/ education of public building officials
	Reduce waste associated with operations	Implement recycling program	Consult the Colorado Department of Public Health and Environment’s Pollution Prevention Program	2	Y: Engagement/ education of public building officials
		Implement composting program		2	Y: Engagement/ education of public building officials
		Adopt construction waste management strategies	Develop a guide similar to the one used in Boulder Colorado	1	Y: Engagement/ education of public building officials
Build Local Capacity	Reduce the community’s fossil fuel use and promote New Energy Economy business	Designate a staff member or local non-profit to be responsible for community energy reductions	Colorado communities that did not receive DOE EECBG funds have access to a GEO-funded resource	3	Y: Support engaging natural gas providers.
		Conduct a community energy-use assessment	Univ. of Colorado at Denver IGERT program , local utility providers, other consultants	2- an emissions inventory exists for La Plata County using	Y: What emissions inventory tool is best to use

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	development			ICLEI's Clean Air & Climate Protection (CACP)	and how to use them, including CACP.
		Develop a community New Energy Economy strategy, and "Green Team" to provide input and assist with implementation	GEO Community Energy Coordinators will facilitate this process. Sample strategies available through GEO.	2- in progress	Y. 4CORE is training some Weatherization subcontractors, but funding is needed for a training program to make homes & businesses energy efficient.
Reduce Community Fossil Fuel Use	Reduce energy consumption in the residential sector	Implement energy efficiency codes	GEO will contract with DOLA in 2010 to provide this assistance	1	Y.
		Provide free retrofit services to low-income residents	GEO Weatherization Program	2- In progress	
		Work with local builders and Realtors to encourage energy-efficient new home construction	GEO ENERGY STAR New Homes Program	2- In progress	

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Reduce Community Fossil Fuel Use		Provide incentives to homeowners who implement energy efficiency (EE) and or renewable energy (RE) retrofits	GEO will roll-out rebate program in March 2010	2- In progress	Y. Rebates are insufficient to remove upfront cost barriers. By the time the "access to capital" programs are started, the rebates will have been expended.
	Reduce energy consumption in the industrial sector	Provide EE and RE strategies and resources to the industrial sector	GEO industrial efficiency program rolled out in April 2010	1	Y: Engagement/ education of industry partners
	Reduce energy consumption in the commercial sector	Implement energy efficiency codes	GEO will contract with DOLA in 2010 to provide this assistance	1	Y: Engagement/ education of industry partners
		Provide incentives to business owners who implement energy efficiency (EE) and or renewable energy (RE) retrofits	GEO Recharge Colorado rebate program opened April 19, 2010	2- In progress	Y. Rebates are insufficient to remove upfront cost barriers. By the time the "access to capital"

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					programs are started, the rebates will have been expended.
		Provide technical assistance to businesses who wish to take a holistic approach to EE	GEO Main Street Efficiency Initiative will roll-out mid 2010	1	Y. Need other programs. Perhaps NREL?
Reduce Community Fossil Fuel Use and Increase	Access to Capital	Provide access to financing for home and business owners who wish to install EE and RE technologies	Guide to developing a Property Assessed Clean Energy (PACE) program available through GEO	2-La Plata County actively researching and considering	Y: education of partners if PACE program is adopted
			GEO will work with local utility to develop on-bill pay program	1	Y: education and motivation of partners
			GEO will work with banking community to provide EE/RE financing programs. ENERGY STAR mortgage grants available to lenders in mid 2010. Other financing programs under development.	1	Y: education of partners, residents, and businesses

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Renewable Energy Use	Access to Information	Educate homeowners and businesses – the who, what, where, when, why, and how of EE and RE	GEO Recharge Colorado program is designed to support community efforts and visa-versa	2- in progress	Y: This community responds better to face-to-face discussions than media coverage.
	Access to Services	Ensure that local contractors are aware of GEO programs that promote EE and RE	GEO will emphasize outreach to trade allies in 2010	2	Y: outreach to local contractors
		Identify the number of EE/RE contractors, and determine if supply is sufficient	GEO “Green Jobs Coordinator” position filled in early 2010. Emily.lesh@state.co.us	2	Y: outreach to local contractors
		Provide opportunities for EE/RE business development	GEO’s New Energy Economy Development (NEED) grants	2	Y. Infrastructure and market concerns.
Increase Renewable Energy Resources	Increase Renewable Energy mix in power generation	Engage utility providers	GEO’s Utility Program Manager and Renewable Energy Policy Manager actively work in this area and are available to support community-lead efforts	2	Y. Support via bill pay through municipal-owned utilities.
		Engage the public	GEO has a number of publications on this topic, e.g. Connecting Colorado’s Renewable Resources to the	2	Y. Educating businesses.

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		Develop utility transmission strategies	Markets GEO's Transmission Program Manager actively works in this area and is available to support community-lead efforts. See also Renewable Energy Development Infrastructure (REDI) video	1	Y. Educating utilities.
Support Carbon Emission Reductions	Support the development of community energy efficiency and renewable energy projects	Post implementation of energy efficiency and renewable energy projects, participate in voluntary carbon offset programs	GEO's Colorado Carbon Fund	2	Y: Implementing a local Clean Energy Fund and distributing CO Carbon Fund info.

Details of Current Southwest CO Initiatives

Existing Water Conservation Plans

Geographic Region	Plan	Last updated	URL
Colorado State	Statewide Water Supply Initiative (SWSI)	2007	http://cwcb.state.co.us/IWMD/SWSITechnicalResources/
Archuleta County	None		
Pagosa Springs	Pagosa Area Water & Sanitation District	2008	http://cwcbweblink.state.co.us/ElectronicFile.aspx?docid=127862
Dolores County	No known plan		
Dove Creek	No known plan		
Rico	None		
La Plata County	No known plan		
Durango	Water Master Plan Update	1984	http://docs.durangogov.org/sirepub/cache/2/xxuise55cgss2245gmr5yk55/332064706032010125956897.PDF
Ignacio	Water Saver Rate and Water Code	2009	
Bayfield	None		
Southern Ute Indian Tribe	None		
Montezuma County	No known plan		
Cortez	Ordinance#1143 Series 2010	2010	http://www.cityofcortez.com/news_info/ordinances
Dolores	None		
Mancos	None		
Ute Mountain Ute Tribe	No known plan	2000	
San Juan County	None		
Silverton	No known plan		

Performance Contracting

- San Juan County Schools 50-JT in EPC complete with M&V, contract should be underway, Honeywell is ESCO
- Durango: EPC underway at the Airport, ESCO is Ennovate, Don Brockus, Deputy Director of Aviation
- La Plata County: Contracted with Ennovate to perform an energy audit and monthly energy reduction analysis; the improvements were not paid by contracting with an ESCO
- Technical Energy Audit (TEA) phase- ESCO is Ennovate, approaching construction phase, Ashton Harrison is contact
- Montezuma Cortez School district- considering upgrades (Michael Canzona, Director of Business Services)
- City of Cortez- construction phase, contact Rick Smith, (McKinstry is ESCO)
- Town of Dolores RE4A- Construction Complete in Monitoring and Verification (M&V), Contact Marc Hale, Superintendent, (McKinstry is ESCO)

- Mancos School (K-12) in construction phase on a performance contract, superintendent is contact Brian Hanson is Superintendent (McKinstry is ESCO)
- Town of Ignacio completed energy audit and will implement recommendations.
- Town of Bayfield completed an energy audit.

High Performance Building Program

- Durango Public Library is LEED certified.
- Durango transit center is LEED certified
- Durango Discovery Museum-Regional Coordinator about plans/design
- Dolores Town Maintenance Facility
- Silverton School Renovation- Design development, hired an architect

Record and Track Petroleum Consumption

La Plata County tracks data with fuel cards annually and has a fleet with vehicles that average 16 miles per gallon. The county buys hybrids if possible, mostly for use as police vehicles.

Written strategies to reduce petroleum consumption

La Plata County has an idling policy in place and is exploring the possibilities for adding to their petroleum reduction policies.

Environmentally Preferable Purchasing (EPP) policy

La Plata County has a policy in place stating that environmentally friendly or local products may be purchased if they come in below, at, or up to 5% over the cost of other bids.

Telework Initiative

Region 9 Beanpole II Project: The Town of Pagosa Springs, in collaboration with Archuleta County and The Education Center, is applying as part of a Region 9 Economic Development District collaborative grant to the Colorado Department of Local Affairs (DOLA) for resources to finalize the fiber infrastructure installed by the initial Beanpole Project. Extend the broadband fiber infrastructure and/or create a move pervasive wireless infrastructure that would support a community wide WiFi Network in the Pagosa Springs downtown area and link more areas of the County. Included in the Town application are resources to secure the hardware and associated systems for the Global communications and Learning Center. The premise of the DOLA grant is to create regional smart communities in rural Colorado enabling improved commerce, economic diversity and competitiveness, and workforce development and sustainability.

Recycling Programs

Archuleta County

- The Recycling Center accepts tin and aluminum cans, corrugated cardboard, all colors of mixed glass, mixed paper (no phone books), and #1 and #2 plastic. More information: <http://www.archuletacounty.org/Publicworks/recycling.asp>. Unfortunately, the

recycles are often rejected at Durango's recycling center and have to be returned to Archuleta county and sent to the landfill.

Dolores County

- No options available

La Plata County

- Bayfield Convenience Center accepts clear, green, and brown glass, aluminum cans, cardboard, newspaper, waste oils, and automobile batteries
- Marvel Convenience Center accepts clear, green, and brown glass, and aluminum cans
- Durango: Curbside pickup, as well as drop off centers accept mixed papers, corrugated cardboard, mixed cans, plastic bottles and separated glass.
<http://www.durangogov.org/recycling/index.cfm>
- Ignacio accepts mixed papers, corrugated cardboard, mixed cans, plastic bottles and separated glass.
- Additional La Plata County Recycling Opportunities include a Battery Recycling Program, Computer and Electronics Recycling Event, a Household Hazardous Waste Collection Event, and a Free Yard Waste Program
- The Southern Ute Indian Tribe accepts all items that Durango recycles and brings it to the Durango recycling center.

Montezuma County

- ECOrtez accepts glass, mixed paper, cardboard, and aluminum beverage cans and consists of weekly curbside collection service and drop-off. More information found here: http://www.cityofcortez.com/government/public_works/recycling
- Four Corners Recycling Initiative accepts mixed paper (newspaper and newspaper supplements, white paper, all colored paper, junk mail, phone books, magazines, and catalogs), corrugated cardboard, and mixed steel (tin) cans and aluminum cans.

San Juan County:

- Town of Silverton drop off facility accepts cardboard, tin cans, plastic, glass

Composting Program Initiatives

Archuleta County

- Pagosa Area Water and Sanitation District (PAWSD) is planning a compost program using sewage sludge.

La Plata County

- Durango is seeking funds for a large-scale compost facility with an In-Vessel system. A year-round composting program will allow community members to drop off yard waste and

other organic materials and businesses and institutions to drop off food and landscaping waste.

The facility will significantly reduce the amount of solid waste that would otherwise find its way into trash collection and landfills.

Community energy-use assessment

La Plata County contracted with Brendle Group to prepare the La Plata County Baseline Greenhouse Gas Emission Profile and Forecast ("The Brendle Report"). This report has been used as a baseline for emissions (not necessarily energy use) and can be found at http://fourcore.org/public_html/docs/PDF_Draft_Emissions_Inventory_Revisions_Report.pdf

Implement energy efficiency codes

The table below is a chart of energy and building codes in Southwest Colorado.

Table 1. Current Building and Energy Code Inventory as of June 2010

Geographic Region	Building Code	Energy Code	Contact	Phone
Colorado State Code	IBC 2006	2003 IECC		
Archuleta County	IBC 2006	IECC 2006	Richard Bellis	970-731-3877
Pagosa Springs	IBC 2006	Residential Only - Chapter 11 IRC	James Dickhoff	970-264-4151 ext 225
Dolores County	none	None		970-677-2385
Dove Creek	Land use code	None	Irvin Frazier	970-677-2255
Rico	Land use code	none	Mike England	970-967-2863
La Plata County	IBC 2003	IECC 2003		970-382-6253
Durango	IBC 2006	IECC 2006	Alvey	970-375-4850
Ignacio	IBC 2003	IECC 2003	Pat Senecal	970-563-9494
Bayfield	IBC 2003	none	Mike Shave	970-259-5800
Southern Ute Tribe	IBC 2003 (not officially adopted)	none	Rodney Class-Erickson	970-563-2270
Montezuma County	UBC 1997 recommended	none	Susan Carver	970-565-2801
Cortez	IBC 2009	IECC 2009		970-565-7320
Town of Dolores	IBC 2006	Unknown	Ryan Mahoney	970-882-7720
Mancos	IBC 2006	IECC 2006	Tom Ynerall	970-533-7725
Ute Mountain Tribe	Unknown	Unknown	Brendon Adams	
San Juan County	IBC 2006	IECC 2006	Dee Jaramillo	970-387-5632
Silverton	IBC 2006	IECC 2006	Dee Jaramillo	970-387-5522, 970-759-2218

Free retrofit services to low-income residents

- The 4CORE Weatherization team is providing audits and weatherization to qualifying individuals in Archuleta, Montezuma, Dolores, San Juan, and La Plata Counties

Encourage energy-efficient new home construction

4CORE's Sustainable Building Education Program is providing seminars and technical trainings in Archuleta, La Plata, and Montezuma Counties through the Energy Star New Home Grant Program

Homeowner Incentives for energy EE and/or RE retrofits

4CORE is disseminating information about the following rebates and incentives:

- Statewide Recharge Colorado program
- La Plata Electric rebates for solar photovoltaic and efficient appliances
- Empire Electric rebates for appliances
- Atmos Energy and Source Gas rebates for insulation and appliances
- Federal tax credits

Business owner incentives for EE and/or RE retrofits

- 4CORE is disseminating information about the Statewide Recharge Colorado Commercial rebates.
- 4CORE is matching projects and programs with grants and funding opportunities (GEO and others) for businesses and non-profits through the Project and Funding Matrix, which is a shared "Google Document". The community is invited to post projects in need of funding on the document and then 4CORE contacts potential interested entities and posts grant announcements to the document as opportunities become available. This tool allows for immediate up-to-date information in response to community member requests.

Technical assistance for businesses holistic approach to EE

- 4CORE is currently seeking resources and funding to implement the Small Business Energy Program to educate small business owners and employees in the five-county region. If funded, this program would begin in January of 2011.
- Fort Lewis College Environmental Center, Local First, and 4CORE are developing and implementing the Sustainable Business Recognition Program, to be pilot-tested in La Plata County and expand to surrounding counties in the near future.

Access to financing for home and business EE and RE technologies

Financing is one of the most difficult challenges faced by businesses and residents. In the past, 4CORE has administered solar thermal (with LPEA) and insulation rebate programs. Currently, 4CORE disseminates information on tax and rebate incentives via their website, and answering emails and phone calls about Recharge Colorado campaign and other rebates available through local utilities.

In addition, the Local Clean Energy Fund (LCEF) is a program being initiated by 4CORE. Donations or capital raised go directly into the community via rebates, revolving loans, or free or reduced fee services. No funding has been raised to date.

Educate homeowners and businesses: “Who, what, where, when, why, and how” of EE and RE

4CORE has introduced the “Step Up Sensibly to Net Zero” concept in community presentations, at events, and on their website at <http://fourcore.org/education.html>. This approach has been critical to the promoting the concept of “First Reduce, then Produce”. This helps explain a logical, most effective approach to first implementing EE retrofits, and then RE systems. This will also be emphasized in the planned Small Business Energy Program, wherein businesses contract with 4CORE to decrease energy use at their business and to educate their employees about saving energy and money.

Local contractor awareness of GEO programs that promote EE and RE

4CORE administers the Sustainable Building Education Program, holding sessions on ENERGY STAR building, as well as EE and RE resources. Builders associations from Pagosa Springs, Cortez, and Durango are engaged in collaborative educational partnerships.

In addition, 4CORE staff distributes critical information from GEO to local contractors via email and e-newsletters.

Identify the number of EE/RE contractors, and determine if supply is sufficient

An on-going effort to identify existing and new EE and RE contractors is underway. This is accomplished through working with local builders associations and attending community shows, such as the 4 Corners Green Living Expo, Home and Garden Show, and County Fairs. 4CORE also posts Request for Proposals for Weatherization contractors. From the dearth of responses, it is evident that EE capacity building is essential.

Provide opportunities for EE/RE business development

Efforts to stimulate our area’s EE and RE business development with funds for EE and RE rebates and through grants, are underway. However, there is a fear by local businesses that building up their business based on stimulus funding will cause issues later when this funding “goes away”. A sustainable solution to these valid business concerns is being sought.

Engage utility providers

4CORE has a successful working partnership with the La Plata Electric Association (LPEA) and Empire Electric Association (EEA). In addition, 4CORE has made recent inroads with San Miguel Power and is working on engaging Atmos Energy and Source Gas to participate in planning the Regional Energy Action Plan.

Engage the public

4CORE is engaging the public by working with multiple organizations (homebuilders associations, utilities, local non-profits focused on sustainability), attending a myriad of local events (Home and Garden Shows, County Fairs, etc), organizing our regional Energy (solar) Tour, and helping to bring well-known speakers to our area to discuss Zero Waste, Getting Green Done, and other sustainable building topics.

Develop utility transmission strategies

The La Plata County Comprehensive Plan (under development) will likely include long-term goals related to regional energy self-sufficiency. Planning for transmission capacity would be essential to meet these goals.

Participation in voluntary carbon offset programs

The Colorado Carbon Fund is promoted through community events.

GEO Grant Recipient Inventory

- City of Cortez: Insulate CO Rebate Grant and NEC Grant, \$500,000
- Colorado Housing Inc.: EEE Training Grant: \$18,000
- Dolores County Health Association: NEED Grant, \$37, 425
- Durango Discovery Museum: NEED Grant 2010, \$248,000
- 4CORE:
 - Weatherization 2009 \$1,265,513 /2010 \$1,472,972,
 - CEC \$265,000,
 - Solar Thermal Rebates (with LPEA), \$60,000
 - Insulate CO, \$42,000
 - ESNH 2009 (and Homebuilders Association of Southwest CO) \$15,000/2010 \$25,000,

Tribal ARRA Funds

- \$146,900 from the federal Energy Efficiency and Conservation Block Grant Program to the Southern Ute and Mountain Ute tribes for projects that reduce energy use and improve energy efficiency.
- \$900,000 Federal grant to the Ute Mountain Ute Tribe to improve the tribe's wastewater sites

Need for future Projects

There are many projects in Southwest Colorado poised to benefit from the creation and implementation of a STRATEGY. In addition, these projects could use funds to get them started and stimulate Southwest Colorado's New Energy Economy. Potential projects are included in previous sections and listed below:

1. Micro-hydro Project: off stream on Mancos River
2. The Town of Mancos has had an energy audit performed and is working on finding funds to implement energy efficiency retrofits.
3. The Town of Durango is working to fund a Regional Materials Recycling Center and an In-Vessel Composting system in order to collect compostable and recyclable household wastes and divert them from landfills. Jobs would be created, and green house gas emissions would be prevented from increasing carbon emissions from landfills.

4. Rico is working with School of Mines and National Renewable Energy Laboratory to test for viability of geothermal potential in the area to be installed for potential use in hot springs, green house, or direct use. Once this assessment is complete, funding will be needed to develop the resource for this small town.
5. Spring Creek Hydropower infrastructure in southeast La Plata County.
6. Blue Flame is interested in opening a plant in Durango. They make chimney catalytic converters (Air Scrubber systems) to reduce emissions. This would mean more jobs and more economic stimulus in Durango.
7. There is a regional initiative for a waste-to-energy incinerator with a multi-county regional service area via transfer stations. Such a "regional" initiative would potentially close all landfills and run all waste through the incinerator and produce enough power to sell back to the grid. The current CIP includes a 25% expansion of the current facility to meet projected demand through 2030.
8. Bayfield Early Education Programs (BEEP) Energy efficient preschool.
9. Affordable energy efficient residence design pilot by Durango Fine Homes.
10. Power meters hardware connected to Google to record energy used against what is saved. This could be for homes, businesses, or institutions.
11. Energy Efficiency lighting upgrades; replace ballasts and bulbs in parking lot. Day lighting.
12. Aerated Autoclaved Concrete (AAC) is a light weight building stone whose crystalline matrix combines the properties of insulation and thermal mass in one structural material. A new factory in Florence, CO will add 40 jobs plus 100+ carpenters. The factory is three miles distance of lime, sand, cement, gypsum and has rail access for shipping.
13. Power Conditioning Box (Capacitor Technology): Attaches to breaker panel and saves 10-12 % energy on cars. It has the promise of significantly improving the efficiency and performance of electric and hybrid cars, buses, trains and tram
14. MTek Energy Small wind power station. This group is working with LPEA and looking for resources and grants for a small wind power station to tie into the grid.
15. A local resident is working on developing a solar array for Pagosa area with energy storage capability for peak hour use. This new technology is solar panels that can retain heat energy at night and store it for use on demand. The coordinator is looking for grants for land and panels.
16. The historic Smiley Building in Durango would like to insulate and seal their building.
17. The Town of Ignacio would like to convert their street lights to LED using fixtures that match current lights (difficult to find).
18. The West Building in Durango would like to retrofit the building with efficient lighting and renewables.
19. Local electric utilities would like to conduct a CFL buy-down (LPEA, EEA, San Miguel Power)
20. Archuleta County and La Plata County would like to conduct proactive training for local contractors in new code implementation
21. The Durango Discovery Museum would like to insulate and seal and install solar PV, solar Thermal, and geothermal for the museum. They would also like to participate in regional energy efficiency and renewable energy assessments and planning for sustainable

community and building design. This would be integrated into the museum building/exhibits.

22. Housing Solutions for the Southwest, Manna Soup Kitchen, and Volunteers of America are seeking funds for solar domestic hot water and solar electric projects for non-profit entities that provide services to a population with 60% of residents at or below the Colorado Median Income Level.
23. Animas Water Company (non-profit) is seeking funds for the construction of new offices. They are adding on to an old grange building.
24. The Commons Building in Durango would like to do a commercial lighting retrofit for the Durango Adult Education Center.
25. Silverton Chamber of Commerce and Youth Center are seeking funds for insulation and air sealing of the Historic Building in Silverton known as “the Visitors Center”.
26. Southern Ute Museum is seeking funds for solar panels.
27. The Cross Bar X Youth Ranch (non profit) has a log building that is used for a kitchen, dining room, and offices. The chinking on this building is concrete and needs to be replaced with a flexible and durable sealing material.
28. Energy Efficient Solutions would like to bring the Tri-polymer building material to Southwest Colorado. The material is injected into existing walls, it doesn't expand, but it is a foam material- high rating for fire safety. They are seeking funds for the installation equipment
29. Lazy H Ranch micro hydro feasibility assessment and potential implementation on Mancos River. Energy will be sold back to Empire Electric Association. Yield could be as high as 2 M kWh annually.
30. RainHarvest Solutions offers the TreePod biofilter, which captures municipal stormwater, providing large debris/garbage filtration and biofiltration of nutrients and other stormwater related pollutants. Collected flows may be utilized to supplement irrigation of the TreePod and surrounding vegetation, reducing demands on local water supplies. Any infrastructure upgrade project would be an opportunity to explore innovative solutions to stormwater management and water conservation.
31. RainHarvest Solutions offers the CUDO stormwater management system which provides underground stormwater detention, filtration of municipal snow stockpile effluent water, and many other water quality and water supply applications that require modular water storage, infiltration, and filtration services to enhance water quality and water supply sustainability.
32. Bring the city snow removal stockpile area at Cundiff Park into compliance by collecting and filtering the snowmelt before it enters the Animas River. A gravel infiltration area underlain by a CUDO storage chamber is a practical and economical way to bring the snowmelt area into compliance with Colorado Stormwater regulations that require stockpiled snow to run clear into waterways.
33. Employ technologies that pre-treat, filter, and temporarily detain stormwater in municipal, commercial, and residential projects in order to remove pollutants and restore pre-

development hydrologic patterns to urbanized watersheds as pollution and water supply sustainability measures.

34. Archuleta county would like to expand their transfer station and add a materials recovery center and second-hand mercantile.
35. The Southwest Organization for Sustainability in Archuleta County would like to hire a part-time coordinator.

SWOT Analysis

Initial Resource and Energy Action Plan Advisory Board Meeting

First REAP Advisory Board Meeting Overview

The first meeting of the advisory board took place on May 13th, 2010. The purpose of the meeting was to ensure the community sectors and regions were sufficiently and appropriately represented and to perform a SWOT analysis. The SWOT analysis was used to evaluate the Strengths, Weaknesses, Opportunities, and Threats (SWOT) involved in achieving the REAP Advisory Board mission. The analysis included considering geographic and sector commonalities and uniqueness (such as, operations of government, ranching, farming, business, oil and gas, schools, etc.). The results of the Advisory Board's SWOT Analysis were compiled and are provided below.

Attendees

- Becky Levy, Rico Town Board
- Bob Bragg, Southwest Colorado Community College: Mancos, Durango
- Bruce Baizel, EARTHWORKS
- Chloe Wiebe, Workforce Development
- Denise Rue-Pastin, Southwest Organization for Sustainability (SOS), Water Issues
- Ed Morlan, Region 9 EDD
- Gretchen Fitzgerald, Forestry Technician, USDA, San Juan National Forest
- Heather Erb, Real Estate Brokers/Agents
- J R Ford, Biomass Electrical generation plant
- Jeanine Justice, Healthy Lifestyles La Plata
- Jeff Berman, La Plata Electric Association
- Jeff Engman, ConocoPhillips, 11:31 AM - 2:05 PM
- Jennifer Stark, Ft. Lewis College and Rico Planner
- Jerry Fetterman, Empire Electric Association
- Jimbo Buickerood, San Juan Citizens Alliance, Montezuma Climate Action Network
- John "Jack" Schuenemeyer, Chamber of Commerce President
- Julie Simmons, Colorado Housing, Inc.
- Kimberly Buck, San Juan Development Association, 11:33 AM - 12:54 PM
- Kyle Beebe, La Plata-Archuleta Cattleman's Association, 11:48 AM - 2:25 PM
- Mark Williams, City of Durango
- Mat deGraaf, Pagosa Area Water and Sanitation District
- Pam Patton, La Plata Electric Association
- Paul Senecal, Town of Ignacio
- Peter Diethrich, Southern Ute Indian Tribe
- Ross Aragon, Pagaso Springs Mayor or Town Manager
- Terry Woodward SME: People-Planet-Profit
- Tom Talley, Farm Bureau
- Tomoe Natori, Ute Mountain Ute Environmental Office
- Trevor Lytle, Home Builders Association
- Tyler Scheid, Small Biz owner, SME: Watershed
- Werner Heiber, Sustainability Alliance of Southwest Colorado (SASCO)
- Jodi Foran, Montezuma Climate Action Network, SW Memorial Hospital Board and NEEP team

SWOT Analysis

The Advisory Board was separated into four groups: three groups of eight to ten members each who attended in-person and one group of seven members who participated via webinar. Each group discussed the regions' and sectors' strengths, weaknesses, opportunities and threats and then the group lead presented a summary to the entire Advisory Board. 4CORE compiled the groups' analyses. The results are provided below.

Strengths

Positive tangible and intangible attributes currently/soon-to-be available in our region and sectors:

1. Consumer mindset: want to do the right thing; people are engaged and wanting to learn more. Fort Lewis College/ Southwest Colorado Community college, La Plata County
2. Desirable place to live/visit
3. Renewable energy resources –sun (lots of sunlight), geothermal, biomass (forest fire mitigation). However, we need to look at them all separately
4. Natural resources
5. Natural Gas resources (half carbon emissions of coal) can be utilized in conjunction with renewables
6. Engaged gas exploration
7. Mild climate - we don't consume as much energy to heat/cool as other regions
8. Great agricultural community. Local involvement with farmers market, focus on local products
9. Energy raters available, Engaged electric utilities
10. 4CORE is a repository of knowledge of needs in the entire area
11. Lots of talent in region
12. Community Housing Inc. creating post education program with energy monitoring
13. Educational - Fort Lewis College and Southwest Colorado Community College custom workforce training
14. Conservation Reserve Program income (The Conservation Reserve Program is a voluntary program for agricultural landowners. Through CRP, you can receive annual rental payments and cost-share assistance to establish long-term, resource conserving crop covers on eligible farmland.)
15. Regional cooperation, communication, and collaboration
16. REAP Teams - Could contribute to education/outreach
17. Technical assistance to businesses who wish to take a holistic approach to energy and water efficiency, which is advantageous because these businesses have resources (money and people) to share with/provide to the community (ex. County Extension Offices- pesticide education- tri-county sessions for La Plata, Archuleta, and Montezuma), funded by Colorado State University-educated and knowledgeable staff- consistency is critical
18. Ability to record and track energy use and consumption
19. New rainwater harvesting law allows rural residents to augment water supply that many people are bringing to their property by truck.
20. New rainwater harvesting pilot program allows up to 10 developments to utilize rainwater harvesting as a water and energy conservation measure. Developments that participate will

require less municipal water to irrigate local landscapes, resulting in less energy used to treat and pump municipal water for that purpose.

Weaknesses

Factors that are within the region's control which detract from our ability to implement our mission, or areas needing improvement:

1. Carbon inventory (coming in the future for oil and gas)
2. Public transportation (barrier through jurisdictional coordination)
3. Unknown wind potential
4. Limited economic diversity
5. Biomass/fuel mitigation replacing natural landscapes - is this sustainable?
6. We transport trash and dump it in landfills, regions are "filling up" and refusing waste.
7. Monetary shortfalls for education
8. Lack of engagement of consumers, lack of knowledge or apathy about consumption habits and renewable energies
9. No real recycling incentive
10. Lack of incentives to recycle and compost
11. Lots of inefficient housing stock
12. Under capacity staff/funding to enforce energy costs
13. Limited educational resources on how to build an energy efficient house
14. Propane companies not participating in energy efficiency incentives (some gas companies too)
15. Weatherization in the past created ineligible homes for current weatherization program
16. Transmission infrastructure is lacking - not set up to encourage local power generation
17. Different policies for line extension and feedback into grid among LPEA and Empire
18. Lack of construction companies with "reduce, reuse, recycle" mentality
19. Ability to conduct energy/water use assessment. To what end will we use this information?
20. Coordination of implementing reduce, reuse, recycle
21. Need lots of space for profitability of waste management strategies
22. Capital - currently doesn't exist across region 9 area
23. Current \$ shortfall for education
24. Some entities lacking commitment and follow-through to ensure effectiveness: (solid waste/recycling example from Montezuma County - an initial grant helped organize it but funding disappeared or became too complicated to reapply - no follow-up/monitoring money)
25. It is necessary to make infrastructure viable - a market to justify the cost
26. Access to services- performance is inconsistent between energy and water efficiency and renewable energy contractors
27. Atmos/Source Gas is not engaged locally - their programs are only in place by state mandate
28. Propane and water providers not engaged (there is no gas cooperative)
29. Water is distributed by diverse entities (non-cooperating)
30. Need to add more geothermal to opportunities
31. Availability of resources - particularly in smaller communities
32. Education of affected populations on ways to reduce energy consumption
33. Voluntary carbon offset programs - incentive based
34. Some utilities are not "playing", not engaged - gas companies e.g. Atmos, Source Gas.
35. Schools and public officials are not engaged
36. Economies of scale

37. Current electric utility generation and transmission paradigm does not encourage local electrical power generation
38. No comprehensive plan for renewable and all energy development
39. Capital/funds and awareness needed for energy efficient agricultural projects,
40. Under pricing utilities creates no incentive for change
41. Local utility REC's are too low to encourage solar for average consumer. (Compare to Excel)
42. Wholesale buyback does not reflect the true cost to extract fuels, capitalize generation facilities, nor the "cost" of excess CO₂ in the atmosphere.
43. Rainwater harvesting law is narrow, only including well owners, minimizing the ability to capture water that is currently routed to the river through gutters and streets as pollution from urban areas.

Opportunities

Prospects that will propel the REAP Advisory Board's mission:

1. Lack of knowledge or apathy to renewable energy - help change consumer mindset
2. Reduce electric and natural gas consumption for heating and cooling, even though we're already relatively low
3. Development of public transportation within/between 5 counties - Transportation initiative through Council of Governments
4. Biomass coupled with renewable (solar/wind) - agriculture and some forest resources (used carefully)
5. Long term stewardship contracts with forest service for biomass production/fuel mitigation
6. Regional solid waste processing center- potential for reduce, reuse, recycle
7. Expand Food to Schools program and Farmers Markets
8. Oil and gas royalties and severance taxes from oil and gas - use to help decrease emissions
9. Oil and gas lease income helps support farms and ranches
10. Government mandated green buildings
11. Regional energy policy to reduce use of energy/gas/water
12. Increase dump fees
13. Incentivize energy efficiency at building department level
14. Improve in efficiencies - residential /commercial
15. Pass/develop non-threatening energy codes
16. Innovation can happen (straw bales) in areas with less codes
17. Environmentally Preferable Purchasing for local purchase by governments and businesses
18. Develop economics of sustainability
19. Promotion of tourism and renewables to attract more tourism here
20. Develop Green business and industrial parks
21. New technologies -aggregate all initiatives occurring/ increase information sharing
22. Web-based portal on energy efficient and renewable initiatives social media
23. Renewable energy incubator feasibility study
24. Telecommuting with beanpole initiatives (creating pervasive wireless infrastructure that supports community-wide WiFi Networks in downtown areas and link more areas within and between counties. The premise is to create regional smart communities in rural Colorado

enabling improved commerce, economic diversity and competitiveness, and workforce development and sustainability.)

25. All energy providers participating in energy efficient forums - incentivize and educate energy companies to participate
26. Make 4CORE the 1-stop-shop for energy efficient incentives and knowledge
27. Energy usage monitoring by households, businesses, and governments
28. Grow local energy
29. Strategic marketing plan to raise public awareness to -education with results
30. Work with banks to incentivize loan products with energy efficiency
31. Hydro power opportunities
32. Ability to track water consumption - it is not well tracked now
33. More Energy Performance Contracting/Energy Services Company(ESCO)
34. More construction through reduction, reuse, and recycling - learn not to waste,discover and utilize existing structures and models
35. Implement Advanced Framing and Structural Insulated Panels (SIPs)
36. Realignment of onsite waste treatment approvals/governance to latest technologies to convert waste water into irrigation purposes.
37. Waste management strategies -existing public lands are an area for growth
38. Community energy use assessment - opportunity to coordinate with other sustainability assessments
39. There are currently no coherent processes, systems, champions, or communications between the 5 counties, which offers an opportunity for the REAP group/teams
40. Include resource efficiency in the ranching, agriculture, and industrial sectors as part of the process use reduction method
41. Access to capital-needs efficiency
42. Substantial administrative support in order to reduce energy consumption
43. Use knowledge gained from the Southern Ute Indian Tribe's algae pilot production - do more or improve it
44. Use knowledge gained from Archuleta (J. P. Ford) Biomass pilot project -do more or improve it
45. Regional public and private sector telecommunication network
46. More supervisory control and data acquisition (SCADA) applications for public water treatment and distribution, oil and gas pipelines, electrical power transmission and distribution
47. Increasing recognition that rainwater harvesting and stormwater management are integral to water and energy sustainability as described by EPA Low Impact Development (LID) guidelines.

Threats

External factors beyond our control which could place the REAP Advisory Board's mission at risk and are barriers to success:

1. Coal powered plants don't take advantage of integrating renewables
2. Natural gas needs coal and water for extraction (electricity uses coal and coal bed methane extraction uses water)
3. Need to find methods to reduce energy consumption

4. Regulations drive industries out of region, which impacts jobs and revenue (ex. oil and gas)
5. Regulation that slows the development of renewable energy
6. Uranium mining and milling for nuclear power (Naturita/Nucla/Bedrock- Dolores River)
7. Money for education
8. Lack of knowledge and apathy on renewable energy issues
9. Funding cuts
10. Lack of capital
11. Investing in technological initiatives without knowing return on investment (ROI)
12. Climate change - change in ecology, natural or manmade harm to environment, wildfire, insects, invasive species
13. Human footprint
14. Agricultural flight next generation not wanting to live the way they were brought up
15. Regulation that halts development
16. Building to energy code self-regulated in most areas
17. Depletion of underground water supply and water sources
18. Downstream users of water
19. We don't want to be told what to do
20. Transmission infrastructure
21. Community energy use assessments are useless if not provided to the public/all
22. REAP Teams - conducted properly
23. Diminishing resource efficiency efforts
24. Some communities or individuals may support efficiencies and renewables conceptually, but have a "not in my back yard" (NIMBY) reaction if they feel that their quality of life will be lessened by visual or audio disturbance from power generation diversification, such as wind and solar farms, geothermal power plants, large power transmission lines, or centralized construction recycling and reuse facilities.
25. Political/legislative effects - cheap oil, gas, coal, methane
26. Engaged utility providers - when others don't/no longer play
27. End to Conservation Reserve Program (CRP) income
28. Oil, coal and natural gas will continue to be priced far below their "real" cost.
29. Carbon credit trading will not get approved.
30. Water interests that are opposed to rainwater harvesting and stormwater detention because of a perceived threat to the status quo.

Alliance for Sustainable Colorado Roundtable Meeting April 18, 2009

Relevant piece from the Alliance for Sustainable Colorado Report are inserted below.

Sustainability Discussion by Participants

Question 1: What local sustainability efforts are in place and working?

Energy and Resources

(1) *Four Corners Office for Resource Efficiency*: 4CORE has been integral in promoting resource conservation, energy efficiency, and the use of clean, renewable sources of energy in order to decrease the emission of pollutants, protect public health, and strengthen the economy in La Plata County. It has brought in more than \$2M in energy-related grants to this region. After signing the U.S. Mayor's Climate Protection Agreement, La Plata County and the City of Durango tasked 4CORE with developing a Climate Energy Action Plan. This effort engages citizens, government, industries and business owners to create and deliver a regional plan that will be widespread and implemented in phases.

(2) The *La Plata Electric Association* continues to offer 'green power' purchases and rebates that guarantee some or all electricity for participating customers is generated from clean, renewable resources.

(3) The *San Miguel Power Association* has just switched their 'green cents' program to a 'round-up program', where the money required to round up to an even dollar amount on their bills will go to energy efficiency and renewable projects. The Green Tags and Green Blocks programs are still available, which allows people to purchase green power in 100 kWh blocks on their regular power bill.

(4) The City of Durango and La Plata County both have internal energy efficiency programs and have incorporated some renewable energy features in public buildings.

(6) *The Water Information Program*: This program was created in cooperation with Southwestern Water Conservation District and several SW Colorado water agencies and entities to provide a common forum for communicating shared information and goals for water conservation and management.

(7) *Animas River Project*: This project includes a range of stakeholders that meet to determine ways to collaboratively work towards sustainable water quality, water supply, and ecosystems on the Animas River.

(8) *Dolores River Dialogue*: This project focuses on sustainability of water supply, fisheries, and recreation on the Dolores river including a wide variety of stakeholders.

Education

(1) Fort Lewis College (FLC)

(a) Developed a draft of a *Sustainability Action Plan* for the next 5 years and a Climate Action Plan for the next 50 years.

(b) *Pathways to Sustainability* is the culmination of over two years of work by students, staff and faculty to create a carbon-neutral campus by implementing initiatives on water, waste, energy, and procurement operations on campus.

(c) FLC is applying for LEED-Gold certification on the new 38,000 sqft Student Union addition and LEED-EB for renovation of the existing College Union building.

(2) Durango Nature Studies: This nonprofit founded in 1994 is dedicated to providing hands-on nature, science, and environmental education to the students and communities of Southwest Colorado. The organization owns and operates a 140-acre Nature Center, serves over 6,000 people annually, and is a member of the Durango School District 9-R Science Curriculum Review Committee.

Nonprofit Sustainability Efforts

(2) Nonprofit Organization Resource Guide: Sustainability Alliance for Southwest Colorado (SASCO) is defining the process of setting up a nonprofit resource guide, outlining the systems architecture of the community, and laying the foundation for a larger community mapping effort.

(3) SASCO Committees: The Outreach Committee is organizing local events and sustainability related presentations, collaborating with five other community organizations on “Appleseed events”, where each organization is presenting their specific interests to the larger community. The Smart Energy Committee holds monthly meetings that are open to the public and focuses on energy related topics, including federal legislations like carbon tax. They are also acting as watchdog of La Plata Electric Association, the local electricity Co-op. The Policy Committee is paying attention to local governmental activities and holding bi-monthly ‘Dialogue’ meetings focusing on popular local issues.

(4) Mancos Valley Sustainability Initiative: Mancos is facing rapid growth and development and formed the MVSU to understand and create healthy ecosystems, and strengthen biodiversity and human conditions. A major project involves protecting, managing and enhancing the 800 square mile Mancos River Watershed.

(5) Montezuma Climate Action Network: Formed in 2007 in Montezuma County, the Network’s goal is to reduce the county’s carbon footprint. The organization has ‘Green Teams’ that focus efforts and education on renewable energy, recycling, local food, technology, and global warming science.

(6) The La Plata Skills Trade Collective: The collective is a group of individuals with skills, time, goods and equipment that wish to share and trade with others in the community to promote

resilience and self-sufficiency. Members access an online skillbank ranging in services from business and administration to transportation to either post or request a given service.

(7) *Southwest Organization for Sustainability (SOS)*: A non-profit in Archuleta County since 2006 offering a variety of sustainability education programs and services including coordination of the annual farmer's market.

Business

(1) *Local First* was initiated by the Sustainable Local Economic Development Committee of SASCO in cooperation with academic, business and community groups to help locally-owned, independent businesses thrive in La Plata County. The Be Local Coupon Book offers coupons for products and services at over 100 local businesses for \$2,500 in savings.

(2) *Green Business Roundtable*: The San Juan Citizen Alliance conducts monthly networking meetings involving local businesses and interested groups to focus on topics related to sustainability.

Green Building

(1) The 4CORE-funded *Sustainable Building Education Program* is organized and conducted by the Homebuilders Association of Southwest Colorado and involves bimonthly brown bag lunches and dinner seminars on educational topics, ranging from Insulation to LEED Certification for Homes. The program to date has resulted in 17 newly built ENERGY STAR rated homes.

(2) The Durango Public Library has recently been LEED-Gold certified. Its energy and cost-saving features includes a raised-floor heating, cooling and ventilating air delivery system. San Miguel County completed a bus garage facility to LEED Silver standards.

Question 2: What local sustainability opportunities are ripe for development? What is needed to get them going?

Academia

(1) *Fort Lewis College* is currently seeking a master lease on the Old Fort Lewis 6300 acre property south of Hesperus. The college hopes to develop the site as a demonstration campus for sustainability projects. One proposal is a 2MW solar array that would significantly boost the region's renewable energy generation and help FLC offset its carbon footprint.

(2) FLC is seeking funding to pay a project manager that can lead an energy performance contracting process for the college.

(3) Other capital projects on campus that need development are acquiring a new in-vessel composting system and installing a truck scale to measure the amount of waste generated by the college.

Business

(1) Develop a *Green Business Recognition Program* that involves businesses in sustainability practices. 4CORE is in discussions with Local First and many other partners to initiate this program in 2010. However, if adequate seed money is not available, the project will have a hard time getting off the ground.

(2) Establish sustainable business and nonprofit databases listing organizational mission statements and available products/services to generate a directory and to determine where redundant services exist. Wherever redundancy or excessive overlaps are apparent, organizations can consider sharing limited resources (funds, volunteers, expertise), so they are used efficiently and effectively. Funding is needed to develop this database.

Energy and Resources

(1) Develop *Carbon Clubs*, an initiative by the Montezuma Climate Action Network, which gathers small groups of people together who challenge each other to reduce emissions. Participants create goals to decrease their carbon footprint, and follow up each month to see how everyone is progressing on set goals. Staff or an intern is needed to organize and maintain the Club.

(2) Establish a Revolving Loan Fund program, which provides low to no-interest loans and grants for energy efficient residential and commercial projects. The program is lacking seed money and an institution to qualify loan applicants, grant loans, and track funds.

Recycling: Durango's existing recycle center is 14 years old and has become insufficient to handle the amount and type of materials the community recycles. The City of Durango is working to install a regional recycling and composting facility with increased capacity that would be a tremendous boost to waste reduction efforts in the region.

Water Supply: Many residents can collect rainwater to offset deliveries made by truck, reducing the energy used and carbon footprint associated with their water use. Residents need to be educated about the benefits and legality of rainwater harvesting. In particular, information can be made available at the Durango water supply point for residents that truck water.

Stormwater Pollution: Nutrient enrichment on the Animas River threatens the sustainability of water supply and fisheries, where urban drainage is a source of nutrients and other pollutants. Innovative techniques designed to trap pollution, and enhance infiltration, can be employed on new developments and urban re-development in order to enhance the sustainability of local surface waters.

Question 3: What are the next steps to improve collaboration locally and statewide?

- Collaboration is challenging in this region as people and organizations tend to operate independently. To coordinate efforts requires the time of a coordinator and setting up a structure for regular meetings/conference calls and quarterly face to face meetings. SASCO might be the organization that could coordinate activities throughout southwest Colorado.

- Develop a common web portal that will allow interested people to quickly and easily connect to the groups and organizations that match their interests, and make that information available and updatable by participants in order to prevent program overlap.
- Support 4CORE as the Energy Hub for Southwest Colorado.
- Suggestions for collaborative funding:
 - a. Research GEO stimulus grants for Clean Cities hybrid plug in-readiness.
 - b. Research CDOT stimulus grants for transportation projects.
 - c. Research “Clean Energy Options Local Improvement District” for low interest/ no interest clean energy loans following Boulder’s model.
 - d. Follow up with stimulus grant proposal to buy and set up virtual meeting equipment / space / coordination efforts statewide.