Sustainable Operations

FY09 Accomplishments

U.S. Forest Service • Rocky Mountain Region
WHAT WE’VE BEEN UP TO

The Rocky Mountain Region is still charting the way in Sustainable Operations in the Forest Service. FY09 has been a year of continued success as well as growing capacity and support. Employees across all Rocky Mountain Regional units have been busy working on all six footprint areas and finding tangible ways to directly emphasize the critical connection between operations and natural resources. We’ve implemented not only technology solutions such as energy savings equipment, but also focused on the people solutions such as a DVD for seasonal orientations. While taken individually, our efforts in Sustainable Operations may seem limited in the larger challenge of adapting our human systems to life on a planet with a changing climate. However, collectively we hope our efforts continue to serve as models and examples that contribute to the greater good. The following is a sample of myriad accomplishments throughout the Region and highlights the next steps toward sustainability.

**Energy**

**Water**

**Green Purchasing**

**Fleet & Transportation**

**Waste Prevention & Recycling**

**Sustainability Leadership**

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Success Highlights

- Numerous regional employees, including the Regional Forester Team and Program Directors, have been using Smart Strips. Through the FY09 mass purchase of conservation items program, 137 Smart Strips were purchased and are helping reduce energy consumption by 29,000 kWh/yr, totaling annual savings of $3,250.
- The Ouray District (GMUG NF) built a new bunkhouse for fire crews that includes geothermal heating and cooling, solar domestic water heating, energy efficient appliances, and recycled construction materials.
- Continuation of utility bill cleanups throughout Region to verify building ownership, appropriate utility rate structures, cost savings, and track energy consumption. Building energy use, savings through billing corrections, and identified efficiencies improve forest engineers’ ability to focus efforts.
- Several forests are utilizing Energy Saving Performance Contracts to improve efficiencies:
  - San Juan NF completed lighting retrofits and installed solar panels and a biomass furnace
  - San Luis Valley Public Lands Center (Rio Grande NF) installed grid-tie photovoltaic cells. The system provides nearly three kilowatts of power to the administrative-site and is tied into the electrical grid which contributes to local, renewable electricity production.
- RO lighting retrofits
- PSICC Supervisor’s Office labeled all light switches in the building to encourage turning lights off when not in use.

Looking Forward

The Environmental Management System (EMS) will grow to include energy conservation. As a new Executive Order launches at the beginning of FY10, the tracking of our energy consumption will be even more closely tracked through the inventory and monitoring of greenhouse gas emissions.

Nature’s Sustainable Solution . . .
Fitting Form to Function

To read this your body generates electricity and to do that your blood is breaking down sugars for the required energy, all done pollution free. These basic forms of energy production provide the necessary function, similar to how our improved efficiency and conservation efforts make wind, solar, and biomass more environmentally and financially attractive.
Stats
Since 2007, water conservation projects funded through the microgrant program have saved nearly 8 million gallons of water. This is equivalent to the amount of water used by 62 households in a year.

Story
Through the regional microgrant program, the Pagosa Ranger District (San Juan NF) completed its three-year xeriscaping project on its three administrative facilities in FY09. Employees and volunteers have implemented the project through their time and labor. The District installed at-the-spigot water gauges in FY09 to measure each site’s annual water usage and will collect data to cumulatively show the water saving by FY.

The District is not only saving water, it is also educating visitors, the public, and other FS units on xeriscaping methods and the associated benefits. The project has been featured in local newspapers, toured by local school and Girl Scout groups, and highlighted based on its prime location in Pagosa Springs. The District Office’s Visitor Information Services also provides native plant lists to those who are interested.

Success Highlights
- Bessey Nursery & District (Nebraska NF) is replacing Kentucky blue grass with Legacy buffalo grass to reduce water use and increase cost savings
- The Pikes Peak District (PSICC) reduced their water consumption by 63% from 2004 baseline data.
- San Luis Valley Public Lands Center Green Team (Rio Grande NF) consists of members from the Forest Service, Bureau of Land Management, and Natural Resources Conservation Service agencies. They organized and implemented an interagency and volunteer watershed cleanup and restoration project:
  - Willows and waddles were planted along Kerber Creek by local high school students as part of an ongoing mining reclamation project and Earth Day celebration. Kerber Creek is currently listed on Colorado’s 303(d) list of contaminated waterways, but steadily improving through this type of restoration effort.

Looking Forward
EMS will grow to include water conservation and make the connection between forests and faucets even stronger.

Nature’s Sustainable Solution . . . The Importance of Multifunctional Design
When it comes to water management, our forests provide the perfect example of water conservation through multifunctional design. Our operations are striving to do the same. By mimicking how nature does it we should be able to clean, retain, reuse, and convey the water we need to work (and live) with no environmental impact.
GREEN PURCHASING

Story
East Animas Bunkhouse (San Juan NF) used “green” products in its interior reconstruction project:

An undetected plumbing leak destroyed the interior of this bunkhouse in February of 2007. The reconstruction has been a multiphase, multiyear process. Many environmentally friendly, energy and water conserving measures were incorporated into the remodel. They include:

- Windows – Replacements included low-e insulated glass and dual weather stripping.
- Crawlspace Insulation – A closed-cell spray-in-place foam insulation (R-19) formulated with renewable agricultural products and a non-ozone depleting blowing agent.
- Attic and Interior Wall Insulation – Natural cotton fiber batt insulation (R-49 and R-13) containing 85% post-industrial recycled natural fibers (denim and cotton).
- Exterior Wall Insulation – Cellulose insulation (R-20) manufactured from post consumer paper fiber with a recycled content of approximately 80% or more.
- Paint – Low odor, zero VOCs.
- Bathroom faucets – built-in low-flow aerators
- Dual flush toilets – Push down for high efficiency liquid waste flush (1.1 gallons) or lift up for full solid waste flush (1.6 gallons).
- Toilet partitions – Contain 30% post-industrial recycled HDPE.
- Light Fixtures – Energy Star with compact and T-8 fluorescent lightbulbs
- Appliances – Energy Star

In addition, during the demolition of the interior of the dwelling all metal was salvaged and recycled, the original windows were donated to Habitat for Humanity, and most cardboard was recycled.

Success Highlight
San Luis Valley Public Lands Center Green Team (Rio Grande NF) increased office-wide green purchasing with Smart Strips for computer workstations and weather stripping for door and window insulation.

Nature’s Sustainable Solution . . . Life Friendly Materials
From Architects to Purchasing Agents we’re considering what materials are not only good for us and the environment, but also how our purchases are manufactured, how they’ll be disposed of or reused, and how the materials enhance our life without hurting it. Life friendly materials = 100% Green Purchasing.

Looking Forward
The sky is the limit for doing more to create sustainable acquisition habits. The Sustainable Operations Western Collective will begin to outline an implementation plan to incorporate green purchasing into EMS in future years.
FLEET & TRANSPORTATION

Stats

• Increased focus on obtaining Alternative Fuel Vehicles (AFV) by ordering 58 E-85 vehicles and five hybrids. Increased region-wide AFV numbers for:
  – E-85 – from 119 to 177, a 49% increase
  – Hybrid – from 45 to 50, an 11% increase

• Total Mileage: 14,406,829 miles
• Total Fuel Use: 1,215,661 gallons

Success Highlights

• Improved ordering habits prompted by EMS, resulting in emphasis on life-cycle-cost when placing new vehicle orders and giving priority to vehicles with higher miles per gallon.
• San Juan NF is right-sizing its fleet by replacing inefficient vehicles with hybrids and AFVs

Looking Forward

• Reducing our greenhouse gas emissions along with our overall gallons of petroleum consumed will become an important measure of success. We will continue to find ways to help focus on the life cycle costs of vehicles – both financially and environmentally.

• Fleet Life Cycle Cost tool will:
  – Assist fleet managers, line officers, and staff keep track of all the fleet and transportation initiatives
  – List all the information on vehicles to do the job.
  – Provide feedback to units on their individual fuel use and greenhouse gas emissions criteria.
  – Pull records from existing Forest Service databases easing data management tasks.

Nature’s Sustainable Solution . . . Optimizing Rather than Maximizing

We need to navigate distance and topography to do our jobs. So does nature. From power packed protein pads of long distance jumping flees to the hyper-efficient elastic recoil of a wallaby’s tendons, nature offers its own genius to the necessary act of transport.

25 watt solar panel installed on fire vehicle roof
Story

The Dolores Public Lands Office (San Juan NF) initiated a community partnership in southwest Colorado that collectively established the Four Corners Recycling Initiative. The Initiative provides the community’s first-ever public recycling program for cardboard, mixed paper, and mixed metals. It also created an education program for local schools and a website that provides information on recycling opportunities.

Success Highlights

- Region 2 initiated the agency-wide memorandum of understanding with Rechargeable Battery Recycling Corporation for recycling rechargeable batteries and personal cell phones with proceeds benefiting the Boys & Girls Clubs of America
- San Luis Valley Public Lands Center Green Team (Rio Grande NF) organized and implemented an interagency and volunteer cleanup and restoration projects at The Elephant Rocks, a federally recognized area of critical environmental concern and designated as a Colorado Natural Area. It was transformed from an area riddled with broken glass, illegal dump sites, and user created roads, into an area rich in cultural heritage, wildlife diversity, rare plant species, and inviting recreational opportunities.
- San Luis Valley Public Lands Center Green Team (Rio Grande NF) enhanced recycling efforts including:
  - Recycling containers for batteries, and compact and conventional florescent light bulbs;
  - Increased numbers of standard recycling containers for local and recycling center disposal; and
  - New intermingled containers for transfer to single-stream recycling facility outside of the San Luis Valley.
- PSICC Supervisor’s Office created an office recycling center
- The Regional microgrant program has provided recycling containers for offices across the Region and alkaline battery recycling buckets totaling over 1,700 lbs worth of batteries recycled and diverted from the landfill.
- The Nebraska-Samuel L McKelvie National Forests and Buffalo Gap, Fort Pierre and Oglala National Grasslands teamed up with Keep Chadron Beautiful and collected approximately 20,000 pounds of outdated electronic equipment in the community of Chadron, Nebraska.

Looking Forward

Employees across the Region look at batteries as waste and try to reduce it by:

- Testing solar battery chargers in fire/incident vehicles
- Using rechargeable Li-ion batteries for field personnel and Ni-Cd batteries for firefighters

Nature’s Sustainable Solution . . .
Recycling All Materials

When it comes to nature “waste” exists only as a point of view. Waste output is considered an input by others making sure that all materials are reused or recycled. In combination with our green purchasing efforts we seek to achieve the same goal and recycle just as nature does making sure that any outputs become inputs some place else.
SUSTAINABILITY LEADERSHIP

Story
Quarterly Regional Green Team meetings began in FY09. They are an opportunity to cross-pollinate information by providing updates, sharing successes and barriers, and advising one another. In FY10, these will also include peer-learning sessions.

Success Highlights
- Completed the first comprehensive greenhouse gas emission inventory in the Forest Service for the Greater Yellowstone Area that comprises three regions and six forests, two national parks, and two national wildlife refuges. The project continues to break new ground through the collaborative formulation of an interagency action plan, with coordinated implementation across 10 federal agency units and partnerships with NREL and EPA.
- Expansion of Sustainable Operations Board and development of the Sustainable Operations Western Collective FY10 Program of Work
- Increased staffing capacity for Sustainable Operations Team
- Distributed the “Extreme Makeover: Ranger District Edition” DVD to every unit across the agency
- Developed “Be Sustainable: What’s Your Excuse?” DVD for seasonal orientations and new employees
- Partnerships and collaboration with other federal agencies continued with the Department of Energy, National Renewable Energy Lab, Environmental Protection Agency, and General Services Administration
- Virtual participation in the National Sustainable Operations Summit throughout the Region
- White River NF hosted a “Sustainability Wheel” with prizes and educational outreach at Winter X-Games

- PSICC Supervisor’s Office held a “Reducing Your Environmental Footprint Challenge” to generate participation and heighten awareness within the office and at home. They offered points for sustainable actions and ideas.
- The RO Green Team hosted a bi-monthly environmental film and discussion series
- The RO started a “People’s Garden”
- Developed the RO Green Corner, a one-stop shop for recycling, sustainability information and activities, and carpooling

Looking Forward
Creating sustainability requires more than technical solutions. It requires people solutions. Over the next year, through the Sustainable Operations Western Collective we’ll be continuing to grow the necessary people solutions by working harder to connect those working on Sustainable Operations wherever they may be located in the Western Collective. We’ll also be concentrating on what it really means to provide leadership on a planet with a changing climate.

Nature’s Sustainable Solution . . . Fostering Cooperative Relationships
The success of nature’s sustainable solution rests with the fostering of cooperation based relationships. Just as the sea anemone and the clown fish enhance one another’s survival, we flourish and excel through internal and external sustainable relationships. Thoughtful, continued cooperation is necessary to get us closer to a sustainable solution.
In FY09, the microgrant program continued to support innovative approaches to conserve energy and water resources. Thirteen units across the region applied for and received a total of $62,000 in funding. This was matched with $12,000 from the units along with employee time to implement projects and go green.

Projects ranged from updating energy efficient appliances, xeriscaping, piloting new rechargeable battery technology, and more.

**Story**

The Pike Interagency Hotshot Crew is reducing their use of disposable batteries. They installed solar-panels on the top of fire vehicle roofs and battery charging units inside the vehicles. Since there are so many different types of rechargeable batteries, the crew is testing two kinds, NiCad and NiMH, in the 2010 fire season to determine which are the most efficient and reliable.
Mass Purchase of Conservation Items

The focus of the FY09 mass purchase of conservation items was to improve energy and water efficiencies by providing access to water heater blankets, weather stripping, energy film, and other resource conserving technologies.

A new category was offered that provided support and recognition for Green Team sponsored events and Sustainable Operations champions throughout the region. Items included Chico bags and stainless steel water bottles.

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<th>Estimated Cumulative Savings Per FY</th>
<th>Energy (kwh/yr)</th>
<th>Water (gallons/yr)</th>
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<tr>
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<td>FY08</td>
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<td>FY14</td>
<td>1,873,000</td>
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Pulling It All Together

FY09 was the third successful year of the microgrant and mass purchase programs. Since FY07, the region invested a total of $172,000. Through energy and water saved, this investment begins to payback in 3.5 years from the inception of the program, which is sometime during FY10. The projected cumulative savings from the beginning of the program in FY07 through FY14 – 5 years from now – is $320,153.
The Intermountain West Sustainable Operations Board grew in FY09 and is now the Western Collective Sustainable Operations Board. Membership includes line officers and representatives from Regions 1, 2, 3, 4, 6 and the Rocky Mountain Research Station.

The Western Collective Sustainable Operations Board developed a collective program of work in which the participating Regional Foresters and Station Director made financial and workforce commitments. It is unique in that it crosses multiple disciplines and locations.

The program of work consists of six goals with specific outcomes:

1) Sustainable Operations Integrated Reporting
2) Pilot Projects to Policy – Going Beyond Recycling and Lights Off
3) Cross-Pollination – Fostering Organizational Connectivity
4) Youth and Community Engagement
5) EMS – Making it Useful to Us
6) Greening the Next Generation and Building Existing Capacity

Employees signed up for goals that interest them. There was an incredible response from employees with diverse backgrounds and skill sets. When asked, “What experience would you like to gain through this opportunity?”, our employees’ responses truly expressed their passion for sustainability:

- Working with interdisciplinary teams to achieve sustainability goals and help increase the volume and reach of the sustainability message.
- Move our agency forward on the sustainability front so that environmental efficiency and sustainability are integrated into all that we do as an agency.
- To show the Forest Service as a leader (and positive example) in preparing for the future.
- How to motivate co-workers and get everyone on the Forest involved.
- Networking with others, lessons learned, getting past barriers and fostering a formal framework of sustainable operations practices to be implemented agency-wide.
- Help move the agency forward holistically around sustainability and foster culture change to truly integrate this into our work and lives. I’d also like to build partnering skills to engage others in the local community around sustainability.
- Making a difference.
- To increase my knowledge of sustainability practices on the local level and to be able to successfully apply them on the Forest level to all employees.
Message from Maribeth Gustafson, Deputy Regional Forester

I not only value the concepts of sustainability in the agency, I value them in my personal life as well. From the everyday choices I make such as turning off lights to not letting my car idle unnecessarily, I do whatever I can to make a difference. It’s important to me to be aware of my choices and the corresponding impacts on others because we are all connected in some way.

Although the agency is organized into individual units, it is all connected as well. The Sustainable Operations Western Collective is a prime example of a way that we’re reaching beyond our Region. As part of the Western Collective Sustainable Operations Board, I am proud of the development of the collaborative program of work. We’re working across five Regions and one Research Station to collectively work on six meaningful goals:

1) Sustainable Operations Integrated Reporting
2) Pilot Projects to Policy – Going Beyond Recycling and Lights Off
3) Cross-Pollination – Fostering Organizational Connectivity
4) Youth and Community Engagement
5) EMS – Making it Useful to Us
6) Greening the Next Generation and Building Existing Capacity

Employees from diverse locations and disciplines are helping, and it’s not too late to sign-up to help in whatever capacity you would like to offer. For more information, contact Sarah Kuiken. Like my counterparts, I am committed to this effort and leading one of the goals.

There are also many things happening at the local level through the efforts of individuals and Green Teams. Whether you use Good-On-One-Side (GOOS) paper or organize Green Team activities for your unit, your efforts make a difference. We all can make wise choices and take responsible actions that contribute to the success of sustainability.

I encourage you to continue your individual participation in sustainability and join the Western Collective and/or your local Green Team.