

NSAA

Sustainable Slopes

ANNUAL REPORT 2012



KEEP WINTER COOL



NSAA wishes to thank the founding resorts of the Climate Challenge. Their leadership in the 2011/12 season paved the way for other resorts (see sidebar) to inventory, target and reduce their carbon footprints:

NSAA congratulates the 10 new areas to step up to the Climate Challenge for the 2011/12 season:

Beaver Valley Ski Club

Boreal Mountain Resort

Copper

Gorgoza Park

Killington Resort

Las Vegas Ski & Snowboard

Mt. Bachelor

Pico Mountain

Soda Springs

Sugarbush Resort

Alta Ski Area

Arapahoe Basin

Canyons Resort

Jackson Hole Mountain Resort

Jiminy Peak Mountain Resort

Mount Hood Meadows Ski Resort

Park City Mountain Resort

Telluride Ski & Golf Resort



2012 HIGHLIGHTS

The National Ski Areas Association (NSAA) is pleased to report on the sustainability efforts of resorts in the 2011/2012 season. In its twelfth year, the Sustainable Slopes program continues to improve and evolve and incorporate new initiatives that reflect emerging trends.

In total, more than 190 resorts have endorsed the Environmental Charter over the past twelve years, representing over 75 percent of the ski resorts nationally by skier visits. Upon endorsing the Charter, these resorts have identified an environmental contact person, assessed their policies and operations against the Environmental Principles in the Charter, and have taken steps toward improved environmental performance. Given variances in size, technical expertise, financial resources, and geographic location, resorts are at different points with respect to their environmental programs and implementation of the Environmental Principles but all are making efforts that are meaningful.

The 2011/12 season was groundbreaking with the conclusion of year one of our new Climate Challenge program. The Climate Challenge is designed to give technical support and recognition to ski areas that are developing carbon inventories, setting goals for carbon reduction, and measuring success in reducing their overall carbon footprint. In-depth results of the Climate Challenge are included in Chapter 4 of this Report. NSAA would like to take this opportunity to thank the eight founding resorts of the Climate Challenge, **Alta Ski Area, Arapahoe Basin, Canyons Resort, Jackson Hole Mountain Resort, Jiminy Peak, Mount Hood Meadows, Park City Mountain Resort and Telluride Ski & Golf Resort**, for inspiring all ski areas with their efforts to inventory, target and reduce their carbon footprints.

We are also pleased to announce the continued success of our Sustainable Slopes Grant Program. The program is made possible by generous donations from our sponsors, including **Leitwind** and NSAA supplier members **HKD Turbo and Brendle Group**. This year, the two in-kind high-efficiency snowmaking system grants provided by HKD Turbo were combined with in-kind energy audit grants from Brendle Group. The combined snowmaking equipment/energy audit grants were awarded to **Burke Mountain** and **Telluride Ski & Golf Resort**. Each ski area will receive 5 high-efficiency snowmaking guns from HKD Turbo, a total value of \$40,000, and a comprehensive on-site energy audit from Brendle Group, a total value of \$10,000.

In addition, four cash grants sponsored by energy bar maker **CLIF Bar & Co.**, the **Natural Resources Defense Council (NRDC)**, and **LeitWind** were awarded to resorts for the following programs: **Beaver Valley Ski Club**, for the installation of Dyson airblade hand dryers to dramatically reduce paper waste; **Spirit Mountain**, for lighting upgrades in its chalet complex to reduce energy use and reduce GHG emissions by 10-15 metric tons per year; **Mt. Hood Meadows**, to equip its message board trucks with battery powered signage to reduce idling by the trucks and reduce diesel emissions, helping the ski area meet its Climate Challenge goal of reducing overall emissions 3% by 2020; and **Canyons Resort**, to install a solar array on the

Tombstone Patrol shack for lighting and highlighting educational materials, resulting in an emissions reduction that will help the resort meet its Climate Challenge goal of reducing GHG emissions by 15% by 2017. Four of the six grant recipients, Beaver Valley Ski Club, Canyons Resort, Mt. Hood Meadows and Telluride Ski & Golf Resort, are participating in NSAA's Climate Challenge.

NSAA's education program continues to highlight cutting edge sustainability topics. As expected, the Climate Challenge has been the focus of environmental education efforts this season. At NSAA's Western Winter Trade Show and Conference at Squaw Valley, California, Seth Jansen from Brendle Group led a session on the Climate Challenge for participating resorts and potential recruits for the following season. The session focused on preliminary outcomes of the 2011/12 season Challenge. NSAA will cover the Climate Challenge in training provided to resorts at the 2013 Winter Conference as well.

NSAA member ski areas sent three important energy and climate change advocacy letters this year. In a March letter, eighty-one (81) ski areas endorsed Senator Bingaman's **Clean Energy Standard Legislation**, S. 2146. In June, eight-nine (89) ski areas sent a comment letter in support of **EPA's Power Plant Carbon Emissions Standard**. In July, ninety-nine ski areas sent a letter of support to Senate leadership urging the extension of the **Wind Energy Production Tax Credit**. The number of resort signatories grew from 81 to 99 from March to July with the help of NSAA's Environmental Committee. Committee members made a concerted effort to reach out individually to ski areas that have not been signatories to energy and climate change letters in the past, and were successful in growing the number of signatories. These efforts will continue in the future!

NSAA's member resorts are committed to investing in green power. An impressive number of ski areas purchase renewable energy credits (RECs) to offset a portion of, or 100 percent of, their energy with clean, renewable energy. NSAA, together with the Professional Ski Instructors Association/American Association of Snowboard Instructors, continue to purchase RECs from **Renewable Choice Energy** to offset 100 percent of the greenhouse gas emissions associated with operating our respective office space and storage warehouse in Lakewood, Colorado.

NSAA's **SWAG**, or Sharing Warmth Around the Globe, program continues to succeed and offers a unique opportunity for resorts to demonstrate their commitment to sustainability. Through the SWAG program, NSAA distributes retired ski resort uniforms and winter garments that would otherwise be discarded to those in need in cold weather countries throughout the world. This year SWAG partnered with CAP Logistics, HELP International, and Precept Ministries International and collected and distributed more than 60,000 pieces to Afghanistan and several Eastern European countries. In total, the SWAG program has donated over 193,500 winter garments.



This season NSAA is working with the **National Forest Foundation** (NFF), a non-profit partner of the U.S. Forest Service, to increase ski area participation in the program and in turn increase funding of conservation and recreation projects on the National Forests. The program, called **Ski Conservation Fund**, has raised over \$3.5 million dollars since the program's inception, including NFF matching funds. This is made possible through the addition of federal funds, in-kind support, and private funds. The projects funded by NFF include restoring and maintaining trails, protecting and improving clean water sources and aquatic species habitat, safeguarding and enhancing critical wildlife habitat, and assisting communities in caring for their local forests. For more information on NFF, visit www.nationalforests.org.

Finally, NSAA is proud to recognize the winners of the 2012 Golden Eagle Awards. These awards, initiated in 1993 to recognize environmental excellence in the ski industry, are the highest honors bestowed on a resort's environmental program. Three Golden Eagle Awards are given to a small (up to 200,000 visits), medium (200-500,000 visits) and large resort (over 500,000 visits) with a deserving environmental program or project.



Mt. Abram, the winner in the small ski area category for 2012, won the award for its winning combination of on-site renewable energy generation, energy-efficient systems, carbon-neutral fuel sources, and smart transportation practices. When the ski area's base lodge burned down in 2011, the resort invested more than \$66,000 dollars in a wood pellet heating system that has reduced its greenhouse gas (GHG) output by 166 tons of CO₂ equivalent annually. **Stevens Pass** took the top environmental honors in the medium sized ski area category for its energy conservation and GHG reduction efforts. For five years Stevens Pass has offset a full 100 percent of its electricity and propane consumption through renewable energy credits and carbon offsets. To date, the ski area has funded 21,289,000 kilowatt hourse (kWh) of windpower, which has prevented the emission of 16,182 tons of CO₂, and is equivalent to taking 2,878 cars off the road for a year. **Aspen Skiing Co.** won the Golden Eagle Award in the large resort category for its coal methane to electricity project that captures coal mine waste methane to generate three megawatts of power using piston engines, roughly the equivalent of the company's annual energy consumption.

NSAA would like to thank the judges for this year's Golden Eagle Awards, including: Tiffany Beal, International Mountain Bicycling Association; Judy Dorsey, Brendle Group; Elysa Hammond, CLIF Bar & Company; Geraldine Link, NSAA; Loren Kroenke, USDA Forest Service; Katie Wallace, New Belgium Brewing Company; and Kirk Mills, Colorado Department of Public Health & Environment (CDPHE).

On behalf of ski areas across the country, NSAA would like to express our appreciation for all of the individuals, organizations, and agencies outside the industry that have supported Sustainable Slopes over the past decade. We have our partners, stakeholders and innovators to thank for our collective successes.

Geraldine Link
Director of Public Policy
September 2012

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1.0 SUSTAINABLE SLOPES ENVIRONMENTAL CHARTER

1.1 HISTORY AND PURPOSE OF THE CHARTER

Every year, millions of people visit ski areas across North America to enjoy snow sports and to experience the natural beauty of the mountain environment. These visitors place a high priority on environmental concerns. In order to continue to offer quality recreational experiences that complement the natural and aesthetic qualities that draw these visitors to the mountains, the National Ski Area Association (NSAA) and its member resorts have committed to improving environmental performance in ski area operations and management. This commitment is detailed in the Sustainable Slopes Environmental Charter for Ski Areas adopted in June 2000 and revised in 2006.

1.2 OVERVIEW OF THE ENVIRONMENTAL CHARTER

The Environmental Charter promotes sound environmental stewardship and, more importantly, offers a comprehensive set of 21 Environmental Principles that enable ski area operators to make sustainable use of natural resources. The Principles are the key to the Environmental Charter and address the following topics:

1. Planning, Design, and Construction
2. Water Use for Snowmaking
3. Water Use in Facilities
4. Water Use for Landscaping and Summer Activities
5. Water Quality Management
6. Wastewater Management
7. Energy Use for Facilities
8. Energy Use for Snowmaking
9. Energy Use for Lifts
10. Energy Use for Vehicle Fleets
11. Waste Reduction
12. Product Re-use
13. Recycling
14. Potentially Hazardous Wastes
15. Fish and Wildlife Management
16. Forest and Vegetative Management
17. Wetlands and Riparian Areas
18. Air Quality
19. Visual Quality
20. Transportation
21. Education and Outreach

To see the Charter and its Principles in their entirety, visit the NSAA web site at WWW.NSAA.ORG

Understanding that ski areas have some unavoidable impacts, the Principles encourage ski areas to adopt the “avoid, minimize, mitigate” approach to natural resource management.

For each of the 21 Environmental Principles, the Charter identifies a range of "Options for Getting There" that resorts can implement to achieve the Principles. These "Options for Getting There" serve as a menu of realistic actions ski areas can and are taking, all or in part as their resources allow, to continually improve their operations. The "Options for Getting There" are detailed for each of the 21 Principles in the Charter document available at www.nsaa.org.

Because not all resorts have the same concerns and resources, the Charter is designed to allow resorts to use the Principles as a framework and then choose the "Options for Getting There" that make the most sense given their individual circumstances and capacities. We hope that each resort continues to take the challenge to achieve the greatest possible results individually for greater conservation collectively.

It is important to note that the Charter's Principles are voluntary, and in adopting them, resorts have committed to going beyond regulatory compliance in those areas where improvements make environmental sense and are economically feasible. Ski areas already should be meeting all applicable federal, state, and local environmental requirements. The Principles are the means by which the industry can collectively *improve environmental performance*. There are many incentives for going beyond compliance, including reduced environmental impacts, increased monetary savings, reduced regulatory liability, and increased positive public image. Good environmental practices are good business, and quite simply are expected by resort customers, the Partnering Organizations of the Charter, and other key stakeholders.



1.3 THE FUTURE

NSAA will continue the Sustainable Slopes Grant Program into the future with an emphasis on direct assistance and on-the-ground improvement. We will also continue with the Climate Challenge, and look for ways for the two programs to be complementary. The Grant Program has and will continue to spark innovation among resorts and allow resorts with fewer resources to take on sustainability projects that might not otherwise happen. It also is a great vehicle for funding Climate Challenge resorts' projects that help them meet their carbon reduction taret. An ongoing goal is to increase participation in the Grant Program as well as the Climate Challenge.

As Sustainable Slopes matures, the nature of its goals continually changes to meet the needs and expectations of member resorts and Partnering Organizations. NSAA hopes to create sources of new momentum for the program, such as the Climate Challenge, and to recognize ever higher levels of performance while continuing to encourage broad participation and efforts across the industry.

1.4 ENDORSING RESORTS

On an individual basis, ski areas take their stewardship role seriously and continue to take innovative steps each year to address environmental challenges. The Charter represents a collective step toward meeting these challenges. To date, over 190 ski areas have endorsed the Charter and are committed to implementing its Principles. For a list of endorsing resorts sorted by resort name or State/Province location, visit the NSAA website at www.nsaa.org. Over 70 of the endorsing ski areas contributed to the information presented in this report by submitting Sustainable Slopes Grant Applications, Climate Challenge Applications and Renewals, Golden Eagle Award Applications and summary paragraphs.

2.0 SUSTAINABLE SLOPES GRANTS

2.1 BACKGROUND

NSAA began a modest grant program in 2009 as a partnership between NSAA and industry stakeholders. The purpose of the Grant Program is to spark innovation and increase resorts' progress in implementing the Environmental Principles of the Charter by putting money on the ground.

2.2 SNOWMAKING AND ON-SITE AUDIT GRANTS

Similar to last season, NSAA supplier member **Snow Economics, Inc. or HKD Turbo** made two in-kind snowmaking grants. HKD is a long-standing family business based in Natick, Massachusetts.

Snow Economics has installed its energy efficient HKD air/water technology at more than 420 ski areas around the world. The two in-kind



grants of 5 SV-10 high efficiency snowmaking guns have a total value of \$40,000 and were awarded to **Burke Mountain** in Vermont and **Telluride** in Colorado. The HKD Turbo' contribution to the Sustainable Slopes program continues to serve as a model for other supplier members of NSAA looking to support the industry in improving its sustainability. HKD would like to encourage more ski areas to apply for snowmaking grants in the future!

New this year, the snowmaking grants have been enhanced by a generous in-kind donation of services from **Brendle Group**, NSAA's sustainability engineering firm, based in Fort Collins, Colorado. The in-kind audit services grant is valued in total at \$10,000. Each recipient of a snowmaking grant will also receive an additional \$5,000 in sustainability services including a utility analysis and customized on-site energy audit. Brendle Group's support will help extend cost savings from the new HKD Turbo snowmaking equipment to other identified energy efficiency and peak load management opportunities.

Here is how **Burke Mountain** and **Telluride** intend to use the high efficiency snowmaking guns and what their plans are for reinvesting the savings that result.



The purpose of the Sustainable Slopes Grant Program is to spark innovation and increase resorts' progress in implementing the Environmental Principles of the Charter.

**Burke Mountain, Vermont
Snowmaking Grant Awardee**

Burke Mountain's current system includes 8,000 cfm of rental diesel air and 2200 gpm of water. Less than half of our guns are considered low energy guns, the remainder are older guns that on average utilize over 400 cfm each. With the limited rental air and abundance of older style inefficient equipment, there is a tremendous need to upgrade to low energy equipment. With the grant, Burke will place the 5 low energy HKD guns on our highly used Dipper trail, replacing a portion of the existing inefficient equipment. The Dipper trail is just over a mile in length and averages between 100'-150' in width, so typically a minimum of four feet of snow is made on the trail. Burke has upgraded the snowmaking control system to more closely monitor operations to ensure all systems are running at optimum levels. Burke plans to continue to upgrade our system in the future. It is Burke's goal to replace all of our inefficient guns with higher efficiency models, which will significantly reduce our compressed air requirements. Burke is also working on installing a permanent electric compressor plant, to replace the existing less efficient diesel rental plant now used. Utilizing our own calculations including: existing gun characteristics, operating temperatures, diesel fuel, and energy costs; it costs approximately \$1500 per acre/ft to make snow on the section of the trail where the HKD guns will be installed compared with approximately \$200 per acre/ft with the HKD guns. The five guns would cover approximately two acres with four feet of snow or eight acre feet, therefore on a seasonal basis these 5 guns are projected to save \$10,500 per season while reducing our energy and diesel fuel usage at the resort. Burke looks forward to working with Brendle Group on a utility analysis. As growth is anticipated at the resort, we need a strategy on how best to grow our snowmaking system in a way that we can maintain existing operating costs by utilizing more efficient equipment. Since Burke is also looking to convert from rental diesel to an electric compressor plant, the audit/assessment will help us analyze the most cost effective and efficient design possible that will minimize energy usage for snowmaking while maximizing system production.

**Telluride Ski & Golf Resort, Colorado
Snowmaking Grant Awardee**

Telluride has two sections of two ski trails on which we will apply the SV10 towers to improve our snowmaking efficiency through this grant. Lower Village Bypass is 3,610 lf long x 108 lf avg width (total 9 acres). The second section is Lower Telluride Trail which is 3,000 lf long x 30 average width (total 2 acres). We plan to make snow at 2 foot depth. Telluride will also apply these guns, as they are on sleds, to other locations as well where we currently use ground guns to make snow. The water capacity in these areas can vary depending on pipe size. Village Bypass can be as high as 2500 gpm, and Telluride trail is up to 1,000 gpm. The current equipment is ground guns that run 30 gpm at mid range temperatures. Our current air supply is approximately 7,000 CFM.

We have analyzed the operational savings based on our current snowmaking on these trails which utilizes old technology air/water ground guns compared to the new energy efficient HKD SV10 air/water guns. Based on the amount of CFM required to produce the same amount of coverage using gpm as a constant, we were able to convert CFM to horsepower and then convert

horsepower to kWh to analyze energy savings. We estimate 400,000 gallons of water to produce two feet of snow cover over 11 acres. We did not consider the pumping costs in the analysis because we used the same gpm rate which would use the same pumping power. Using ground guns would require approximately 39,627 kWh to produce the same amount of snow over the 11 acres as 12,345 kWh would produce using the HKD SV10 low energy snowmaking technology. This is a 68% savings. The advantage of the HKD SV10 also includes an advanced variable flow snowgun nozzle which allows flexibility depending on variable weather conditions, which will save water compared to the existing air/water ground guns. By lowering the kWh to CFM ratio required to make the same amount of snow, there will be other operational efficiencies which include lower power demand charges and less time moving guns because of the variable flow snowgun nozzle design.

Telluride is a founding member of the Climate Challenge and completed a carbon emission inventory. The ski area set an annual goal of 1% CO₂ emission reduction per year for the next 5 years. This snowmaking grant, combined with the comprehensive on-site energy audit, will help us meet this goal. With the assistance of this grant, Telluride can bring an enhancement to the system that will not only reduce power consumption, but enable the savings to drive future projects.

2.3 CASH GRANT CRITERIA

Funding for the cash grant program this year came from generous sponsorships from energy bar maker **CLIF Bar & Co.**, **Natural Resources Defense Council (NRDC)**, and **LeitWind**, a division of **Leitner Technologies**. Grant funds may be used to support design or implementation of measures, including capital costs, related to sustainability across any of the Principles. Only future or on-going projects are eligible for funding. For a copy of the grant application for 2012 as well as summary of last year's winners, see Appendix A.

In order to be eligible for a grant, applicants are required to be ski area members of NSAA that have endorsed the Sustainable Slopes program. The following selection criteria are applied.

Does the initiative...

- Demonstrate innovation in improving sustainability?
- Raise environmental awareness?
- Promote concrete environmental actions?
- Promote the goals of Keep Winter Cool?
- Have a high likelihood of success (the necessary expertise and experience to achieve stated goals)?

- Have the ability to be replicated by others in the ski industry?
- Involve other partners, sponsors or underwriters?
- Rely on this grant money for implementation?
- Help meet any goals set for the Climate Challenge?

2.4 2012 GRANT AWARD WINNERS

This year, four cash grants were awarded to resorts for deserving and innovative projects. With funding from the grant program, **Beaver Valley Ski Club** will install Dyson airblade hand dryers, which use 80 percent less energy than standard dryers significantly reducing paper waste at the ski area. Beaver Valley is a new participant in the Climate Challenge. The amount awarded to Beaver Valley Ski Club was \$2,855. **Spirit Mountain** will implement lighting upgrades in its chalet complex to reduce energy use and reduce GHG emissions by approximately 10 to 15 metric tons per year. The amount awarded to Spirit Mountain was \$6,000. **Mt. Hood Meadows** will equip its message board trucks with battery-powered signage to reduce idling by the trucks and associated diesel emissions, helping the ski area meet its Climate Challenge goal of reducing overall emissions 3 percent by 2020. The amount awarded to Mt. Hood Meadows was \$2,190. **Canyons Resort** will install a solar array on the Tombstone Patrol shack for lighting and highlighting educational materials, resulting in an emissions reduction that will help the resort meet its Climate Challenge goal of reducing GHG emissions by 15 percent by 2017. The amount awarded to Canyons for the project was \$5,000. These four cash grants were made possible by generous donations from the Sustainable Slopes Grant program sponsors, CLIF Bar, LeitWind and the Natural Resources Defense Council (NRDC). The grants are a great vehicle for implementing sustainability projects at U.S. ski areas, and in particular help highlight the fantastic work going on at ski area members who have committed to the Climate Challenge.

Beaver Valley Ski Club, Ontario, Canada

Dyson Air Blades

Grant Amount: \$2,855



Beaver Valley Ski Club is a new member to the Climate Challenge, and we are focused on sustainability in our operations. This grant will be applied to the installation of two Dyson air blade hand driers. There are currently two Dyson air blades in each of the club's washrooms in the main clubhouse, and they have reduced our paper towel waste by 50% per year since installation in 2009. To further reduce paper towel use, and work towards no paper towel use, we will install one dryer in each of the washrooms of our upper clubhouse, called The Keg. This year, some sustainability signage was hung around the clubhouse and one in the bathroom in particular. It reads: "If you use paper towel for one weekend, it takes 1 tree 1 whole year to absorb the pollution you've created. The Dyson driers create no

pollution and use 80% less energy than standard driers." There has been a lot of member support around the Disowns and the signs, generating conversations about sustainability within the club and within the greater systems around us. By installing Dyson driers in the Keg, we will be able to eliminate paper towel use in the bathrooms.

Canyons Resort, Utah
Solar Array/Tombstone Patrol Shack
Grant Amount \$5,000



As a founding member of the 2011/12 Climate Challenge, Canyons Resort has committed to reducing our GHG emissions by 15% by 2017. The largest opportunity for the resort is in our power usage. We researched options and decided to install solar panels on the Tombstone Patrol shack as a first step. The Tombstone Patrol Shack has consistent lighting, and it is a great location for putting up educational materials. The spot on the mountain is very visible to both our employees and our guests, as it is located at the top of one of our busiest lifts, a 6 pack detachable lift. All guests have to ride this lift if they want to go south on the resort and when they come back. The Tombstone Patrol shack solar array helps make a dent in our power consumption. The project will result in annual reduction of power by 213 kWh, and it is the first step toward larger, on-mountain alternative energy projects for Canyons Resort.

Mt. Hood Meadows Ski Resort, Oregon
Battery Powered Signage To Limit Truck Idling
Grant Amount: \$2,190



A few years ago, we increased our efforts to curb unnecessary idling at Mt. Hood Meadows Ski Resort. We promote idling only when necessary to our parking lot staff that drives around in trucks all day, as well as our guest shuttle bus and employee bus drivers. Yet, our variable message board trucks that were prominently positioned to welcome each and every vehicle and bus to the ski resort's main parking lot spewed engine exhaust all day, day after day. The reason was that we could not power the electronic message board without idling the engine, as the truck's battery was not strong enough to hold

a charge. This meant the board would not display our electronic message, necessary to be visible in the winter weather we experience here, unless the truck engine was on to continually charge the battery. The message boards are used primarily in emergency cases, to warn of hazardous conditions or recommend alternate routes of travel in the case of an accident, and to alert guests of parking lot closures. We needed to walk the talk of sustainability! After negative feedback, our vehicle shop was spurred to action. They added a battery charger and new battery, and the results have been astonishing. With the grant funds, we will implement the following for the remaining reader board trucks: a deep cycle 4D battery for each truck (\$300), a waterproof 15 AMP automatic battery charger (\$180), a battery cable (\$150), a battery hold down and other miscellaneous supplies. We will overhaul three trucks at \$630 per truck. We will also install a 110 power outlet at our vehicle shop to plug the batteries in so they can charge overnight (\$300 in labor for our electrician). Our result will be less diesel fuel use, cleaner air and happier guests.

Spirit Mountain, Minnesota

Lighting Upgrades

Grant Amount: \$6,000

Spirit Mountain Recreation Area will be investing in lighting upgrades, including the installation of occupancy/motion and daylighting sensors in our chalet complex to reduce energy consumption. Installing the sensors will be another step in the ongoing improvements of our lighting system. We've recently upgraded our lighting system to include more energy-efficient luminaires, lamps and other components. In addition, a number of our rooms that see the highest (albeit intermittent) usage have already been retrofitted with motion sensors to limit energy consumption when the rooms are unoccupied. Unfortunately, many of the highest energy use culprits within our facility that would offer the most energy savings are also the least accessible because of building layout and/or lack of readily accessible power, and are consequently the costliest to improve. These are the areas we want to target with the grant money. Our objectives include using less energy, reducing the amount of CO₂ released into the atmosphere associated with materials and energy production, utilizing natural light sources where possible, regulating the usage of artificial lighting to limit unnecessary illumination, and increasing health and wellness through adequate lighting and increased sanitation. Having the ability to control the type and amount of lighting used throughout the facility greatly increases our potential for successfully reducing energy use.



3.0 THE CLIMATE CHALLENGE PROGRAM

ACKNOWLEDGEMENTS

The **National Ski Areas Association** (NSAA) would like to thank the following organizations for their support and individuals for their contributions in developing the Climate Challenge.

- Jon Bishop, Jackson Hole Mountain Resort
- Tom Easley, Rocky Mountain Climate Organization
- Brent Giles, Park City Mountain Resort
- Alan Henceroth, Arapahoe Basin
- John Loomis, Northstar-at-Tahoe
- Sha Miklas, Arapahoe Basin
- Maura Olivos, Alta Ski Area
- Geraldine Link, National Ski Areas Association
- Megan Brown, Renewable Choice Energy
- Tom Holcomb, Renewable Choice Energy
- Jay Pawlak, Renewable Choice Energy
- Judy Dorsey, Brendle Group
- Seth Jansen, Brendle Group



NSAA also would like to thank the following ski areas for undertaking the Challenge in its first and second year.

Participating Ski Areas



3.1 Introduction

The Climate Challenge is a voluntary program designed to recognize ski areas that are committed to developing greenhouse gas (GHG) inventories, setting goals for carbon reduction, implementing at least one on-site reduction strategy per year, and reporting success in reducing their overall carbon footprint.

Ski areas are in a unique position - vulnerable to climate change, yet with high visibility to demonstrate by example and communicate solutions to millions of visitors annually. Initiatives such as NSAA's Keep Winter Cool initiative and Clif Bar's Save our Snow winter road trip reflect the industry's response to both this vulnerability and visibility.

Ski areas participating in the Climate Challenge acknowledge the opportunity to recognize and reduce their own contributions to climate change in a transparent, credible way. Challengers also will make tangible progress to reduce GHG emissions each year for the benefit of skiers and riders, ski areas, resort communities, and our planet.



3.2 WHY THE CLIMATE CHALLENGE?

The consequences of climate change to the ski industry require continued leadership and bold steps throughout the industry. The Challenge provides a framework for participants to engage in a multi-year process to challenge themselves to reduce emissions at their ski area while supporting like-minded ski areas in a collaborative effort to reduce emissions industry-wide.

A 2010 NSAA survey showed that only 10% of responding ski areas had completed a greenhouse gas inventory – though 80% were very interested in addressing climate issues.

GOALS OF THE CLIMATE CHALLENGE

- **Higher standard:** The program will raise the standard for ski areas wishing to take their sustainability performance to the next level.
- **Long-term:** The program will be multi-year, seeking to compound the benefits of actions taken by participants over many years and to grow the number of participants from year to year.
- **Cost-efficient:** The program will leverage the investment of participants and sponsorships to deliver more value to participants than their individual investments.
- **Credible:** Quantification of GHG inventories, targets, and reduction measures will be developed in alignment with a credible protocol, using boundaries consistent with industry approaches.
- **Transparent:** The approach taken by the program will be transparent to participating ski areas and the public.
- **Fair:** The program will be fair, facilitating participation for ski areas of all sizes, regions, and focuses.
- **Easy:** The program will provide participating ski areas with guidance and tools to make participation as simple as possible.
- **Well-recognized:** The program will provide recognition for participating ski areas and for high performance.

3.3 CHALLENGE ELEMENTS

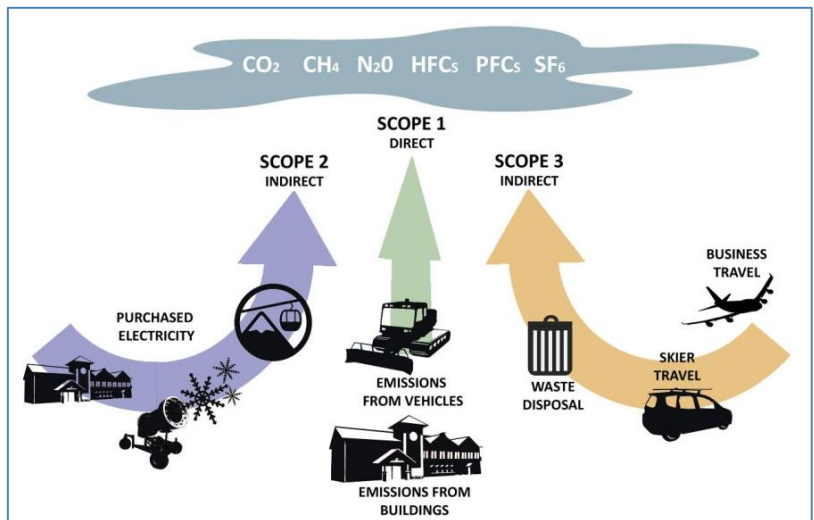
Ski areas participating in the Challenge commit to a four-step process each year.



INVENTORY

In order to understand the impact of their operations, Challengers inventory GHG emissions for ski area operations. Inventories are required to include direct emissions at the ski area (Scope 1) and indirect emissions from purchasing energy, such as electricity (Scope 2).

Other emissions, such as those from waste disposal or business travel, can be included at the discretion of the Challenger. The Challenger can choose to inventory emissions for the fiscal or calendar year.



For 2011, Challengers prepared inventories using a tool that follows the guidelines of The Climate Registry’s General Reporting Protocol (www.theclimateregistry.org/downloads/GRP.pdf).

TARGET



With an understanding of the emissions generated by their operations, Challengers prepare a target for reducing emissions. The structure of the target is flexible: the Challenger can select which emissions to reduce, how much they will be reduced, and over what time period the target will be achieved. Regardless of the structure of the target, Challengers establish a target that will reduce GHG emissions relative to an established baseline GHG inventory for ski area operations.

Targets are the means for measuring Challenger progress and hopefully will become useful planning tools as Challengers make operational decisions in years to come.

THE LANGUAGE OF CARBON

Carbon Dioxide (CO₂): The major heat-trapping gas whose concentration is being increased by human activities. It also serves as the yardstick for all other GHGs. The major source of CO₂ emissions is fossil fuel combustion. Carbon dioxide emissions also result from clearing forests and burning biomass. Atmospheric concentrations of CO₂ have been increasing at a rate of about 0.5 percent a year, and are now more than 30 percent above pre-industrial levels.

CO₂e: Carbon dioxide equivalent, a measure that is used to express the concentration of all heat trapping gases in terms of CO₂.

MTCO₂e: A metric ton of CO₂e. A metric ton is equivalent to 1.102 short tons or 2,204 pounds.

REDUCE

Challengers commit to take one measurable step to reducing their GHG emissions each year in order to progress toward their target. Potential reduction projects include increased energy efficiency in buildings, lifts, and snowmaking; switching to more efficient fleet vehicles; increasing diversion of solid waste to reuse; recycling or composting; or installing a renewable energy system on site.

The Climate Challenge views purchasing a renewable energy credit (REC) or a carbon offset as a means of contractually demonstrating an emission reduction. These instruments may be used by Challengers to achieve targets but will not be recognized for the Reduce component of the Challenge. In other words, at least one reduction project must occur on site in each Challenge year.

Outsourcing or divesting emission sources is not allowed as a reduction strategy for those participating in the Challenge. For example, outsourcing a restaurant to a concessionaire during the Challenge will not be considered a reduction in emissions from a baseline that includes the restaurant.

REPORT

Having completed the first three activities in the Challenge, Challengers will report a summary of their results to the Climate Challenge program and the public. The summary will include the following elements:

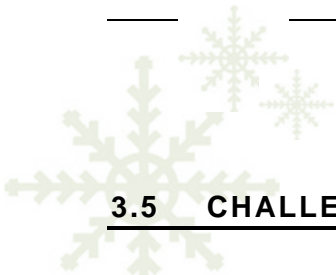
- Total GHG emissions in MTCO₂e
- Stated reduction target
- A narrative description of reduction activities

Challengers are asked to be complete and accurate in reporting to the Challenge. The goals of the Challenge are larger than a single ski area and are best served when all participating ski areas make their best effort. To this end, all submitted inventories, targets, and reduction activities have undergone a third-party review to ensure they are eligible and reasonable with respect to the program's standards and expectations.

3.4 ENCOURAGED ELEMENTS

In addition to those strategies that directly reduce GHG emissions, Challengers are encouraged to undertake a number of activities to reduce emissions in indirect ways that may not be reflected in their inventories but may still have a significant impact on global emissions. These activities will be recognized and supported by the Climate Challenge. Some examples of these indirect activities include:

- Supporting legislation – many ski areas have supported policies that would reduce emissions regionally or nationally.
- Skier transportation programs – many ski areas are investing in infrastructure, providing incentives, and educating their skiers and riders to reduce single-occupant vehicle travel to ski areas.
- Skier education/communications – the ski industry’s visibility to millions of skiers and boarders every year provides tremendous opportunity to lead by example.
- Comprehensive reduction planning – developing a comprehensive climate action plan and integrating it into capital planning and budgeting activities can help to elevate the consideration of GHG reduction activities. This also is an opportunity to link resorts efforts with similar planning that may be taking place in their community.
- Purchase of renewable energy credits or offsets – many resorts invest in renewable energy credits or carbon offsets, supporting the reduction of GHG emissions.



3.5 CHALLENGE RESULTS

The following sections present the outcomes of the Inventory – Target – Reduce process for this year’s Climate Challengers.

The Challengers represent a variety of ski area sizes, climates, and operational characteristics. In addition, the carbon intensity of the electricity they can purchase from the grid varies widely. In other words, these ski areas are all different; however, they all have committed to reducing their GHG emissions.



Overall, the Challengers reported about 68,500 MTCO₂e of emissions in the 2011 reporting year. By 2020, when all of the targets established by Challengers have been completed, Challengers have committed to reducing emissions by at least 11,500 MTCO₂e – about 17 percent of 2011 emissions. This reduction includes any REC purchases the Challengers may be planning to achieve their targets.

Alta Ski Area – Utah

INVENTORY (calendar year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	5,947	Alta will reduce emissions 10 percent below 2011 emissions by 2020.
Scope 3 (solid waste)	230	
Total	6,177	



REDUCE

Alta implemented a lighting retrofit in a number of buildings that involved replacing T12 linear fluorescent lighting fixtures with T8 fixtures.

OTHER PROGRESS

For many years Alta Ski Area has enthusiastically taken part in a range of sustainability and stewardship efforts. Over the past 2 years, coinciding with the inception of the Climate Challenge by NSAA and the ski industry, Alta has embodied the continual need to challenge, invest, and expand its own sustainability efforts. These efforts have included joining with NSAA in supporting legislation on climate change and partnering with Utah Clean Energy (www.utahcleanenergy.org) to increase awareness and opportunity for renewable energy resources. In addition, Alta has

endeavored to increase education of its natural areas and sustainability issues by joining forces with non-profits like the Utah Society for Environmental Education (www.usee.org) and Cottonwood Canyons foundations (www.cottonwoodcanyons.org) to create and expand environmental education projects and has worked with six universities to start an internship program that focuses on business sustainability, stewardship, resource management, and education. Most importantly, Alta continues to reduce its carbon footprint through resource conservation research, stewardship, and restoration and reforestation efforts; complete wind, water, solar, and geothermal renewable energy feasibility studies upon national forest and protected watershed lands; and continuously evaluate operations to lessen impacts on vegetation (earth's first answer to carbon sequestration).

Arapahoe Basin – Colorado

INVENTORY (fiscal year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	3,710	Arapahoe Basin will reduce electricity use in base area buildings by 5 percent from the 2010/11 season to the 2011/12 season.
Scope 3	Not reported	
Total	3,710	



REDUCE

Arapahoe Basin implemented a lighting retrofit project in base area buildings and most on-mountain facilities. All T12 linear fluorescents were replaced with T8 fixtures and all incandescent, compact fluorescent, and halogen bulbs were replaced with light emitting diode (LED) bulbs. In all, the resort replaced over 500 light bulbs and will save approximately 45,000 kWh of electricity.

OTHER PROGRESS

Arapahoe Basin is creating a culture where sustainability is top of mind. Through policy and education, the resort is helping staff and guests understand the “how?” and “why?” of sustainability. Its goals are attainable and its initiatives are functional. Arapahoe Basin strives to be a leader on the environmental front and hopes to be a role model for what is possible.

Canyons Resort – Utah

INVENTORY (calendar year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	17,126	Canyons Resort will reduce emissions by 15 percent below 2011 levels by 2017.
Scope 3 (solid waste)	2,068	
Total	19,194	



REDUCE

Canyons Resort added a variable frequency drive and cooling tower to a snowmaking pump house to increase efficiency.

OTHER PROGRESS

Canyons Resort is committed to a sustainable resort and a sustainable community. It continues to purchase wind power through the Rocky Mountain Power Blue Sky program and participates in the utility’s power incentive programs. Canyons Resort also sponsors Park City’s local conservation organization, Recycle Utah, through board representation and annual financial support. The resort recently has organized a Sustainability Task Force that focuses on improving resort environmental initiatives, such as education, on-mountain and hotel recycling, energy conservation, resort clean up days, Bike to Work Week, and a re-purposing program of items throughout the resort.

In addition, Canyons Resort continues to support and be partners with a number of non-profit organizations throughout the community - such as Summit Land Conservancy, Mountain Trails Foundation, and Snyderville Recreation - that advocate preservation of open lands, protection of watersheds, and public trail access. A sustainable resort supports a sustainable community.

Jackson Hole Mountain Resort – Wyoming

INVENTORY (calendar year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	7,204	By 2015, Jackson Hole Mountain Resort (JHMR) will reduce its GHG emissions (from propane/natural gas, gasoline/diesel, and electricity consumption) per guest visit by 10 percent below 2009 baseline levels.
Scope 3 (solid waste)	164	
Total	7,368	



REDUCE

JHMR enhanced its waste vegetable oil (WVO) filtration system and converted a diesel Ford Excursion and a Chevy 3500 Duramax delivery truck to burn WVO. WVO also is added to on-site fuel for other vehicles.

OTHER PROGRESS

JHMR has worked with Yellowstone Teton Clean Energy Coalition to conduct effective public outreach to promote alternative fuels and has also participated as a case study for regional biodiesel workshops. JHMR assists in educating owners of other vehicle fleets in the area on meaningful ways to reduce their petroleum and emissions footprints. JHMR is a member of Linx, a member cooperative that connects existing transportation providers in Idaho, Wyoming, and Montana and has achieved first place for 2 years in a row in the Friends of Pathways Commuter Choice Challenge program where employees take non motorized transportation to work or play. In addition, Public outreach efforts by JHMR on environmental responsibility have gained the attention of representatives from Canada, Japan, China, Australia, and Albania through the International Visitor Leadership Program, a part of the U.S. Department of State’s premier professional exchange curriculum.

Jiminy Peak Mountain Resort – Massachusetts

INVENTORY (fiscal year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	4,268	Jiminy Peak Mountain Resort will reduce emissions by 7 percent below 2011 levels by 2020.
Scope 3 (solid waste)	161	
Total	4,429	



REDUCE

Jiminy Peak implemented lighting retrofits in the Country Inn, Crane Lodge, Thatcher Building, and Doc Maynard buildings and installed 40 new energy efficient snowmaking guns.

OTHER PROGRESS

For over a decade Jiminy Peak Mountain Resort has been measuring annual use of electricity, fuels, and water and production of solid wastes and establishing reduction strategies that have translated to successfully reducing resort impacts on the environment. Jiminy Peak's larger successes are well known and well documented. The resort's conservation measures currently account for an approximately 12 percent resort-wide decrease in power purchased from the local utility annually. The largest single impact to date was the 2007 commissioning and operation of a 1.5-megawatt (MW) wind turbine constructed on the mountain. In combination with other energy conservation measures, the wind turbine has reduced the amount of power

Jiminy purchases from the local electric utility by over 50 percent annually. Today, almost 5 years later, guest interest in the turbine has not waned. Organized turbine tours are conducted throughout the summer months for the public and school groups and anyone can hike up to see the turbine any time during the summer. An LED digital sign hangs in the Welcome Center showing how much energy the turbine has produced to date, providing a constant reminder that the electricity used at the resort is generated at the resort.

In addition, this year the resort replaced 30-year-old oil fired boilers (space heating) in the Country Inn with high efficiency propane boilers and installed a co-generation unit instead of a replacement boiler. While the co-generation unit provides both commercial and domestic hot water, it also generates 75 kW of electricity with no additional costs or emissions. Jiminy Peak Mountain Resort is a leader in both energy conservation and renewable energy.

Mt. Hood Meadows – Oregon

INVENTORY (calendar year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	4,673	Mt. Hood Meadows will endeavor to reduce overall emissions 3 percent or more below 2011 levels by 2020.
Scope 3 (solid waste)	284	
Total	4,957	



REDUCE

Mt. Hood Meadows completed several lighting retrofit projects involving replacing T12 linear fluorescent lighting fixtures with T8s. In addition, the resort installed four hydration stations to promote consumption of H²snow, pure mountain spring water from Mt. Hood, and reduce disposable water bottles in the waste stream.

OTHER PROGRESS

At Mt. Hood Meadows, love for the mountain shows in many ways:

- Advocacy promoting climate change legislation
- The "Love Your Mountain" campaign that educates employees and guests through examples of sustainability efforts and suggestions of simple actions everyone can take
- The resort's long-standing commitment of investing in renewable energy offsets culminating in a 100 percent offset this past year

Mt. Hood Meadows continues to pursue opportunities that advance its sustainable business practices that protect, maintain, and restore natural resources and the mountain. The resort's Climate Challenge results will inspire even greater success of future actions as they provide the data from which the resort can measure its efforts and increase momentum.

Park City Mountain Resort – Utah

INVENTORY (fiscal year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	12,725	Park City Mountain Resort will reduce emissions by an additional 7,000 MTCO ₂ e by 2012.
Scope 3 (solid waste)	430	
Total	13,155	



REDUCE

Park City Mountain Resort continued snowmaking efficiency projects, increased recycling awareness, installed a 12-kW wind turbine and a 5.7-kW solar photovoltaic array.

OTHER PROGRESS

Park City Mountain Resort has completed over 30 carbon reduction and energy saving projects at a cost of over \$1.4 million since fiscal year 2005. The resort reduced electricity costs by over \$158,000 annually and reduced power consumption by 3 million kWh. It has recycled over 165,000 pounds of cardboard and 163,000 pounds of co-mingled material, and it uses B20 biodiesel fuel in all equipment. The resort also has supported wind power by purchasing 75 million kWh of renewable energy credits. In addition to Park City Mountain Resort's work on its own operations, it has advocated for energy efficiency, clean energy, and reduced carbon emissions by signing on to letters of support or generally providing support for 13 federal, state, or local legislative initiatives and 4 utility or industry initiatives with these aims. The resort also has an EcoZone in the base plaza and on the upper mountain designed to educate guests on its efforts and what they, as a guest, can do to help.

Telluride Ski & Golf – Colorado

INVENTORY (fiscal year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	9,478	Telluride will reduce emissions by 5 percent below 2011 levels by 2018.
Scope 3	Not reported	
Total	9,478	



REDUCE

Telluride implemented a lighting retrofit project in its Administration and Ski School buildings and added 10 high-efficiency snowmaking guns.

Advocacy - The towns of Mountain Village and Telluride, as well as San Miguel County, have adopted Governor Bill Ritter’s Colorado Climate Action Plan 2020 Goal of reducing GHG emissions 20 percent from 2005 levels by 2020. Telluride Ski & Golf’s participation in the Climate Challenge is aligned with these carbon footprint reduction goals since portions of the ski area operate in all three jurisdictions.

Education - Telluride Ski & Golf’s Eco Adventures program offers kids activities, such as “build energy kits and wind energy models.” In addition, the Eco Adventures Nature Center has environmental programs all summer that feature native wildlife education, children’s nature activities and crafts, and interpretive hikes. In the winter, interpretive snowshoe tours are led through the Eco Adventures program.

Link to Community Planning - The Town of Mountain Village has worked with local, state, and federal governments and private sector community leaders to develop a regional GHG emissions inventory and reduction plan that establishes short- and long-term GHG reduction targets, policies, and programs to achieve these target goals. The resort’s participation in the Climate Challenge is aligned with the goals of the community in which it operates.

RECs - As a result of various partnerships over the past several years, Telluride Ski & Golf has purchased RECs to offset 808,788 kWh of power.

Sustainability – One of Telluride Ski & Golf’s stated goals is to “practice responsible environmental stewardship.” Over the past several years, the resort has sponsored watershed protection through the San Juan Fens partnership by providing logistical support and access for scientific studies of high alpine fens. In addition, Mountain Operations has heated the mountain shop and the lift maintenance shop with waste oil burners over the past several years to reduce oil waste at the ski resort.

3.6 BEYOND THE FIRST YEAR: NEXT STEPS FOR THE CHALLENGE

The inaugural year of the Climate Challenge has been a learning experience for the Challengers and the program alike. Challengers collected data in the remotest corners of their organizations, engaged management and staff in setting a target, and implemented an emission reduction project. Meanwhile, the Challenge program has sought to provide the best support to Challengers as they undertake these tasks.

As the Challenge enters its second year, Challengers and the program each will seek to improve. The quality of information collected for inventories will improve, awareness of the target will increase, and reduction projects will be a more integral aspect of the planning and budgeting process for Challengers. Meanwhile, the Challenge will consider improvements to tools, identify ways for Challengers to benchmark their operations with other Challengers, and improve recognition for activities, such as legislative advocacy and skier/rider education.

Hopefully, the second year of the Challenge will also see increased participation. It is only through the aggregate efforts of the ski industry and each of us individually as skiers/riders that we can have a significant impact on protecting our winter pastimes.

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Until next year, keep the Climate Challenge front and center and make the daily commitment to address this issue at your ski area and as a skier and rider.



4.0 MEMBER SURVEY AND RESORT PROGRESS

Over 70 resorts provided information for the 2012 Sustainable Slopes Annual Report through the Grant Program, the Golden Eagle Awards, the Climate Challenge, and the collection of 2012 summary paragraphs this summer. Below are summary paragraphs from participating resorts in the United States and Canada about their efforts over the past year related to the Charter and its Principles. The star symbol indicates a Climate Challenger, Grant Winner or Golden Eagle winner.



Alta, Utah

Alta Ski Area (ASA) continues to pursue sustainability initiatives and actions across departments with the guidance of its own Alta Environmental Center (AEC) and its mission - to protect and improve the well being of Alta's environment, ski economy, and community. Over the 2011 – 2012 year, ASA's increased commitment to sustainability brought new programs in education and research; improved procedure for tracking sustainability efforts; and developed a carbon reduction plan for ASA's operations.

4.1 SUMMARIES OF RESORT PROGRESS

- Carbon Footprint
 - **Inventories:** Lighting and heating control inventories were completed to determine Alta's efficiency status in these areas for improvements next season.
 - **Sustainable Building** – Starting summer of 2011 Alta began an integrated design process to design and build a LEED certified building. Completion of the building is expected October 2012.
 - **Recycling** – After three years of refining efforts and tracking methods, Alta is pleased to report a 51% diversion rate and hope to be at 90% by the year 2020.
- Conservation Management
 - **Alta Beetle Survey:** With interns and [Time Science](#), Alta launched an innovative method in forest management that employs a long-term documentary approach to survey and monitor forest health with high-resolution imagery and web-based data storage and analysis software – a valuable approach for all ski areas confronting beetle infestations.
 - **Native Plant Nursery:** Alta established its first permanent native plant nursery in 2011 with the goal of establishing additional nursery sites with thousands of plants throughout the ski area.
 - **Stewardship:** From trash clean up, to weed pulls and native plantings, Alta worked with over 200 volunteers from the community and local non-profits. Additionally, the ASA employees succeeded a 500-hour environmental stewardship.
- Education
 - **Internships:** Three internships brought on increased improvements on Alta's Environmental Education and Environmental Science programs.
 - **SKE-COLOGY:** The Alta SKE-COLOGY program was updated to be place-based offering a fun, educational winter-summer experience on Alta's ecology, cultural history and stewardship; and expanded to include program trainings, a map-brochure, and a K-12 Educator's Handbook.
 - **Earth Day:** AEC joined Alta community non-profits to put on its 2nd Annual Alta Earth Day. The event was successful with 10 vendors, 50+ attendees to film show, and environmental educational exposure to over 2000 skiers and employees.

- Sustainability
 - **2012 Sustainability Goals:** Alta sets three goals annually to motivate progress in sustainability.
 1. Create an Energy consumption baseline for heating of all lift shacks & terminals and take action to increase efficiency to reduce CO₂e by 35 tons.
 2. Increase the size of our native nursery to 500 seedlings (currently at 100).
 3. Upgrade all exterior lighting to the most energy efficient technology for Alta's conditions.
 - **Climate Challenge** – ASA joined NSAA's Climate Challenge program and completed its first inventory with the program.
 - **2011 Sustainability Report** – ASA completed a comprehensive report on its efforts also setting a goal of implementing projects with a total emissions reduction of at least 300 tons CO₂e.

Alpine Meadows, California

Improved, More Efficient Snowmaking: New snowmaking upgrades will significantly improve efficiency at Alpine Meadows. Upgrades will include computer-driven automation to control the snowmaking operation. The automated system monitors a range of data (e.g. temperature, humidity, flow, etc.) making it possible to configure the operation of specific snowmaking units in a specific area based on conditions in that area -- this greatly improves efficiency. Upgrades will also be made to the mid-mountain pump house to include more efficient pumps and drives. Additionally, new trail crew employees have been hired to focus attention to repairing roads and drainages, as well. Last season, Squaw Valley and Alpine Meadows instituted the Squaw Alpine Express which diminished vehicle trips between the two resort by 100,000 trips by both guests and resort employees. The shuttle program will be in place again for the 2012-13 winter season.



Arapahoe Basin, Colorado

Arapahoe Basin is a founding member of the Climate Challenge. Arapahoe Basin is creating a culture where sustainability is top of mind. Through policy and education, the resort is helping staff and guests understand the “how?” and “why?” of sustainability. Its goals are attainable and its initiatives are functional. Arapahoe Basin strives to be a leader on the environmental front and hopes to be a role model for what is possible. Our Climate Challenge results are below.

INVENTORY (fiscal year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	3,710	Arapahoe Basin will reduce electricity use in base area buildings by 5 percent from the 2010/11 season to the 2011/12 season.
Scope 3	Not reported	
Total	3,710	

REDUCE

Arapahoe Basin implemented a lighting retrofit project in base area buildings and most on-mountain facilities. All T12 linear fluorescents were replaced with T8 fixtures and all incandescent, compact fluorescent, and halogen bulbs were replaced with light emitting diode (LED) bulbs. In all, the resort replaced over 500 light bulbs and will save approximately 45,000 kWh of electricity.

Arizona Snowbowl, Arizona

Skiing in the Southwestern state of Arizona has been something special for 75 years. In effort to sustain this unique experience for many generations to come Arizona Snowbowl in Flagstaff is currently installing a snowmaking system which will be the first in the North America to use 100% grade reclaimed water, a recycled resource that many golf courses, and recreational facilities including public parks, currently use. In addition to using recycled water, Arizona Snowbowl will exclusively use the latest eco-friendly high efficiency SMI fan guns. The man made sustainable snow will be groomed by a newer fleet of Tier 3 emissions compliant Prinoth groomers.

Other sustainability programs that have been initiated at Snowbowl include recycling cardboard, kitchen grease, and all shop waste recycling. In addition waterless urinals have been installed in the bathrooms which can save over 250,000 gallons of water in an average year. Since the Snowbowl hauls its own potable water to the resort this also helps to minimize water truck trips saving fuel and emissions.

Then there is a new fleet of Made-In-America “Never Summer” snowboards for rental. Purchasing products made here creates American jobs, at American companies where there are regulations to help protect the environment versus products from other countries with little or no environmental regulations. Buying American also saves on the transportation footprint since the products do not need to be shipped across the world’s oceans.

For employees there is an aggressive car pool incentive program which encourages employees to drive to work with 3 or more per car. Each employee in the car then receives \$5 in Snowbowl bucks to be spent anywhere at the ski area.

Beaver Valley Ski Club, Canada



This season, Beaver Valley Ski Club launched its organics waste diversion program in 2012. We successfully diverted 7.5 tons of organic waste from the landfill. This equates to a reduction of almost one metric ton of greenhouse gases. As a Sustainable Slopes 2011 Grant Recipient, with the help of HKD, we installed 5 new high efficiency snow guns thus removing 5 inefficient guns from our operating fleet. This allowed us to operate approximately 15 more guns using the same amount of air that the old 5 guns had demanded on their own. The HKD Impulse guns enabled us to operate our snowmaking system closer to capacity at marginal temperatures, therefore allowing us to accomplish our snowmaking goals in fewer overall operating hours. Furthermore, Beaver Valley hosted a Tree Planting Workshop in the spring. A local expert in sustainable forest management, Skeet Sutherland, facilitated the morning with 25 members and employees participating. We planted 120 trees all of native varieties in a location selected by both management and Skeet that will be both visible to members and guests, and also will service to increase biodiversity and habitat on the property. Beaver Valley began to engage our members in our sustainability projects through educational signage around the clubhouse that, in a membership survey, influenced the behavior of 69% of respondents. To increase employee awareness and education, a Sustainability training session was included in employee orientation day. Other

initiatives included introducing full 11oz porcelain mugs for hot drinks and removing disposable cups. Finally, we enrolled in NSAA's Climate Challenge for 2012/13!

Big Sky Resort, Montana

Big Sky's Green Team continues to meet monthly and develop new and innovative ways to implement the best practices for resort operations. The past year's accomplishments include developing a reusable soap program to not only divert partially used soap from landfills, but to see them refurbished and sent to 3rd world areas of the globe where poor sanitation accounts for many avoidable diseases. The resort expanded its annual spring clean up day to go beyond the parking lots and base area to help clean up under the lifts as well. As always, Big Sky seeks the most energy efficient solutions when it comes to managing its hotel operations including the pools and focusing on window and door upgrades that will save electricity. The Green Team also makes sure it is constantly sharing its programs and ideas through the employee newsletter, trying to encourage active participation from the entire team to explore future solutions.

Bridger Bowl, Montana

Bridger Bowl's efforts towards Sustainability remain in our nonprofit organization's conservation minded business model. Bridger Bowl's sustainable business model is recognized by National Geographic on the Greater Yellowstone Geotourism MapGuide, the only ski resort recognized in our Montana, Wyoming and Idaho region. Not being in the real estate business, nor motivated to grow for growth's sake, we continue to do capital improvements in a fiscally conservative manner which includes plans to purchase two fixed-gripped chairs instead of higher energy consuming (and more expensive) detachable chair lifts when we replace our aging Alpine Riblet chair. These improvements will all be within our current area footprint.

Bridger continues to do extensive recycling, glass crushing, cardboard box bundling as we have in the past. We will be continuing to provide free daily employee bus shuttles from Bozeman (32 mile RT) and free weekend bus service during the ski season for the general public. We will be continuing our annual carpooling promotional weekends in mid-January on Bridger Bowl Birthday and the Montana State University's Bobcat Ski Day where we promote our "3 on a wheel to get the deal" (\$15 lift tickets) for everyone who arrives to the ski area in a vehicle with 3 or more people.

This will also be hosting the 16th Annual Bridger Raptor Festival which has become a well-established and free environmental education event that is celebrates one of the largest known migrations of Golden Eagles in North America that passes along the Bridger Range each fall with 16 other migrating species of raptors.

Burke Mountain, Vermont



At the beginning of last season, our food and beverage program instituted a number of changes, the most significant being a partnership with Highfields Composting to create a food-waste composting program. This program allows staff and guests to compost food scrapes, plates, and cups in our main cafeteria. Additionally, utilization of post-consumer recycled paper napkins and towels, Eco-hot cups, soup bowls, and compostable beverage cups was mandated. Our restaurant is a member of the Green Mountain Farm Direct, sourcing local foods for our guests. This year, Burke also switched from plastic to durable "silverware" further reducing the amount of trash

produced. Fry oil is recycled to our supplier, and our maintenance contract specifies the use of green cleaning products. For these efforts, Burke’s restaurant was recently recognized as a “Green Restaurant in the Green Mountain State” by the Vermont Business Environmental Partnership. These partnerships have continued and we have had a number of festivals this past summer where our composting and local food programs were highlighted. These programs have been embraced by our staff and clientele and become part of our standard operating procedure significantly reducing the amount of waste we send to landfills. Buke Mountain received a Sustainable Slopes Snowmaking Grant/Energy Audit in 2012 and we look forward to reporting on our efficiency and savings next year.



Canyons Resort, Utah

Canyons Resort is a founding member of the Climate Challenge. Canyons Resort is committed to a sustainable resort and a sustainable community. It continues to purchase wind power through the Rocky Mountain Power Blue Sky program and participates in the utility’s power incentive programs. Canyons Resort also sponsors Park City’s local conservation organization, Recycle Utah, through board representation and annual financial support. The resort recently has organized a Sustainability Task Force that focuses on improving resort environmental initiatives, such as education, on-mountain and hotel recycling, energy conservation, resort clean up days, Bike to Work Week, and a re-purposing program of items throughout the resort.

In addition, Canyons Resort continues to support and be partners with a number of non-profit organizations throughout the community - such as Summit Land Conservancy, Mountain Trails Foundation, and Snyderville Recreation - that advocate preservation of open lands, protection of watersheds, and public trail access. A sustainable resort supports a sustainable community. Below are our Climate Challenge results.

INVENTORY (calendar year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	17,126	Canyons Resort will reduce emissions by 15 percent below 2011 levels by 2017.
Scope 3 (solid waste)	2,068	
Total	19,194	

REDUCE

Canyons Resort added a variable frequency drive and cooling tower to a snowmaking pump house to increase efficiency.

Cascade Mountain, Wisconsin

Since becoming a member of the Sustainable Slopes program Cascade Mountain, WI has recognized small but noticeable rewards by striving to do their part in doing the right thing. Our efforts date back to 2001, when Cascade Mountain installed its first automated snowmaking system, reducing its carbon footprint by using newer technology and reducing its reliance on manually operated and inefficient snowguns. Most notably since 2001 energy use continues to decrease and now in 2012 we are able to say that Kilowatt usage continues to decrease and our utility bills have not increased in that same amount of time. Generally every other year Cascade Mountain tries to change over a portion of its snowmaking fleet to more efficient automated

machines. In 2011 we completed at 14 gun installation using SMI Automated Tower Polecat Snowguns. In 2012 we continue be as efficient as we can by installing a pond liner in our snowmaking cooling pond to keep the water cleaner and increase storage. During installation waterways/waterfall rapids are being installed to allow the incoming water to cool naturally thus affecting our systems efficiency. Cascade continues to replace lighting to pulse start florescent or LED lighting on any new installations or lighting upgrades. Cascade may be a small area but we are happy to be doing are part for the environment and keeping winter cool.

Deer Valley Resort, Utah

Deer Valley Resort is now participating in Rocky Mountain Power's Self-Direction Credit Program. The resort has started a \$125,000 lighting upgrade using the self direct credit and part of the snowmaking system upgrades this summer will be financed by these credits as well Deer Valley Resort is firmly committed to recycling and has continued to improve efforts each year. Materials are gathered from all lodge operations, on-mountain recycle bins and recycling efforts at all of our summer and winter events. This includes over 35 summer concerts and FIS ski competitions. Resort staff at each lodge sort recyclable materials and then are taken to Recycle Utah. Recycle Utah estimates that because of the sorted delivery of materials, over 95% of materials brought to the center are recycled. This is a higher percentage than materials delivered from general collection bins.

Holiday Valley Resort, New York

In March of 2012 crews demolished the 50 year old Clubhouse Chalet, Holiday Valley's "Main Lodge" and began construction of the new Holiday Valley Lodge, to be completed in early December, 2012. Several steps were taken to make the new building energy efficient and lighten the impact on the environment. Many of the fixtures and construction materials were removed and reused, sold at auction or recycled. Insulation will exceed the building code standards. Lighting throughout the building will be either compact florescent or LED light fixtures. The plumbing fixtures will be low water volume with auto on/off and flush. Low E glass will be installed throughout the building. High efficiency condensing boilers will be used for heating and snow and ice melt systems. Several areas will use rubber flooring made from recycled materials. Brick pavers will be installed slope side that allow for less water run off.

A main goal of our snowmaking system is to make high quality snow using the least amount of energy possible. In 2011 we installed our first KLIK Automated Snowmaking on 28 HKD Impulse tower guns that serve the 4400 foot intermediate Mardi Gras slope. This installation realized 158,000 KWH in energy savings. In 2012 we plan to replace several internally nucleated guns with HKD tower guns and install KLIK HKD Automated Snowmaking System on 72 tower guns on 3 additional major slopes. This installation will increase the energy savings to 576,000 KWH.

Jackson Hole Mountain Resort, Wyoming



Jackson Hole Mountain Resort geographically lies in one of the most protected areas of the continental United States. Neighbors include Bridger Teton, the largest national forest in the lower 48 states; Yellowstone, the oldest national park in the world; and Grand Teton National Park, home of the Tetons, reportedly the most photographed mountains in the world. This

incredible setting, together with committed Jackson Hole Mountain Resort ownership and staff, inspires us to be a leader in environmental stewardship.

Jackson Hole Mountain Resort has developed an ISO 14001 registered Environmental Management System (EMS) and maintained that program under rigorous external review by KPMG for over 5 years. Under the ISO 14001 EMS, each department must submit annual goals to the JHMR Environmental Coordinator and report progress on previous goals. The goals must fulfill Sustainable Slopes commitments and be related to resort wide goals.

Using a baseline of 2009 calendar year, JHMR commits by the beginning of the 2015 calendar year to accomplish the quantitative environmental goals listed below. Each of the goals will be measured as intensity per skier visit to emphasize operational efficiency and enable business growth.

Reduce by 10% or more by 2015

- (1) Electricity, fuel and propane use
- (2) Water consumption
- (3) Annual waste production, both solid and hazardous waste
- (4) Total CO2 emissions

Increase by 10% or more by 2015

- (1) Recycling volumes

Current environmental projects include:

- Boiler room insulation, boiler burner replacement, snow melt sensor adjustment repair, and building automation. Electrical thermal storage is also being investigated.
- This summer, sink Aerators were placed in older buildings as well as waterless urinals. Bottle filling stations are being installed to replace wasteful water fountains.
- Snow grooming is developing a GPS system to reduce idling and save fuel.
- Gearbox oil is being saved with new filtering system for lift operations
- Programmable thermostat installation is being implemented in lift houses
- 1% for the Planet, a global network of businesses that invests at least 1% of its sales in organizations focused on sustainability, welcomed two new members into the 1% family; Jackson Hole Mountain Resort properties ‘Couloir’ restaurant and the “Deck” Restaurant, the support from the restaurants will initially be allocated to Vertical Harvest, one of the most innovative architectural-agricultural-sustainability projects in the country: a state-of-the-art, three-story, 13,500-square-foot hydroponic farm that will employ workers with developmental disabilities year-round, set for construction in Jackson Hole in 2013.
- With the help of the Bridger Teton National Forest and a partnership with TreeFight, (a student and volunteer organization founded in Jackson in 2009 to restore regional whitebark forests), Jackson Hole Mountain Resort is working to protect its remaining whitebark pine with insecticides and pheromones that deter beetles. In addition, Jackson Hole Mountain Resort planted over 1000 new whitebark pine seedlings on Rendezvous Mountain in 2012. Missions to protect and replant whitebark on Rendezvous Mountain occur throughout the summer and include an installation created in July of 2012 by an artist to raise awareness

about the whitebark pine. The sculpture is constructed with branches from one whitebark pine tree found at an elevation of about 9,000 feet at Jackson Hole Mountain Resort. The creation is alongside the road on the way into Teton Village.

- Finally, we continue to lead the community in our transportation initiatives. For the third consecutive summer JHMR is a top organization in using non-motorized means of transportation to and from work while participating in an initiative known as the Commuter Choice Challenge. The program promotes sustainable transportation throughout Teton County during the summer season. The Commuter Choice Challenge creates summer long inspiration to motivate citizens to use sustainable transportation instead of sitting in a car. Walking, bicycling, skateboarding, and any other active transportation mode counts.

Jackson Hole was a founding member of the Climate Challenge and re-enrolled in the program for the 2012/13 season as well.

Jiminy Peak Mountain Resort, Massachusetts



Jiminy Peak Mountain Resort is a founding member of the Climate Challenge. For over a decade Jiminy Peak Mountain Resort has been measuring annual use of electricity, fuels, and water and production of solid wastes and establishing reduction strategies that have translated to successfully reducing resort impacts on the environment. Jiminy Peak’s larger successes are well known and well documented. The resort’s conservation measures currently account for an approximately 12 percent resort-wide decrease in power purchased from the local utility annually. The largest single impact to date was the 2007 commissioning and operation of a 1.5-megawatt (MW) wind turbine constructed on the mountain. In combination with other energy conservation measures, the wind turbine has reduced the amount of power

Jiminy purchases from the local electric utility by over 50 percent annually. Today, almost 5 years later, guest interest in the turbine has not waned. Organized turbine tours are conducted throughout the summer months for the public and school groups and anyone can hike up to see the turbine any time during the summer. An LED digital sign hangs in the Welcome Center showing how much energy the turbine has produced to date, providing a constant reminder that the electricity used at the resort is generated at the resort.

In addition, this year the resort replaced 30-year-old oil fired boilers (space heating) in the Country Inn with high efficiency propane boilers and installed a co-generation unit instead of a replacement boiler. While the co-generation unit provides both commercial and domestic hot water, it also generates 75 kW of electricity with no additional costs or emissions. Jiminy Peak Mountain Resort is a leader in both energy conservation and renewable energy. Here are our Climate Challenge results.

INVENTORY (fiscal year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	4,268	Jiminy Peak Mountain Resort will reduce emissions by 7 percent below 2011 levels by 2020.
Scope 3 (solid waste)	161	
Total	4,429	

REDUCE

Jiminy Peak implemented lighting retrofits in the Country Inn, Crane Lodge, Thatcher Building, and Doc Maynard buildings and installed 40 new energy efficient snowmaking guns.

Mission Ridge Ski Resort, Washington

Last season was financially challenging for us. We continue to use almost entirely recycled paper products in all departments. We use a solar power unit with any profits being donated to Washington Special Olympics.

We offer a low cost bus transportation system to reduce the number of vehicles used by guests visiting Mission Ridge, our employee transportation system also reduces vehicle use. Cardboard, aluminum recycling continues with a strong focus on reduction. Efforts in summer slope work reduce erosion and spring water run off. We plan annually for methods that can reduce energy use, increase recycling and care for the environment.

Over the past season Burke Mountain instituted two significant sustainable efforts at the resort, the most significant environmental project Burke has completed to date is the construction of a wind turbine at the summit of Burke Mountain. The new wind turbine, installed in August 2011, was designed and manufactured by Vermont-based Northern Power Systems. Construction of the turbine began in June 2011 and it started producing energy for Burke last fall. The turbine stands 121 feet tall and is rated at 100 kW, to date in less than a year of operation the turbine has produced over 200,000 kWh of electricity, enough to power over 25 homes during that same period, this is equivalent to over 140 tons of CO₂ saved to date. We are very happy with the performance of the turbine to date and it has been well received by the community. Additional funding for the project was awarded by the Vermont Clean Energy Development Fund and the American Recovery and Reinvestment Act (ARRA).

Mont SUTTON, Québec, Canada

Even before the creation of the ski hill, sustainable development and protection of nature was in heart of concerns of the Boulanger family. Réal Boulanger, the visionary of Mont SUTTON, has created and developed the ski hill with the objective of minimizing the negative impacts on plants and animal species, along of the well being of its community. Some years, Réal Boulanger planted hundreds and hundreds of trees in order to preserve nature and help the regeneration of the forest. Till the days, Mont SUTTON's eco-philosophy prones.

Mont SUTTON's eco-friendly actions are compiled together on SUTTON's Conscience Code, a working reference tool for sustainable development, which is available at montsutton.com/eco. Since the creation of SUTTON's Conscience Code in 2006, more actions have been added to the code every year. Following environmental sectors are taken in consideration: water management, energy efficiency, waste management, GHG emission reduction, and social development in the community, preservation of natural habitats and wildlife, and partnership with organizations in the area.

The new actions implemented this year are:

- To support the importance of planting trees and helping the regeneration of the forest, Mont SUTTON has launched a successful campaign on its Facebook page, "1 Like = 1 Tree." For each new fan of Mont SUTTON's Facebook page from January 23rd to March 22nd, Mont SUTTON promised to plant a tree on the mountain. The planting of these 1,576 trees is the

result of 1,576 persons who clicked “Like” on [facebook.com/montsutton](https://www.facebook.com/montsutton), and by that action have supported this eco-friendly initiative of Mont SUTTON. This planting of trees will help the regeneration of the forest, protect areas between the trails, help reduce soil erosion, protect against the wind, and ensure the preservation of glade skiing which makes Mont SUTTON so unique.

- Purchase of refrigerators requiring less energy.
- Every new snow guns added on the hill were also energy saving ones.
- Biodegradable and compostable tableware now used in the cafeterias.
- Elimination of all Styrofoam containers.
- Recycling of the hand paper.
- Discounts on coffee for all those who bring their own reusable coffee mug.
- Biodegradable plastic containers now used in the kitchens; these containers are also made locally.
- Installation of a more efficient heating unit and system in order to reduce loss of heat.
- Carpooling survey and news to put upfront the carpooling billboard for people to share needs and offers for a ride.

All that on top of Mont SUTTON's eco-friendly actions already on the SUTTON's Conscience Code.

Mountain High Resort, California

Mountain High Resort once again worked hard over the last year to reduce the resort's environmental impacts on our surrounding ecosystem. Mountain High Resort continues to move forward in reducing energy consumption during the snowmaking process along with lowering the amount of waste generated during daily ski area operations. The snowmaking system was once again upgraded with three new tower fan guns, one new carriage fan gun and numerous stick guns that will help reduce our energy consumption from our local utility company. We also rebuilt another 50 outdated air/water snow guns that will reduce the snowmaking systems energy consumption by as much as 60% per gun. The janitorial department this season continued its recycling program for plastic bottles and aluminum cans that greatly reduced the amount of recyclables that were deposited in the local landfill. Finally, the ski resort continued to utilize diesel particulate filters on its diesel fired snowmaking equipment that reduce harmful air quality contaminants by 85% or more. The continuation of these programs will benefit both the environment and our guests who recreate in the Angeles National Forest.

Mt. Bachelor, Oregon



Mt. Bachelor has been at the forefront of the environmental movement within the ski industry for many years. We offset 100% of our electrical use with renewable energy credits from wind power. Since 2005, Mt. Bachelor has purchased 30,608,066 kWh of wind energy; the equivalent to taking 3,049 cars off the road each year. Mt. Bachelor recycles used cooking oil for the production of bio-fuel and exclusively uses B-10 biofuel in our buses, snow plows and grooming equipment to help our area reduce its carbon footprint. From an internal “Green Team” comprised of managers and frontline staff to establish ongoing environmental initiatives, our environmental programs and awareness are engrained as part of our employee culture. In 2011, Mt. Bachelor installed a solar panel array on the roof of its bus barn and office location in Bend, which now generates enough

electricity to power the Carrousel beginner lift. Mt. Bachelor employs the following in support of the Sustainable Slopes program:

- Use of partially recycled paper products in all restrooms, sourced from a local vendor to reduce shipping-related carbon emissions
- Recycling containers in all F&B and public locations throughout the resort
- Use of non-petroleum based cleaners for housekeeping
- Use of wax-free recycled paper for insulated beverage cups
- Reuse of signs and sign materials
- Retro-fitting of lightning in all resort facilities to low power CFL devices
- Use of china dishware and stainless flatware in F&B outlets
- F&B considers suppliers' environmental policies as part of the bid process
- Use of bulk container food items for kids ski school lunches
- Bulk cardboard recycling across the company
- Online job application process rather than use of paper
- Installation of solar panels in downtown call center
- Use of recycled paper for copiers/fax machines
- No idling program for vehicles
- Use of B-10 biodiesel fuel in company rolling stock
- Partnership with Cascade East Transit and the USFS to provide 7 new, more efficient buses for the Bend-to-Mt. Bachelor shuttle service.

Mt. Bachelor has enrolled in the Climate Challenge for the 2012/13 season and we look forward to reporting on our results next year.

Mt. Hood Meadows, Oregon



Mt. Hood Meadows is a founding member of the Climate Challenge. At Mt. Hood Meadows, love for the mountain shows in many ways:

- Advocacy promoting climate change legislation
- The "Love Your Mountain" campaign that educates employees and guests through examples of sustainability efforts and suggestions of simple actions everyone can take
- The resort's long-standing commitment of investing in renewable energy offsets culminating in a 100 percent offset this past year

Mt. Hood Meadows continues to pursue opportunities that advance its sustainable business practices that protect, maintain, and restore natural resources and the mountain. The resort's Climate Challenge results will inspire even greater success of future actions as they provide the data from which the resort can measure its efforts and increase momentum.

INVENTORY (calendar year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	4,673	Mt. Hood Meadows will endeavor to reduce overall emissions 3 percent or more below 2011 levels by 2020.
Scope 3 (solid waste)	284	
Total	4,957	

REDUCE

Mt. Hood Meadows completed several lighting retrofit projects involving replacing T12 linear fluorescent lighting fixtures with T8s. In addition, the resort installed four hydration stations to promote consumption of H² snow, pure mountain spring water from Mt. Hood, and reduce disposable water bottles in the waste stream.

Mt. Rose – Ski Tahoe, Nevada

Mt. Rose - Ski Tahoe continues its dedication to sustainability with several ongoing projects. To start, we are making a resort-wide effort to reduce the amount of paper we use, particularly in form-driven administrative departments. For instance, our Human Resources department has shifted nearly the entire new-hire process from pen-and-paper forms to a much more efficient online process. In the last year, we have also expanded our existing recycling program throughout the resort. We recycle a wide variety of materials ranging from paper and plastic to engine oil and antifreeze, to name a select few. Lastly, one of our newest programs addresses internal energy conservation. In one of our larger café seating areas, we use passive solar lighting as the primary light source. Our heating systems maximize efficiency with automated timers, and we are in the process of realizing a plan to use solar water heating, which will only occasionally be supplemented with electric during periods of high usage. These are a few of our newest developments, and we look to forward implementing more sustainable practices with each passing year.



Park City Mountain Resort, Utah

Park City Mountain Resort has completed over 30 carbon reduction and energy saving projects at a cost of over \$1.4 million since fiscal year 2005. The resort reduced electricity costs by over \$158,000 annually and reduced power consumption by 3 million kWh. It has recycled over 165,000 pounds of cardboard and 163,000 pounds of co-mingled material, and it uses B20 biodiesel fuel in all equipment. The resort also has supported wind power by purchasing 75 million kWh of renewable energy credits. In addition to Park City Mountain Resort’s work on its own operations, it has advocated for energy efficiency, clean energy, and reduced carbon emissions by signing on to letters of support or generally providing support for 13 federal, state, or local legislative initiatives and 4 utility or industry initiatives with these aims. The resort also has an EcoZone in the base plaza and on the upper mountain designed to educate guests on its efforts and what they, as a guest, can do to help. Here are our Climate Challenge results.

INVENTORY (fiscal year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	12,725	Park City Mountain Resort will reduce emissions by an additional 7,000 MTCO ₂ e by 2012.
Scope 3 (solid waste)	430	
Total	13,155	

REDUCE

Park City Mountain Resort continued snowmaking efficiency projects, increased recycling awareness, installed a 12-kW wind turbine and a 5.7-kW solar photovoltaic array.

Pats Peak, New Hampshire

Pats Peak continues to find ways to help reduce its impact on the environment. For more than 10 years, Pats Peak has been recycling aluminum, steel and other items. Recycling containers have been placed in the lodges for plastic bottles, cans and glass bottles. This increased recycling effort reduced the solid waste by 15%, with over 4.8 tons of bottles and cans along with 180 yards of cardboard recycled during the winter season. Pats Peak continues to work with New Hampshire's Department of Environmental Services to better highlight areas where the resort can achieve results in its environmental stewardship. A primary focus continues to be on energy conservation. While Pats Peak has achieved much success, it continues to examine existing equipment and replacing appliances with higher efficiency models. The ski area recently purchased a new Snowcat from Germany. This Snowcat is not only one of the most fuel efficient in the world but is also compliant with the new federal clean air emission standards. Every season, snowmaking at the resort receives an infusion of capital dollars to purchase and install additional energy efficient HKD and Fan Snow Guns. These snow guns have enabled Pats Peak to grow and increase snowmaking coverage of its mountain without increasing energy usage. With all new construction, green options are considered based not on conventional paybacks but on whether they are the right thing to do. This has been the resort attitude going forward.

Purgatory at Durango Mountain Resort, Colorado

Durango Mountain Resort continues to pursue ways to conserve energy and water, and mitigate negative impacts to the forest and habitat. Durango Mountain Resort partnered with the U.S. Forest Service and the Mountain Studies Institute to restore the disturbed portions of the Chattanooga and Ophir Fen, which is located in the Upper Animas River watershed in the San Juan National Forest. In 1888, the Chattanooga Fen was disturbed when residents of the local mining community constructed drainage ditches that lowered the natural water table and drained portions of the fen. Today, at 10,200 feet and higher than 11,000 feet in elevation respectively, the Chattanooga and Ophir fens are important wetlands for wildlife and several rare species of vegetation. Field review work has been completed for the restoration of the Ophir Fen and restoration work begins late summer/fall 2012. Upon completion, the project is expected to restore approximately 2.27 acres of fen at Chattanooga, plus another 3.62 acres at the nearby Ophir Pass Fen. Mountain Studies Institute secured grants for Ophir Fen restoration. Based on the results from monitoring the Ophir Fen, the Chattanooga Fen restoration will build off of the work done at the Ophir Fen. In addition to wetlands restoration, DMR conducts an ongoing analysis of energy and water usage throughout the resort to assess total energy consumption and identify areas for improvement. Durango Mountain Resort instituted a resort-wide recycling program that encourages all guests and employees to recycle and is home to the North County Recycling Center for businesses and residents. In 2012, the resort improved its on-mountain restaurant recycling efforts by providing efficiencies in collecting recycled materials through staff training and better collection methods. The resort also recycles construction materials and utilizes them for other projects on the mountain. Durango Mountain Resort continues to conserve water and energy consumption by operating snowmaking equipment more efficiently. The resort also constructs its half-pipe and other terrain park features out of dirt, which allows it to reduce the amount of snow needed, thereby decreasing water and energy consumption and expediting terrain park openings for skiers and

riders. Last season, Durango Mountain Resort employed energy efficient retrofits and installed energy efficient lighting, reducing consumption of water and electricity significantly. DMR has installed energy efficient light bulbs/fixtures, including CFLs, halogens, LED and T8 lamps. These efforts have reduced electricity consumption by 10-40 percent. In addition, DMR has pioneered a propane equipment calibration initiative that has reduced propane consumption by 10-12 percent and carbon monoxide emissions by 85%. DMR continues to strive to enhance guests' experiences while being a responsible steward of the land.

Red Lodge Mountain Resort, Montana

Sustainability Efforts at the resort over the last 2 seasons:

- Graduated from the 2 year UnCommon Sense –Business Leadership for a Sustainable Future program administered by the Yellowstone Business Partnership. This program focuses on social, environmental, and economic sustainability covering topics that include recycling, communication, energy conservation, transportation efficiencies, and purchasing.
- Received an award from the Montana DEQ for Environmental Leadership Excellence

HIGHLIGHTS OF OUR YEAR UNDER OUR NEW SUSTAINABILITY PROGRAM

- Reduced trash tips by 1/3
- Recycled 9,000 pounds of cardboard
- Recycled 2,100 pounds of #1 plastic
- Burning our waste engine oil to heat the maintenance shop
- Cooking oil is used by a bio-diesel producer
- We also focused on vendor influence and reduced our food and beverage vendors by 25%, cutting down on deliveries to the ski area.
- We eliminated beer bottles and cans from our mid-mountain restaurant, which cut down on snowcat transportation of those items to and from the restaurant. The draft beer was served in #1 recyclable cups.
- We eliminated the use of colored copy paper since we could not recycle it.
- We took the social sustainability seriously and donated labor, time and tools to assist like-minded non-profit organizations.
- We did an energy audit for all our buildings and will install heater controls on our lifts, in the lodges and lift shacks as well as replace lighting fixtures and add insulation to save approximately \$13,000 annually in energy costs.

Spirit Mountain Recreation Area, Minnesota



We were excited this past winter to continue our steps toward a more sustainable ski resort. We were honored to be a recipient of a Sustainable Slopes Grant of \$6000 which will allow us to continue our lighting upgrades, which will include more motion, occupancy and daylight sensors throughout the facility. We have many areas that are infrequently used while being frequently illuminated, and the upgrades will enable us to use lights and energy more responsibly. We had good success in our goals of employee and guest education and involvement, and will continue to work in those areas. Guest involvement in food waste collection went well, and we tripled our food waste collection when compared with past years. We were able to rid our food and beverage service items almost entirely of “disposable” plates, containers and silverware and switched to

biodegradable/compostable hot and cold drink cups, soup bowls, to-go containers and enlarged our supply of real plates for service at banquets and events. All in all it was a positive year, and we will continue in our educational efforts as we go forward.

Squaw Valley, California

Squaw Valley continues to work tirelessly to protect and preserve the resort's mountain environment. Squaw Valley is improving the efficiency of the resort's snowmaking department this year by replacing 80 older-technology YSIL now guns with new, highly efficient 'stick' guns. Squaw is also replacing the fan guns at Gold Coast with new, completely automated models with are more efficient with water and power and upgraded snowmaking controls by implementing computerized enhancements to further improve snowmaking efficiency. In addition to snowmaking improvements, Squaw Valley is constructing a new bridge across Squaw Creek to diminish erosion hazards and improve soil stability, as well as undertaking drainage improvements and re-vegetation in the Shirley Lake area. The resort is also preparing a Timber Harvest plan to promote a healthier forest and more natural tree density and ecosystem. Last season, Squaw Valley and Alpine Meadows instituted the Squaw Alpine Express which diminished vehicle trips between the two resort by 100,000 trips by both guests and resort employees. The shuttle program will be in place again for the 2012-13 winter season.

Steamboat Ski & Resort Corp., Colorado

The Steamboat Ski & Resort Corporation is focused on continuing to set a high standard for resort environmental programs and provide responsible stewardship of the public and private lands on which the resort operation resides. The resort focuses its efforts across a wide spectrum concentrating on Energy Efficiency & Renewability, Recycling & Waste Management, Community & Education Outreach, Forest Stewardship, Environmental Granting, Sustainability Programs and Partnerships.

Sustainability & Zero Waste: The resort's award-recognized Zero Waste Initiative diverted on average 80% of organic waste from F&B outlets during the past year. During the summer, this composted material is used extensively for landscaping and re-vegetation projects. The resort returned 1,440 yards of cardboard material and 2,400 yards of single stream, while continuing to reduce its overall trash. Thousands of pounds of heavy industrial metal, primarily steel from on-mountain equipment, were also recycled. In addition, the resort features compostable or reusable items across all food & beverage outlets including its new Haymaker Golf Course outlet.

Energy & Waste Efficiency, Conservation & Reduction: At its main on-mountain facilities, nearly a half-million gallons of water were saved with the use of auto-flush and shut-off features. Snowmaking efficiencies resulted in a continued improvement in the resort's gallons per kilowatt ratio. Old uniforms were sent domestically and internationally to be reused. The resort utilized a variety of electric, clean 4-stroke and high-occupancy vehicles. The new summer pedestrian path across the mountain base village is lit by solar light pedestals.

Community Programs & Outreach: Employees donated their most valuable commodity – time – to community programs including: Bike-to-Work Program; major Re-Tree Vegetation Project; Trail

Days, and, Zero Waste Initiative, which now spans numerous community events. In addition, the resort has continued its Guided Nature Tours, Interpretive Signage Program and Employee Mountain Clean-Up efforts.

Environmental Granting: Steamboat's Environmental Granting Program, housed at the Yampa Valley Community Foundation awarded \$23,000 this past season to environmental programs across the Yampa Valley. Through staff contributions, this employee driven committee has granted nearly \$265,000 in the past 8 years.

The Steamboat Ski & Resort Corporation, along with its employees, is committed to ensuring a sound environmental experience for all who come in contact with the mountain, company and community.

**Stevens Pass Mountain Resort, Washington
2012 Sustainable Slopes Grant Winner**



This year Stevens Pass will celebrate its 75th Anniversary, serving to commemorate its transition from a humble beginning to its current status as one of the Northwest's premier resorts. About ten years ago, we began our efforts to protect and restore the natural resources that have provided us our livelihood. Our Environment and Planning Division now includes two full-time staff, tasked with implementing a sustainable business model, addressing global warming, and ensuring regulatory compliance at all levels. We believe we have a responsibility to both the environment and regional climate, and our mission reflects that.

After three years as a Golden Eagle Award national finalist, we were honored this year to be selected by NSAA as the 2012 winner in the mid-size category; only one other PNW resort has ever won this environmental excellence award (back in 1994). This spring we also were named Recycler of the Year by the Washington State Recycling Association; last year the same award went to the Seattle Mariners baseball team. We continue to be ranked in the Leadership Club of the EPA's Green Power Partnership for our 100% carbon offset based solely on windpower sources. And this summer we will issue our second company-wide Sustainability Report.

This past year saw some notable program achievements at Stevens:

- 1) Twelve months continuous use of our public electric vehicle charging stations with over 120 drivers receiving 300 hours of charging, delivered during every month of the year.
- 2) After implementing the 'easier' efficiency upgrades, we are now tackling larger measures identified in our third-party energy audit, such as HVAC upgrades with favorable ROI's.
- 3) We launched our long-awaited solar energy initiative starting with a demonstration project providing overhead LED lighting at a mountain-top shack using a few small panels. This will help Ski Patrol prepare for avalanche bombing runs during the pre-dawn darkness of the mid-winter months.
- 4) Sept/Oct 2011 marked the soft opening of our new mountain bike terrain park, which includes various mitigation measures such removable decking and features, low-impact ground disturbance techniques, bridges, and extensive erosion control practices.

5) Using an environmental grant from NSAA, we have been testing clean, zero-emission electric utility vehicles across a range of resort activities, and hope to purchase a Polaris Ranger EV soon.

Selected plans for the coming 12 months include:

- 1) Heavy equipment and snowcat efficiency tracking using data from our new modernized onsite fueling station.
- 2) Expansion of our solar initiative with the installation of a nine-panel two kilowatt grid-tied system as part of a lift station remodel.
- 3) With the construction of a renovated potable water treatment plant looming, we will be focusing more attention on water efficiency via fixture upgrades.

Stowe Mountain Resort, Vermont

During the 2011-12 season Stowe Mountain Resort installed an innovative waste heat recovery system in its new Forerunner Quad top drive terminal that provides 100% of the heat for the new ski patrol building located adjacent to the top of this lift. Currently a second heat recovery system is being installed in the boiler room of the Stowe Mountain Lodge Hotel, located in the evolving Spruce Peak Base Area that will provide supplemental heat for the hotel's outdoor heated swimming pool. The resort is also installing extensive snowmaking pipe and energy efficient equipment during the 2012 construction season that will eliminate the use of all diesel compressors and significantly reduce the resort's carbon footprint. The resort has also begun development of an extensive new pedestrian path system that will wind its way throughout the entire resort. In partnership with the Town of Stowe, the Stowe Mountain Shuttle, a free public bus service serving both the resort and the town, experienced the highest number of users since its inception. Stowe Mountain Resort maintained its designation under the Audubon International's Sustainable Resort Program as the first ski resort in the country to be a Certified Audubon Sustainable Resort.

Sugar Bowl, California

Sugar Bowl Resort recognizes and appreciates that our natural surroundings are one of our greatest assets. As such, we consistently strive to implement environmentally sound policies, practices and procedures that secure, improve and maintain the quality of this pristine high-alpine environment.

Sugar Bowl has been recognized as an environmental leader by no less authority than Keep the Sierra Green, highlighting our continued efforts to minimize waste, implement pollution prevention measures, and conserve energy & water.

Sugar Bowl's Environmental and Conservation Committee works with all departments to help minimize their impact on the environment. Their efforts have helped to reduce annual resort consumption equal to removing 243 cars from the road for one year.

Ongoing Initiatives:

- Purchase 100% Renewable Energy Certificates (RECs) from 3Degrees.
- Reduce over 20% of waste by recycling

- Subsidize a free shuttle program from Truckee to Sugar Bowl/Donner Summit
- Provide a Ride Share board on Sugarbowl.com and partner with Zimride
- Sustainable Slopes and Keep Winter Cool Programs
- Preserve wetlands/protect water quality, working with South Yuba River Citizens League
- Forest Stewardship, in conjunction with the USFS
- Adopt-a-Highway clean-up days
- Habitat protection during any development
- Annual Environmental Awareness Day
- Replace additional electronic water coolers with simple water purifiers in resort sinks
- Install additional occupancy sensors for lighting in many offices and public areas
- Install more strip curtains in refrigeration and shipping & receiving dock
- Continued HVAC system upgrades to improve efficiency and reduce propane consumption
- Include environmental considerations in purchasing decisions:
 - Purchase 100% green cleaning products.
 - Purchase 100% recycled content or compostable food service products
 - Purchase 30% recycled content office paper.
 - Purchase biodiesel for use in all licensed highway vehicles.
 - Continued replacement of two-stroke snowmobile fleet with 4-stroke machines
 - Continued attention to more efficient snowmaking guns

Sun Valley, Idaho

Sun Valley Resort is proud to be a participant in your Sustainable Slopes Annual Report! As long-time supporters of Sustainable Slopes, Sun Valley Resort is dedicated to adopting bigger and better sustainability initiatives each year. For 2012, Sun Valley's focus returns to our basic initiatives - to reduce, reuse, and recycle.

91.183 kWh are being saved annually through lighting retrofits in four of our largest maintenance facilities. An additional 691,003 kWh in annual savings are close behind with additional retrofits planned soon.

One of the most noticeable improvements this year is the expansion of our recycling program, which continues to grow since its inception in 2009, resulting in 34.5% of all waste recycled in the past year, up from 31% a year ago. This program diverted 508 tons of waste from the landfill, up from 358 last year. In-room recycling began in July 2010 and recycling of customer products has swelled by 150% as a result. Also, adoption of a composting program in January 2011 resulted in 233 tons of kitchen and lawn waste composted to date.

Finally, 1,548 lbs. of partially-used hotel room bath sundries have been donated to neighbors in need in the Seattle and Boise areas. This unique program maximizes the use of our hotel's small sundries and benefits our local northwest community.

Taos Ski Valley, New Mexico

In an effort to protect its magnificent surroundings Taos Ski Valley has announced several green initiatives in addition to continuing mountain-wide recycling efforts. In a partnership with Renewable Choice Electricity, Taos Ski Valley has purchased approximately 10,200,000 kilowatt hours of renewable energy credits, helping to save up to 11,412,372 pounds of Carbon Dioxide over a 2 year period. Taos Ski Valley is in the process of converting their fleet of snowmobiles and ATVs from two stroke to four stroke engines in an effort to limit the environmental footprint left by these vehicles, as well as updating the fleet of snowcats to lower emission vehicles with greater fuel efficiency.

Telluride Ski & Golf, Colorado



Telluride Ski & Golf is a founding member of the Climate Challenge.

Advocacy - The towns of Mountain Village and Telluride, as well as San Miguel County, have adopted Governor Bill Ritter's Colorado Climate Action Plan 2020 Goal of reducing GHG emissions 20 percent from 2005 levels by 2020. Telluride Ski & Golf's participation in the Climate Challenge is aligned with these carbon footprint reduction goals since portions of the ski area operate in all three jurisdictions.

Education - Telluride Ski & Golf's Eco Adventures program offers kids activities, such as "build energy kits and wind energy models." In addition, the Eco Adventures Nature Center has environmental programs all summer that feature native wildlife education, children's nature activities and crafts, and interpretive hikes. In the winter, interpretive snowshoe tours are led through the Eco Adventures program.

Link to Community Planning - The Town of Mountain Village has worked with local, state, and federal governments and private sector community leaders to develop a regional GHG emissions inventory and reduction plan that establishes short- and long-term GHG reduction targets, policies, and programs to achieve these target goals. The resort's participation in the Climate Challenge is aligned with the goals of the community in which it operates.

RECs - As a result of various partnerships over the past several years, Telluride Ski & Golf has purchased RECs to offset 808,788 kWh of power.

Sustainability – One of Telluride Ski & Golf's stated goals is to "practice responsible environmental stewardship." Over the past several years, the resort has sponsored watershed protection through the San Juan Fens partnership by providing logistical support and access for scientific studies of high alpine fens. In addition, Mountain Operations has heated the mountain shop and the lift maintenance shop with waste oil burners over the past several years to reduce oil waste at the ski resort.

Here are our Climate Challenge results below.

INVENTORY (fiscal year 2011)	MTCO ₂ e	TARGET
Scope 1 and 2 (required)	9,478	Telluride will reduce emissions by 5 percent below 2011 levels by 2018.
Scope 3	Not reported	
Total	9,478	

REDUCE

Telluride implemented a lighting retrofit project in its Administration and Ski School buildings and added 10 high-efficiency snowmaking guns.

Timberline Lodge, Oregon

Timberline Lodge and National Forest Foundation partner to support Collaborative Effort in Salmon River Historic Side Channel Restoration. A significant side channel habitat restoration project on the Salmon River benefitting threatened salmon and steelhead trout and sensitive amphibian and invertebrate species is underway. The project was made possible from a broad-based partnership between the USDA Forest Service, Timberline Lodge, National Forest Foundation, The Freshwater Trust, Bureau of Land Management, Sandy River Basin Watershed Council, and Sandy River Basin Partners. The restoration project will reactivate a historic side channel and add large wood to a site in the Salmon River in an effort to increase fish spawning habitat, provide refuge for juvenile fish, reduce the magnitude of floods, and increase habitat complexity for all aquatic species.

Partial funding of the Salmon River side channel restoration project is from a partnership between Timberline Lodge and the National Forest Foundation (NFF). Timberline Lodge, a National Historic Landmark and year 'round destination for alpine recreation is located in the heart of the Mount Hood National Forest. RLK and Company, operators of Timberline, recognize that they are operating within a cherished natural landscape valued for its natural resources as well as its scenic, historic, recreational, and economic characteristics. Timberline is proud to participate in this side channel restoration project through the NFF's Ski Conservation Fund. The Ski Conservation Fund (SCF) provides a way for overnight guests of Timberline Lodge to make voluntary contributions to support local stewardship and restoration work on the National Forest, making it an even better place to live and play. NFF leverages additional matching funds with those guest contributions, multiplying conservation impacts and resources available to nonprofit partners like the Sandy River Basin Watershed Council to implement projects that directly benefit the Mount Hood National Forest.

Welch Village Ski Area, Minnesota

While we continue to manage spring runoff situations on ski area slopes, the main focus this year will be to manage the flow of Cannon River, located on the north boundary of the ski area, during spring and summer flood events. At the present time the river is sustained within its banks, but we have recently met with the local Goodhue County engineering department to agree on a plan to more permanently manage the flow during flood stage events. These events threaten to wash out the local highway and the bike trail parallel to the road. Welch Village land adjacent to the river has been designated for planting of shrubs and grasses to resist water flow, and hook barriers are to be installed in the river bed itself to direct the flow towards the center of the river, away from the banks. Further, a sluice region is planned to redirect flow at flood conditions. The entire project is to be funded with private and locally contributed funds.

Wisp Resort, Maryland

Being in a tight financial position for 2012, we began what will be a multi-year program to reduce energy cost specific to lighting. This year's recently completed first phase of the project has been to change the lighting in one of our restaurants from incandescent and cfl lighting to LED lighting. 105 fixtures were replaced. The result is as follows:

Carbon Reduction

Existing Lighting

KWH to KgCo2 39727.40
KgCo2 to Tons of Co2 43.75

LED Lighting

KWH to KgCo2 7167.04
KgCo2 to Tons of Co2 7.89

Reduction of Co2 in Tons 35.86

We will continue the program as funding allows.

Wolf Creek Ski Area, Colorado

Alternative Energy:

Wolf Creek currently purchases 100 percent of its power usage year round from a green power supplier, and has been recognized by the US Forest Service with the Sustainable Business Award in 2006.

Wolf Creek uses solar power for some of its outlying smaller buildings as a heat source along with running communication and safety equipment.

Construction:

Wolf Creek mills most of its own timber for construction purposes from fallen trees and spruce beetle infested trees. All Wolf Creek restrooms are water-free composting or have low flow toilets installed.

Land Management:

For the past ten years Wolf Creek has seasonally removed Spruce beetle -infested trees in an attempt to mitigate the onslaught of this pest. Currently Wolf Creek is besieged by several billion Spruce beetles that have come onto the permit from both the Rio Grande and San Juan National Forests. Wolf Creek will continue to work with the US Forest Service on removing

hazard and fire trees. Currently Wolf Creek estimates that 50 to 70 percent of all mature Engelmann spruce will be lost during this natural process.

Recycling, etc.:

Wolf Creek recycles kitchen oil, equipment oil, steel, aluminum, cardboard, paper, batteries, uniforms, ink cartridges, office equipment and phone books. In all Food and Beverage services, plastic utensils and plates are being replaced by biodegradable products.

Wolf Creek is currently looking into recycling old plastic ski boots, skis with bindings and poles though a start up company that grinds the material, creating a product that can be used for May applications.

Snowmaking and Snow Equipment:

Wolf Creek has 4 snowmaking fan guns that it uses for its entire snow making system which is designed to supplement the natural snowfall.

Alternative Public Transportation:

Although Wolf Creek does not provide public transportation at this time, Wolf Creek offers free parking and free park shuttles to all of its guests.

Wolf Creek has spent over 1.5 million dollars on its parking lots which includes design, construction, materials and paving.

Wolf Creek remains committed to shuttling employees during peak periods and is exploring other public transportation options.

Corporate Community:

Wolf Creek contributes to the local and regional communities through a number of programs that include substantially reduced lift and lesson tickets, as well as by donating time, materials and manpower to others.

5.0 CONTRIBUTIONS OF PARTNERING ORGANIZATIONS

NSAA would like to thank and recognize our partners in Sustainable Slopes – old and new – for their contributions to this important program.

Brendle Group

Brendle Group is an environmentally focused engineering consulting firm that leads by example, inspiring and empowering people to make thoughtful choices about the resources they use and helping them create realistic road maps for sustainability. Founded in Fort Collins, Colorado in 1996, Brendle Group serves clients nationwide, leveraging the strength of what its clients do well with their sincere desire to do more for people, profit, and planet. Brendle Group has consulted on NSAA’s Sustainable Slopes program for over a decade.

In its 15 years of business, Brendle Group has completed hundreds of projects and assessments for a wide range of clients. Brendle Group has developed sustainability management systems and plans for governments and businesses, measured systematic and site-specific greenhouse gas emissions and developed climate action plans, helped clients reduce their energy and water use, and contributed to leading-edge sustainable design projects. Brendle’s clients range from federal and state government agencies to cities, counties, multi-stakeholder groups, non-profit organizations, industry associations and businesses. We’re known for our ability to form strategic partnerships and collaborations to tackle projects of any size, working with clients nationwide.

HKD Turbo

Snow Economics, Inc. is a long-standing family run business founded in 1991 by Herman K. Dupre and his son-in-law, Charles N. Santry. The company is based in Natick, Massachusetts, U.S.A. Since inception, Snow Economics, Inc. has installed snowmaking products at more than 420 ski areas around the world. All of the products developed and manufactured by Snow Economics, Inc. utilize energy efficient HKD air / water technology. Some of the countries where HKD Technology is in operation are the U.S.A., Canada, Korea, Japan, China, Austria, Switzerland, France, Italy, Germany, Spain, Sweden, Norway and New Zealand.

Although Snow Economics, Inc. was incorporated more than 15 years ago, HKD Technology was conceived some 20 years prior by Herman K. Dupre. Mr. Dupre, founder of Seven Springs Resort in Western Pennsylvania and inventor of the patented HKD Tower system spent numerous years

NSAA and the endorsing resorts are fortunate to have outside organizations playing a key role in Sustainable Slopes.

developing and refining his technology in its practical application, on the mountain. With the HKD Tower System in place, Seven Springs has the unprecedented ability to make snow at the rate of 30,000 gallons per minute using only 26,000 cubic feet per minute of compressed air. With these capacities, the resort is able to blanket 400 skiable acres of terrain with 12 inches of snow in approximately 48 hours. HKD has sponsored the Sustainable Slopes Grant program for the past two years through the donation of 30 SV-10 high efficiency snowmaking guns to deserving resorts.

LeitWind

LeitWind is part of LEITNER TECHNOLOGIES group, a name which has been a synonym for high performance technology of ropeways and snow groomers since 1888. LEITNER TECHNOLOGIES employs more than 2030 people worldwide at its plants in Italy, Austria, France, India and North America, as well as in 70 sales and service points. Since 2000, continuous research and development coupled with a high degree of technological competence have enabled LEITWIND to take advantage of synergies between the ropeway and the wind turbines technologies. The resulting turbine is an integration of a direct drive generator into a wind turbine. In 2003, Leitner produced and installed its first wind turbine prototypes that incorporated this revolutionary technology. Starting in 2007, Leitwind began serial production of wind turbines. For the engineers, the search for quality and simplicity is a primary objective in all of the group's businesses. Since the company's inception, LEITNER Technologies' success is based on quality and leading edge technology.

Natural Resources Defense Council

The **NRDC** is a national, non-profit organization of scientists, lawyers and environmental specialists dedicated to protecting public health and the environment. Founded in 1970, NRDC has more than 1.3 million members and e-activists nationwide. NRDC began partnering with the ski industry on Keep Winter Cool in 2003. Together, NSAA and NRDC have lobbied Congress on mandatory caps on CO₂ emissions, educated guests and the public about solutions to global warming, provided training to resorts on communicating on the topic of global warming and helped raise the visibility of the issue. NRDC contributes to the Sustainable Slopes Grant Program and is a judge for the Golden Eagle Awards.

CLIF Bar & Co.

Based in Berkeley, Calif., **CLIF Bar & Co.** is a leading maker of all-natural and organic energy and nutrition foods committed to sustainability from the field to the final product. The company has received local, state, and national awards for its environmental efforts, including multiple initiatives to combat and educate the public about global warming. Learn more at <http://www.CLIFbar.com/environment>. CLIF Bar has partnered with NSAA in Keep Winter Cool since 2004 and helps judge the Golden Eagle Awards.

NSAA would also like to recognize the Partnering Organizations that have helped us advance the Sustainable Slopes Program at some time over the past decade. These Partnering Organizations include:

Board of Teton County Commissioners

Bonneville Environmental Foundation

Colorado Department of Public Health & Environment

Conservation Law Foundation

Leave No Trace, Inc.

The Mountain Institute

National Fish and Wildlife Foundation

National Park Service

New York State Department of Environmental Conservation

Trust for Public Land

U.S. Department of Energy

U.S. Environmental Protection Agency

U.S. Forest Service

Wildlife Habitat Council

APPENDIX A: 2012 GRANT APPLICATIONS

NATIONAL
SKI AREAS
ASSOCIATION



FOR IMMEDIATE RELEASE

Contact: Troy Hawks
NSAA Communications
thawks@nsaa.org
(720) 963-4215

NSAA Announces 2012 Sustainable Slopes Grant Winners

Funds Target Sustainability Projects and Improve Snowmaking and Energy Efficiency at U.S. Ski Areas.

LAKEWOOD, Colo. – May 7, 2012 – The National Ski Areas Association (NSAA) today named six member ski areas as the recipients of its annual Sustainable Slopes Grant program. Grant recipients include Beaver Valley Ski Club in Ontario, Canada, Burke Mountain, Vermont, Canyons Resort, Utah, Mt. Hood Meadows, Oregon, Spirit Mountain, Minnesota and Telluride Ski and Golf Resort in Colorado. Four of the six recipients, Beaver Valley Ski Club, Canyons Resort, Mt. Hood Meadows and Telluride Ski and Golf Resort, are also participating in NSAA's Climate Challenge, a voluntary program to inventory, target and reduce greenhouse gas (GHG) emissions.

Of the six grants awarded, four are cash grants for innovative sustainability projects. With funding from the grant program, Beaver Valley Ski Club will install Dyson airblade hand dryers, which use 80 percent less energy than standard dryers significantly reducing paper waste at the ski area. Spirit Mountain will implement lighting upgrades in its chalet complex to reduce energy use and reduce GHG emissions by approximately 10 to 15 metric tons per year. Mt. Hood Meadows will equip its message board trucks with battery-powered signage to reduce idling by the trucks and associated diesel emissions, helping the ski area meet its Climate Challenge goal of reducing overall emissions 3 percent by 2020. Canyons Resort will install a solar array on the Tombstone Patrol shack for lighting and highlighting educational materials, resulting in an emissions reduction that will help the resort meet its Climate Challenge goal of reducing GHG emissions by 15 percent by 2017. These four cash grants were made possible by generous donations from the Sustainable Slopes Grant program sponsors, CLIF Bar, LeitWind and the Natural Resources Defense Council (NRDC).



“These grants are a great vehicle for implementing sustainability projects at U.S. ski areas and in particular help us highlight the fantastic work going on at ski area members who have committed to the Climate Challenge,” says NSAA President Michael Berry.

This year, two in-kind high-efficiency snowmaking system grants provided by Massachusetts-based HKD Snowmakers have been combined with in-kind energy audit grants from Brendle Group, a Colorado-based sustainability engineering firm. The combined snowmaking equipment/energy audit grants were awarded to Burke Mountain and Telluride. Each ski area will receive five high-efficiency snowmaking guns from HKD Snowmakers, a total value of \$40,000. Each area also receives a comprehensive on-site energy audit from Brendle Group, a total value of \$10,000.

“HKD is excited to team up with Brendle Group this year to bring a combined benefit of immediate energy savings and a comprehensive, on-site energy audit for these deserving ski areas,” says HKD Snowmakers President Charles Santry.

Meanwhile, Brendle Group principal and founder Judy Dorsey adds: “We look forward to working with Burke Mountain and Telluride to help extend cost savings from the new HKD snowmaking equipment to other identified energy efficiency and peak load management opportunities.”

Past winners of the Sustainable Slopes grants included Alta, Utah, Arapahoe Basin, Colo., Beaver Valley Ski Club, Ontario, Copper Mountain, Colo., Crested Butte, Colo., Grand Targhee, Wyo., Mt. Abram, Maine, Mt. Hood Meadows, Oregon, Oak Mountain, New York, Stevens Pass, Wash., Stratton, Vermont, and Vermont’s Sugarbush Resort.

Each of the winning programs will be highlighted in the August/September issue of the *NSAA Journal*. For more information on NSAA’s Sustainable Slopes Grant program or to learn more about environmental initiatives and projects visit the Environment section of nsaa.org.

The National Ski Areas Association, located in Lakewood, Colo., is a trade association formed in 1962 for ski area owners and operators nationwide

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2012 SUSTAINABLE SLOPES GRANT APPLICATION

Application deadline: 5:00 p.m. PST April 2, 2012

Please send your application to Emily Torres with NSAA, etorres@nsaa.org

Contact Information:

Name of ski area:

Name & Title of person submitting application:

Mailing Address:

Email Address:

Telephone:

Identify which of the 21 Principles of Sustainable Slopes is the subject matter of your initiative?

<input type="checkbox"/> Planning, Design, and Construction	<input type="checkbox"/> Product Re-use
<input type="checkbox"/> Water Use for Snowmaking	<input type="checkbox"/> Recycling
<input type="checkbox"/> Water Use in Facilities	<input type="checkbox"/> Potentially Hazardous Wastes
<input type="checkbox"/> Water Use for Landscaping and Summer Activities	<input type="checkbox"/> Fish and Wildlife Management
<input type="checkbox"/> Water Quality Management	<input type="checkbox"/> Wetlands and Riparian Areas
<input type="checkbox"/> Wastewater Management	<input type="checkbox"/> Forest and Vegetative Management
<input type="checkbox"/> Energy Use for Facilities	<input type="checkbox"/> Air Quality
<input type="checkbox"/> Energy Use for Snowmaking	<input type="checkbox"/> Visual Quality
<input type="checkbox"/> Energy Use for Lifts	<input type="checkbox"/> Transportation
<input type="checkbox"/> Energy Use for Vehicle Fleets	<input type="checkbox"/> Education and Outreach
<input type="checkbox"/> Waste Reduction	

Please note that while multiple applications (up to 3) may be submitted, only one application per Principle is permitted. Only one grant will be awarded per resort.

Size of Ski Area

(Place an X in the box adjacent to the appropriate size description)

of Annual Skier/Boarder Visits
<input type="checkbox"/> 500,000+
<input type="checkbox"/> 250,000 – 499,999
<input type="checkbox"/> 100,000 – 249,999
<input type="checkbox"/> less than 100,000



Snowmaking and Sustainability Consulting Services Grants

1. Are you applying for an HKD Turbo/ Brendle Group in-kind grant for Low-Energy snowmaking equipment combined with an on-site energy audit? If **yes**, please answer questions a. through h. below. If **no**, please proceed to Question 2.

a. Has your resort conducted a comprehensive energy audit?

<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
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b. What energy conservation measures have already been taken by your resort?

c. Describe your resort's need for Low-Energy snowmaking equipment, including the length and width of the trail and the required annual man made snow depth for the trail on which this in-kind grant will be used. Describe your current snowmaking system (water capacity, air capacity and equipment in use).

d. Has your resort made an investment in the last 5 years in Low-Energy snowmaking equipment? Would you be investing in more efficient snowmaking equipment if this grant is not awarded? Explain.

e. Does your resort have the resources necessary to install this equipment?

<input type="checkbox"/>	Yes	<input type="checkbox"/>	No
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f. Does your resort have the resources necessary to cover the travel costs for one Brendle Group engineer to visit your resort for a customized on-site energy audit? (Assistance may be provided by NSAA based on need.)

Yes No

g. Please estimate your resort's operational savings should you be awarded this grant. You are encouraged to analyze your current energy use and to utilize and document your own calculations to determine your savings. Operating savings should be calculated by comparing your current snowmaking cost to cover the terrain under consideration with the cost to do the same job using the HKD Low – Energy technology. You may wish to visit the HKD Turbo website and use their energy calculator found at http://www.hkdsnowmakers.com/hkd_energy_analysis.asp. This calculator asks for some basic assumptions about your system, terrain to be covered and energy costs. It then uses this information to estimate energy savings realized by using HKD SV10 towers. There are some fixed assumptions relating to temperatures and the performance of your existing equipment that may not be accurate for your resort. We encourage you to run your own calculations and document your energy costs and other

costs that affect your payback.

h. What is your level of interest in receiving a utility analysis and customized, on-site energy audit from a Brendle Group engineer (please include comment on your current energy management practices)?

-What are your particular areas of interest for the audit/assessment? How do you

envision linking the operational savings from the HKD snowmaking grant to your broader energy program or goals?



-Is your resort able to cover the travel expenses for a Brendle Group engineer to conduct

an on-site audit?

Cash Grants

2. Summary: In 300 words or less, please summarize the environmental project, activity or program for which you seek cash funding and its objectives.

Please note that summaries of more than 300 words will not be accepted.

Application of Funds: How would the grant funding be applied to the initiative (please identify the amount of grant money that you are seeking and the total cost of your project)?

Selection Criteria: Please reply to the following questions, limiting yourself to 50 words or less per reply.

Does your initiative:

- Demonstrate innovation in improving sustainability?

- Raise environmental awareness?



- Promote concrete environmental actions?

- Have a high likelihood of success (and the necessary expertise and experience to achieve stated goals)?

- Have the ability to be replicated by others in the ski industry?

- Involve other partners, sponsors or underwriters?

- Rely on this grant money for implementation?

Accomplishments: What are the expected results of the initiative?

Measuring Success: Please quantify the program's expected results using either a percentage or absolute value (e.g. 20% reduction in energy consumption or 500 tons of CO2 saved) or both if possible.

Climate Challenge: Is the resort participating in the Climate Challenge or planning to participate? If yes, will this project help meet, present or future goals for the Climate Challenge?



APPENDIX A: 2012 SAMPLE GRANT APPLICATION AND WINNERS

References: List the name, email address and phone number of at least three references familiar with your initiative.

Name	Email Address	Phone Number

A special thanks to our sponsors, LeitWind, CLIF Bar, HKD Turbo, NRDC and Brendle Group!
Application deadline: 5:00 p.m. PST April 2, 2012



APPENDIX B: 2012 GOLDEN EAGLE AWARD WINNERS

Ski Area Eco-Efforts Hailed with Annual Golden Eagle Awards

Aspen Skiing Co., Mt. Abram, and Stevens Pass Capture Top Ski Industry Honors.

LAKWOOD, COLO. – May 7, 2012 – Today the National Ski Areas Association (NSAA) honored three ski areas – including Colorado’s Aspen Skiing Co., Maine’s Mt. Abram, and Washington’s Stevens Pass – with the 2012 Golden Eagle Awards for Environmental Excellence. The Golden Eagle Awards are the ski industry’s most prestigious award for recognizing resort environmental programs and projects.

In its winning effort for ski areas with up to 200,000 skier/snowboarder visits per year, Mt. Abram presented its winning combination of on-site renewable energy generation, energy-efficient systems, carbon-neutral fuel sources, and smart transportation practices. When the ski area’s base lodge burned down in 2011, the resort invested more than \$66,000 dollars in a wood pellet heating system that has reduced its CO2 output by 166 tons of greenhouse gas (GHG) annually.

Meanwhile, Stevens Pass took the top environmental honors in the medium-sized ski area category (200,000 to 500,000 skier/snowboarder visits) for its energy conservation and GHG reduction efforts. For five years Stevens Pass has offset a full 100 percent of its electricity and propane consumption through renewable energy credits and carbon offsets. To date, the ski area has funded 21,289,000 kilowatt hour (kWh) of windpower, which has prevented the emission of 16,182 tons of CO2, and is equivalent to taking 2,878 cars off the road for a year. Finally, Aspen Skiing Co.’s (ASC) was selected as this year’s Golden Eagle Award winner in the large resort category (more 500,000 skier/snowboarder visits annually) for its Coal Mine Methane to Electricity Project that captures waste methane to generate three megawatts of power using piston engines, roughly the equivalent of the company’s annual energy consumption. Each of the winning programs will be highlighted in the August/September issue of the *NSAA Journal*. Judges for this year’s awards include: Tiffany Beal, International Mountain Bicycling Association; Judy Dorsey, Brendle Group; Elysa Hammond, CLIF Bar & Company; Geraldine Link, NSAA; Loren Kroenke, USDA – Forest Service; Greg Owsley, New Belgium Brewing Company; and Kirk Mills, Colorado Department of Public Health & Environment (CDPHE).

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THE NATIONAL SKI AREAS ASSOCIATION, LOCATED IN LAKEWOOD, COLO., IS A TRADE ASSOCIATION FORMED IN 1962 FOR SKI AREA OWNERS AND OPERATORS NATIONWIDE.