

Sustainable Slopes Annual Report 2004

Prepared by

NATIONAL
SKI AREAS
ASSOCIATION



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The NSAA wishes to thank the following resorts for their time and dedication in completing the self-assessment process:

Alta Ski Area	Mount Snow
Arizona Snowbowl	Mountain High Resort
Aspen Highlands	Mt. Ashland Ski and Snowboard Resort
Aspen Mountain	Mt. Bachelor, Inc.
Attitash Bear Peak	Mt. Hood Meadows Ski Resort
Beaver Creek Resort	Mt. Rose - Ski Tahoe
Bellaeyre Mountain	Northstar-at-Tahoe
Big Mountain Ski & Summer Resort	Pats Peak
Blue Mountain Resorts	Powderhorn Resort
Bogus Basin Ski Resort	Sierra-at-Tahoe Ski Resort
Breckenridge Ski Resort	Ski Anthony Lakes
Bretton Woods Mountain Resort	Smugglers' Notch Resort
Bridger Bowl Ski Area	Snowbasin
Bromley Mountain Resort	Snowbird Ski & Summer Resort
Buttermilk Mountain	Snowmass Ski Area
The Canyons Resort	Snowshoe Mountain Inc.
Crested Butte Mountain Resort	Squaw Valley USA
Crystal Mountain	Steamboat Ski & Resort Corp.
Crystal Mountain, Inc.	Stevens Pass
Deer Valley Resort Company	Stowe Mountain Resort
Durango Mountain Resort	Sugar Bowl Ski Resort
Gore Mountain	Sugarbush Resort
Grand Targhee Ski & Summer Resort	Sunburst Ski Area
Greek Peak Ski Resort	Taos Ski Valley, Inc.
Hunter Mountain	Tremblant Resort
Jackson Hole Mountain Resort	Wachusett Mountain Ski Area
Keystone Resort	Waterville Valley Resort
Kirkwood Mountain Resort	Whistler & Blackcomb Mountains
Mammoth Mountain Ski Area	Whiteface Mountain Ski Center
Massanutten Ski Resort	Winter Park Resort
Mission Ridge	
Montana Snowbowl	

2004 HIGHLIGHTS

The National Ski Areas Association (NSAA) is pleased to present this fourth *Annual Report* on the Sustainable Slopes Environmental Charter for Ski Areas. The Environmental Charter, commonly known as Sustainable Slopes, was adopted in June 2000 as a collection of environmental best practices for ski area owners and operators (visit www.nsaa.org for information on the Environmental Charter). The purposes of this *Annual Report* are to provide information on resorts' progress in implementing the Environmental Principles of the Charter, highlight the contributions of our partners, and set goals for the future.

To date, 175 resorts have endorsed the Environmental Charter, representing over 72 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 starting points with respect to their environmental programs and implementation of the Environmental Principles. The challenge of this *Annual Report* is to collectively report on resorts' progress to date despite these differences.

NSAA is fortunate to have a committed group of Partnering Organizations—those organizations that support the Environmental Principles and are committed to working with resorts in the future—on board with the Charter. Our Partnering Organizations work with individual resorts and NSAA to help implement the Principles of the Charter. The Partnering Organizations are also helpful in gathering environmental data on resorts, educating resorts on environmental practices and opportunities, and supporting our Sustainable Slopes outreach campaign. This year we added two Partnering Organizations—the Bonneville Environmental Foundation and the Wildlife Habitat Council. More detailed information on the contributions of the Partnering Organizations is presented in Chapter 3.

Consistent with last season, NSAA used an environmental "Assessment Tool" aimed at gathering data from resorts relating to the Principles of the Environmental Charter. This year's tool was a dramatic departure from years past in that it focused on quantitative, rather than qualitative, data collection. For a sample copy of the 2004 Assessment Tool, visit www.nsaa.org and click on "The Environment." The Assessment Tool results are the factual basis for this Annual Report. A total of 62 resorts completed it this year. Over the past four years, the Assessment Tool has helped us identify general industry trends and collective results regarding our progress under the Principles. Additionally, the tool is useful to resorts on an individual basis in helping them identify successes and opportunities for improvement, setting priorities for the future, and in benchmarking their progress against other resorts.



2004 Highlights

A number of resorts participated in this year's Sustainable Slopes Outreach Campaign on February 21st to highlight the Charter and to educate guests and the public on their role in helping us make sustainable use of natural resources. Similar to our 2003 campaign, this year's campaign theme was "Keep Winter Cool," highlighting the issue of global warming. Through the campaign, resorts raised public awareness of the potential impacts of climate change on the winter recreation experience as well as solutions for addressing it. *SKI Magazine* ran an ad with the Keep Winter Cool message in its February 2004 issue to raise the visibility of the campaign. Our partners in Keep Winter Cool, the Natural Resources Defense Council (NRDC), developed an exciting new line of outreach materials (post cards, banners, posters, stickers, fridge magnets, bumper stickers) that were well received by resort guests and helped boost the energy of the campaign. We launched a new Keep Winter Cool website (www.keepwintercool.org) with NRDC in February that highlights the problem of global warming and provides information on solutions for addressing it. We highlighted our new partnership with Bonneville Environmental Foundation (BEF) and their Green Tags program (see Chapter 3 for more details) in February as well. As a result of all of these developments, the Keep Winter Cool campaign received a great deal of press attention this year. *CNN Headline News* provided significant coverage through its *Down to Earth* segment. The printed media covered the campaign extensively as well.

This year resorts also addressed other environmental issues through their outreach campaigns and encouraged guests to follow the Environmental Code of the Slopes (See Environmental Code of the Slopes in Appendix B). Given the high level of interest in this year's outreach campaign, NSAA already has scheduled next year's Sustainable Slopes Outreach Day for February 26, 2005.

As a result of the joint efforts of NRDC and NSAA, seventy (70) resorts in 20 states have endorsed the McCain/Lieberman Climate Stewardship Act (S. 139) and the companion bill introduced in the House this spring (H.R. 4067). The bill would place caps on emissions of global warming pollutants for certain industries and is backed by a market-based trading system that minimizes costs and rewards companies for technological innovation. The support letter emphasizes the challenges that global warming presents for the ski industry, and expresses the industry's support for this bi-partisan solution to the problem of global warming. For further information on this support letter, visit www.keepwintercool.org or the Sustainable Slopes section of NSAA's website at www.nsaa.org.

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. Since the program's inception, more than 50,000 uniforms and winter garments have been shipped to communities in need



in Nepal, Kosovo, Tajikistan, Mongolia, Afghanistan, Sweden, Tibet, Hungary, Tanzania, Poland, Romania, Peru, Iran, Iraq, and Albania.

NSAA is committed to raising awareness of environmental issues through this *Annual Report*, the Sustainable Slopes Outreach Campaign, and any other effective methods of informing the public about ski areas and the environment. For example, NSAA continues to highlight ski area environmental programs through the web-based “Green Room.” To access the Green Room, visit www.nsaa.org and click on “The Environment.” The Green Room is available to the media and public for information on innovative actions that resorts are taking under the 21 Environmental Principles--from water quality to wildlife habitat to energy conservation. Resort contact information is provided for each project or program, as well as links to resort websites and environmental web pages. Resorts are using the database as a resource in environmental decision-making and to share ideas on tested programs or projects that will enhance environmental performance. The Green Room also identifies those resorts that have received national environmental excellence awards from Time4 Media’s Mountain Sports Media, publishers of *SKI*, *SKIING* and other publications. Finally, the Sustainable Slopes program will be featured on Resort Sports Network’s (RSN) Winter People series next season.

“We are succeeding in taking collective steps toward proactive environmental stewardship.”

We have learned a great deal since the adoption of the Environmental Charter four years ago. The Assessment Tool results continue to demonstrate that we are succeeding in taking collective steps toward proactive environmental stewardship. We have many environmental success stories from resorts across the country, and we also have challenges and opportunities for improvement in the future. What remains clear is that we can never underestimate the value of the natural surroundings that ski areas call home. The environment will always be a ski area’s number one asset. As an industry, we will continue to make the Sustainable Slopes program one of our top priorities.

On behalf of ski areas across the country, NSAA would like to thank all of the individuals, organizations, and agencies outside the industry that have supported Sustainable Slopes with resources, expertise, and input. Together we can be proud of the accomplishments made over the past four years. Your participation encourages us to strive to raise the bar and apply the vision we will need to meet the challenges of the future.

Michael Berry

National Ski Areas Association President
July 2004



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**1.0 THE 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, 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.

1.2 OVERVIEW OF ENVIRONMENTAL PRINCIPLES 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. Although not specifically reported in this year's Assessment Tool, the Principles remain key to the Environmental Charter. The Principles 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

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

**To see the
Charter and its
Principles in
their entirety,
visit the NSAA
web site at
www.nsaa.org.**



1.3 Partnering Organizations

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. A complete listing of the "Options for Getting There" for each of the 21 Principles is 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. Good environmental practices are good business, and quite simply are expected by resort customers, the Partnering Organizations in the Charter, and other key stakeholders.

1.3 PARTNERING ORGANIZATIONS

The Environmental Charter was developed through a collaborative process where input and awareness, not necessarily consensus on every issue or by every group, were the goals. This process was facilitated by the Keystone Center, an independent non-profit public policy and education organization. Input came from a variety of interests, including federal, state, and local government agencies; environmental and conservation groups; other outdoor recreation groups; and academia. The 14 Partnering Organizations listed below support the ski industry's Environmental Principles and are committed to working with the industry to implement the Principles.

- Bonneville Environmental Foundation (BEF)
- Colorado Department of Public Health & Environment (CDPHE)
- Conservation Law Foundation (CLF)
- U.S. Department of Energy (DOE)
- U.S. Environmental Protection Agency (EPA)
- USDA Forest Service (USFS)
- Leave No Trace Inc. (LNT)



- The Mountain Institute (TMI)
- National Fish & Wildlife Foundation (NFWF)
- National Park Service Concession Program (NPS)
- New York State Department of Environmental Conservation (NYSDEC)
- Teton County, Wyoming (TC)
- Trust for Public Land (TPL)
- Wildlife Habitat Council (WHC)

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, 175 ski areas have endorsed the Charter and are committed to implementing its Principles. (See Appendix A for a complete list of endorsing resorts.) Of the endorsing ski areas, 62 (35.4 percent) participated in the data collection exercise that is the basis for this *Annual Report*. This is 17 resorts fewer than the 79 resorts that participated in last year's annual reporting. While fewer resorts completed this year's Assessment Tool, the resorts that did report appeared to complete the data requested more thoroughly than in previous years.

1.5 MEASURING PROGRESS TOWARD THE PRINCIPLES

NSAA updated and streamlined the Assessment Tool used this year to help resorts measure their progress under the Environmental Charter. NSAA also expanded the Assessment Tools Instructions to include examples of completed forms and sample savings calculations from individual projects. The endorsing resorts received this Assessment Tool in March of 2004. Once again, each resort had the option of completing the Assessment Tool on-line at the NSAA web site or submitting a hard copy by fax or mail. As in the past, the results were aggregated across all participating ski resorts and analyzed according to geographic regions.

In its fourth year, the Assessment Tool continues to be a living tool. The 2004 tool was refined based upon the results from previous years' reports and feedback from resorts and Partnering Organizations. We continue to incorporate feedback into the tool so that it improves with each successive year (see Chapter 4). One of the significant changes to this year's Assessment Tool was that resorts were no longer required to report qualitatively on the 177 best management practices across the 21 Principles of the Charter (formerly Forms 1-21 of the Assessment Tool). This change reduced the number of questions resorts had to answer by over 200. However, because resorts have relayed that this portion of the Assessment Tool is a valuable method for internal benchmarking, we will continue to make it available on the NSAA web-site. Data from these forms were not compiled and analyzed as part of the *Annual Report*.



1.6 "Keep Winter Cool" Campaign

The quantitative measurements of this year's Environmental Indicators Form (Form 1, formerly Form 22 of the Assessment Tool) focused on *savings or reductions* from individual projects. Resorts did not have to report *total* utility use (energy and water) and waste generation data as they did last year. Instead, reporting was specific to topics of water savings (consumptive/non-consumptive), electric energy savings, renewable generation and purchases, waste recycling and reduction, and transportation demand reduction. Based on their responses in these categories, resorts were given feedback on the climate change impacts of their efforts. Our overall goal continues to be tracking all of these issues as environmental indicators. These responses allow us to quantify some basic metrics associated with core Environmental Principles. We asked that resorts provide numbers that reflect the use of certain resources in their individual operations. The intent of these numbers remains the same—to allow better year-to-year comparisons. Similar to past years, many resorts reported that certain numbers on Form 1 are difficult for them to provide. As a result, many "o" figures again appear in this year's data.

1.6 "KEEP WINTER COOL" CAMPAIGN

In 2003, together with the Natural Resources Defense Council (NRDC), NSAA introduced a new global warming campaign entitled "Keep Winter Cool." This new campaign highlights the effects of global warming on winter recreation, as well as the opportunities both resort operators and their guests have to start solving the problem. Many of the measures implemented by resorts as part of the Environmental Charter are directly beneficial toward reducing global warming, particularly in the areas of managing energy, reducing transportation demands, reducing solid waste, and recycling. Appendix C contains materials related to the campaign.

In order to integrate the results of the Assessment Tool with this new campaign, resorts were asked to provide information to estimate climate change impacts along with the other estimated industry-wide environmental indicators. Data reported for climate change impacts focused on electric energy savings, renewable generation/purchases, waste reduction/recycling, and transportation demand reduction. For example, resorts were asked to indicate the breakdown of vehicle types (e.g., gas, diesel, hybrid electric, etc.) involved in their various transportation demand reduction strategies. The Assessment Tool then used this information to automatically convert the miles reduced into pounds of equivalent carbon dioxide (CO₂), a unit used to measure climate change impacts. As with the other environmental indicators previously discussed, some resorts reported that factors related to climate change impacts on Form 1 are difficult for them to provide.



2.0 CHARTER PROGRESS AND CHALLENGES

...the quality of responses continues to improve...

A total of 62 resorts from 19 U.S. states and 3 Canadian Provinces completed the Assessment Tool in 2004 and have reported on their progress toward achieving the goals of the Charter. Of course, one of our continuing goals is to increase participation from endorsing resorts so that we can develop more representative data for the industry as a whole. It is interesting to note that even though the number of responding resorts dropped this year, the quality of the responses (including summary paragraphs, Green Room entries and Environmental Indicators) continues to improve, providing us with more useful data to analyze and share.

2.1 SUMMARIES OF RESORT PROGRESS

Alta Ski Area Utah

Alta Ski Area is dedicated to sustainable environmental practices, and this year the resort published Alta's Environmental Report. The resort compiled this report to record some of the environmental history of Alta and to challenge itself to keep improving. The resort is distributing this report widely to explain its environmental agenda, increase awareness, and continue to educate employees and the public about the value of the resort's environmental efforts. The full report is available at www.alta.com.

Some of the resort's recent efforts are described below.

- Installed waterless urinals in Alf's Restaurant that guarantee significant water savings by limiting water use
- Continued replacing two-stroke snowmobiles with four-stroke engines
- Converted to aqueous cleaning in the vehicle maintenance shop
- Installed two trailhead toilets where none existed as a co-op project with the USFS and the town of Alta
- Installed automatic lighting control systems in restaurants and employee housing to reduce energy use
- Replacing (through attrition) incandescent bulbs with compact fluorescent bulbs
- Planted 1,000 trees and 125 native shrubs as part of an ongoing vegetation plan



2.1 Summaries of Resort Progress

Future goals include remodeling the Collins Gulch Ski Facilities guided by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) guidelines and the Energy Star Program.

Arizona Snowbowl Arizona

The resort had another below average snowfall this year, with a season of only 72 days. Therefore, we are not able to do as much as we would like toward conserving natural resources. However, the resort has a pending Environmental Impact Statement with the USFS to study the buildout of the ski area, including snowmaking. The results of this study will change our ability to become a better steward of the environment.

Aspen Skiing Company (Aspen Highlands, Aspen Mountain, Buttermilk Mountain, and Snowmass) Colorado

Aspen Skiing Company's (ASC's) 7-year-old environmental initiative holistically addresses environmental issues at its resorts, including energy, buildings, water, wildlife, solid waste, and education. The initiative is proving to be durable and broad reaching. ASC's comprehensive approach is best illustrated in the last year by greening the entire 180-acre Snowmass Club (described below), a complex that includes a tennis structure, golf course, stream, luxury condos, hotel, and clubhouse. This greening effort is saving hundreds of thousands of gallons of water and tens of thousands of kilowatt-hours of electricity while radically reducing sediment loads into Brush Creek. In addition, ASC's green building policy influenced the construction of the Highlands patrol headquarters at 11,000 feet, which was made with recycled and salvaged materials, uses passive solar energy, and is super insulated.

The new Snowmass golf clubhouse, part of the green village described above, is one of the greenest commercial buildings in the state, beating local energy codes by 63 percent based on third-party computer models (contact Houghton@reginc.org for verification). ASC has submitted the building for LEED Gold certification through the same program used at the Sundeck (for information on LEED, see www.usgbc.org). The Sundeck is one of only four LEED buildings in Colorado. The Snowmass golf clubhouse achieves its high energy efficiency rating by using relative warmth or "coolth" from a nearby pond to heat and cool the building (same system as the Sanctuary). In addition, the building features the following:

- A roof with an insulation rating of 55.5
- Certified sustainably harvested wood in both building structure and cabinets
- Recycled and recyclable carpet
- One hundred percent wind power
- Radon control



- Low volatile organic compounds (VOC) paints and sealants
- Super-efficient showerheads
- Toilets with a low- and high-volume flush option (enabling the building to beat water efficiency codes by 30 percent)

ASC also has taken a leadership position regarding climate change and the McCain Lieberman Climate Act. The company initiated the industry's first climate policy and emissions reduction targets, produces a Sustainability Report (fourth edition) available at <http://www.aspensnowmass.com/environment>, maintains a green website that has been up and running since 1997, and enjoys widespread publication of environmental work in journals such as the *Harvard Business Review* and the *Journal of Industrial Ecology*. ASC is now publicly offering its expertise in green ski resort operations through a new consulting practice, Aspen Sustainability Associates. In sum, ASC's environmental efforts have changed how it operates as a business.

Beaver Creek Resort Colorado

Beaver Creek takes great pride in its role as an environmental steward. As a leader in the ski industry, the resort recognizes its responsibility to promote sustainability and continue to search for innovative ways to reach its environmental goals.

The resort's efforts over the past several years have helped raise environmental awareness both at the resort and in the community. Beaver Creek has designed and implemented programs to better educate its employees, community members, and guests. Employees who show noteworthy environmental initiative are rewarded through the Green Soldier program. In addition, extensive recycling efforts help divert waste from the landfills. In fact, in the past year, the resort significantly increased recycling participation in its offices and the village. This winter, Spruce Saddle Lodge at Beaver Creek became the first ski resort restaurant in North America to be named a Certified Green Restaurant by the Green Restaurant Association. In 2003, the Audubon Society named Beaver Creek Golf Course a Certified Audubon Cooperative Sanctuary. The resort also has reduced the number of snowmobiles used in operations and plans to increase four-stroke snowmobiles from 40 percent to 50 percent of the fleet. In the past year, Beaver Creek has made big strides in increasing the efficiency of water and energy use. As a result, the resort was runner-up for the Mountain Sports Media 2004 Silver Eagle Award for Water Conservation.

Belleayre Mountain New York

Belleayre employs an electrical monitoring system that has been quite successful. The system includes a small monitor that keeps staff members up to date on electrical use, and during peak hours the resort is able to conserve use without going over demand. In the past year, the resort has



2.1 Summaries of Resort Progress

replaced the heating system in one of its maintenance shops. The system has not been operating long enough to determine how much energy it will save as it was only installed this past January. However, the new system seems to operate less than the old one.

During peak hours, the resort uses an 800-kilowatt generator to operate snowmaking transfer pumps. Belleayre tries to do most of its snowmaking during off-peak times. However, when it is fall snowmaking season, the resort must pump during peak hours, so it uses the generator to operate the pumps.

Big Mountain Resort Montana

Energy-efficient snowmaking machines gravity fed from snowmaking ponds high on the mountain eliminate the need to pump water, creating energy savings. These same ponds, because of their location in open areas, have been a source of water for helicopter buckets assisting in summer fire fighting in the area for the last 3 years. Energy savings in the first 4 months of 2004 as compared to the same time in 2003 were 502,739 kilowatt-hours resort-wide. The majority of the savings can be attributed to more efficient snowmaking operations. By closely monitoring skier numbers, the resort decreased the use of Chairs 4 and 5 in off-peak times, generating additional energy savings.

Big Mountain's long-standing practice of furnishing an employee bus for transportation to the ski village has been expanded to include a free scheduled bus service of 10 to 21 trips daily for any and all riders. Ridership numbered 39,088 in the 2003/2004 ski season for a conservative estimate of 260,586 vehicle miles averted. The support and cooperation of area businesses were instrumental in providing funds for the transportation services.

Goals for 2004 and beyond include using better methodology to improve the quality of water runoff from slopes, parking areas, and subdivisions.

Blue Mountain Resort Ontario, Canada

Environmental emphasis during the 2003-04 year at Blue Mountain Resort has revolved around waste management and initiatives to reduce transportation demands.

The rationale behind developing a waste management program was to reduce and, where possible, eliminate waste through rethinking, recycling, and re-use initiatives. The resort has made great efforts to improve the infrastructure available for staff and guests to recycle, as well as adding and improving signage. In fact, Blue Mountain achieved its goal of diverting 25 percent of its waste this year. Projects that have contributed immensely to the success of the program include an industrial composting program and Sort @ Source, the hotel room recycling program in the village. This coming summer, Blue Mountain will be getting a new outdoor recycling look by adding outdoor multi-sort recycling bins. The resort chose units that were constructed from recycled



milk jugs to help complete the recycling circle and to create markets that will keep recycling programs working.

In addition, Blue Mountain's new staff carpooling incentive program helped to reduce transportation and parking demands. It also gave the green team an opportunity to educate staff members on the environmental benefits of carpooling. Other highlights included improving the efficiency of resort shuttle service by establishing a pre-determined route and by replacing the yellow school bus with a tractor-drawn trolley for transporting skiers between south base and the village. All of these initiatives helped to support the resort's Keep Winter Cool campaign last February.

Some of the resort's goals and projects for the upcoming year include the following:

- Continuing to improve and refine the waste management program
- Drafting a purchasing policy that incorporates environmental priorities
- Exploring energy efficiency opportunities
- Implementing an anti-vehicle idling campaign
- Emphasizing the resort's environmental philosophy and waste management programs in employee training and job expectations

Bogus Basin Mountain Resort Idaho

Bogus Basin Mountain Resort helped to develop a display about environmental awareness and the Clean Water Act, and was highlighted in a week-long display in the Idaho state capital rotunda. The resort was chosen because of its excellence in pollution controls and responses to environmental problems.

The resort also conducted a 3-hour session for the Idaho Environmental Educators' annual conference about the Sustainable Slopes program and the industry's efforts to promote and educate the skiing public.

Bretton Woods Mountain Resort New Hampshire

In 2003, the New Hampshire Governor's Travel Council recognized Bretton Woods Mountain Resort for its ecological practices and programs. The resort's continued commitment to proper stewardship of the environment through independent programs and observance of the Principles established by the NSAA's Sustainable Slopes Environmental Charter has stimulated environmentally conscious practices as part of the resort's operations, including educating and involving guests and employees.



2.1 Summaries of Resort Progress

On November 21, 2003, the Bretton Woods Base Lodge Expansion was completed. Throughout this project, the resort placed a strong emphasis on installing energy-efficient mechanical systems, using long-lasting materials, and re-using as much of the existing structure as practical. The overall impact of this project is incredible. Although the building is 37 percent larger than it was before, it maintains its cozy atmosphere, fits comfortably in the surrounding environment, and is a much more efficient building to operate.

“Bretton Woods Recycles” has continued to see positive growth due to the enthusiastic commitment of both resort guests and employees. Overall, the resort saw a 29 percent increase in volume recycled over last year. In just 3 short years, this program has diverted nearly 49 percent of resort waste from the local landfill.

During this summer, the resort will continue to develop a new 5-acre spring-fed lake at the base of Bretton Woods. In addition to serving as a water source for snowmaking, the lake will be designed primarily as a wildlife habitat and summer recreation site. Lake Carolyn will offer open water, marsh areas, emergent wetlands, riparian buffers for natural filtration, and gravel bars for trout-spawning habitat.

Conscientious forestry and vegetative practices are paramount at Bretton Woods. The careful siting and trail design of new terrain from the summit of Mount Rosebrook and elsewhere ensures abundant wildlife habitat and food sources. Instead of clear-cutting all trails, many of the resort’s glades are simply the result of removing weak and dead trees, leaving a healthy stand that offers challenge and diversity to skiers and riders.

Bridger Bowl Ski Area Montana

The resort continues to work toward implementing its environmental goals. For example, the resort implemented a cardboard compactor as well as water-based solvent in the maintenance shop. Also, the new base lodge now has energy-efficient fixtures.

Bromley Mountain Resort Vermont

Throughout 2003, the resort maintained its existing water-saving equipment in good operating order, thereby saving nearly 2 million gallons per year.

In addition, the resort’s electrical loads management system became operational in time for the 2003-2004 ski season. While primarily designed as a demand management system, the resort reduced actual energy use by 5 percent.

This coming year will bring increased emphasis on reducing waste and recycling.



The Canyons Resort Utah

The Canyons Resort made progress this year by raising the environmental awareness of guests and employees and continuing to implement environmental projects. In an effort to raise environmental awareness, the resort hosted its first Sustainable Slopes Day. The day's activities were broad-based and informative, providing the perfect forum for education. In addition, the resort adopted its own Leave No Trace principles for the 2003 summer Trail Map.

Perhaps the main environmental focus at The Canyons Resort has been cleaner energy and energy efficiency. By purchasing 282 blocks of Blue Sky Energy, the resort has saved an estimated 338,400 kilowatt-hours per year.

For the 2003-2004 season, the resort continues its public/private partnership with Summit County and Park City to provide mass transportation services to The Canyons and Kimball Junction. This transit system is estimated to have saved 135,000 vehicle trips on Highway 224 last season. The resort's transportation program also included adding a bus shelter at the resort that was powered by solar energy, thus saving an estimated 263 kilowatt-hours per year. Lastly, the resort recycled the remaining structural steel from The World's Largest Tipi, saving approximately 40 tons of scrap steel from disposal in a landfill.

Crystal Mountain, Inc. Washington

Crystal Mountain started an environmental learning program in its ski school for the Kids Club this winter. The resort developed a ski trail in the woods that young students are able to enjoy and that tests their abilities. Along the trail are strategically placed environmental messages that the kids can remember and take with them. In the future, Crystal Mountain hopes to expand this program. In addition, this past winter the resort test drove bio-diesel for the snowcat fleet.

Deer Valley Resort Company Utah

One of Deer Valley's biggest accomplishments this past year was implementing the Blue Sky Program in conjunction with Utah Power. Following is a quote from Resort President and General Manager, Bob Wheaton:

"Obviously, by virtue of the fact that we are a ski resort in the mountains with multiple buildings, we affect the local environment, but we take our responsibility as stewards of the land very seriously. Aside from efforts we already make, such as revegetation, reseeding, implementing a comprehensive Forest Service management plan, monitoring and testing downstream water discharge, preserving open space within new resort developments, and a substantial recycling effort, we've learned about Utah Power's Blue Sky program and embrace the concept wholeheartedly."



2.1 Summaries of Resort Progress

In addition to implementing the Blue Sky Program, the resort continues to enhance its snowmaking reservoirs. The largest of these reservoirs holds 15 million gallons of water. This pond also has created a wetland habitat for fish and wildlife.

Durango Mountain Resort Colorado

Durango Mountain Resort (DMR) has made great strides in environmental conservation efforts over the past year, upgrading and streamlining programs under the direction of the Environmental Practices Committee.

For example, the resort realized a significant greenhouse gas benefit by largely reducing solid waste and transportation demands. Also, through employee education, more efficient processes, and resort-wide recycling efforts, DMR reduced the volume of trash sent to the landfill by a massive 25 percent. Correspondingly, the amount of cardboard, aluminum, glass, and metal recycled increased by 25 percent. Also, DMR provides recycling containers for all of north La Plata County to use.

With streamlined bus service and a new employee carpool program, DMR reduced vehicle miles traveled by nearly 330,000 last season. Under the carpool program, \$10 gas vouchers were awarded to drivers with 3 or more people per vehicle. In total, DMR awarded more than 1,400 vouchers, reducing round trips to the resort by nearly 3,000.

In addition, DMR has begun a pilot bio-diesel program for its vehicles and machinery. The resort snowmobile fleet also is being phased into four-stroke machines. Both programs will further reduce fossil fuel use and corresponding greenhouse gases over the next year.

In other conservation efforts, DMR's state-of-the-art \$2 million air quality monitoring system to ensure minimal visual and particulate impact is up and running, and initial reports have come back with exceptional results. In addition, the resort has initiated an agreement with the Animas Conservancy under which resort open space will be donated to the group for preservation.

Gore Mountain New York

The resort added several new tower mount snow guns to reduce energy use and grooming hours. Also, for this year, the resort intends to substantially increase its inventory of new tower guns and to recondition older guns with new nozzles to further reduce snowmaking energy consumption.

Grand Targhee Resort Wyoming

This year Grand Targhee Resort employees awarded their first Environmental Foundation Grants to four local environmental organizations. The resort purchased two recycling trailers and increased its commitment to recycling. As a result, 33 percent of resort garbage flow



is now recycled. Also, Grand Targhee supports the Whitebark Pine Ecosystem Foundation and worked with the foundation and the USFS to identify and collect cones from Whitebark Pines that show resistance to blister rust.

In addition, the resort purchased a new employee bus that has doubled free employee shuttle ridership. Also, the resort is still trying to develop a workable carpooling incentive to reduce private car use. This year, Grand Targhee developed and implemented a Naturalist program to educate Snow Sports School instructors so they can pass on this increased knowledge of the environment to their students. The Winter Ecology snowshoe hikes, led by the Resort Naturalist in partnership with the USFS, continue to increase in popularity. These hikes were given free to 150 local school children and over 500 visitors to the resort. Research continues with the 4-H Wolverine project. To date, nine wolverines have been electronically tagged and monitored at the edges of the ski area. And finally, Keep Winter Cool displays are present throughout the resort.

Greek Peak Mountain Resort

New York

During the past year, Greek Peak Mountain Resort has practiced sustainability in a variety of ways. Principles the resort implements are subject to weekly review to assure that targeted goals are being met. While continuously striving to improve its responses to environmental issues, the resort also is making efforts to convey the Sustainable Slopes message to its guests. In addition, the resort plans to include the Green Building concept in proposed expansions scheduled for construction beginning this year.

Hunter Mountain

New York

Hunter Mountain started making significant efforts to reduce energy use in snowmaking following the 1999-2000 season. Snowmaking is vital to the resort's success, so this was a natural place to look for efficiencies that would result in savings. Improvements over the last 4 years have resulted in an annual savings of close to 2 million kilowatt-hours per season on snowmaking alone.

Starting with the 2003-2004 season, Scott Berwick was asked to take on the role of Environmental Coordinator and to seek new areas for reducing the resort's environmental impact. For Sustainable Slopes Environmental Outreach Day, Hunter bought enough Wind Power credits to power the resort's showcase Learning Center base lodge for the year. Meanwhile, a new recycling and waste reduction program is under development to replace a previously frustrating and only marginally successful effort. In addition, the resort also is working with its local fuel supplier to start receiving 80/20 bio-diesel fuel for snow grooming vehicles and snowmaking air compressors.



2.1 Summaries of Resort Progress

Jackson Hole Mountain Resort Wyoming

Jackson Hole Mountain Resort (JHMR) lies in a magnificent place. Fumaroles steam and geysers erupt in nearby Yellowstone National Park, and the Teton Mountains stand tall in an image that has become emblematic of the American West. JHMR has long respected the beauty and ecological significance of this area.

- In 1995, JHMR won the Golden Eagle Award.
- In 2000, JHMR signed the Sustainable Slopes Charter.
- In 2003, JHMR won the Silver Eagle Award for Energy Conservation.

This year, JHMR continued to strengthen its environmental program by bringing back whitebark pine dying from blister rust, adding roadside trash pick-up and computer recycling to the existing recycling program, working with Teton Village to reduce car traffic, working with American Forests to plant trees to absorb CO₂, and celebrating Sustainable Slopes Day with local environmental organizations.

This next year, JHMR will thoroughly review environmental impacts in each of its departments with the aim of earning third-party ISO 14001 certification for its Environmental Management System. As an initial step, JHMR has adopted a new policy statement where the resort has committed to the following:

- Establishing quantifiable targets for pollution prevention, waste minimization, and other objectives
- Continually improving the environmental program
- Communicating its progress to the public

Keystone Resort Colorado

Keystone historically has focused on recycling and waste reduction as the centerpiece of its environmental program. As a result, the resort has detailed data about what and how much is recycled, but no similarly detailed data for water and electricity use. The Keystone Environmental Department worked this year to improve education at recycling areas, and the result has been increased curbside and business recycling. The resort also is excited to expand the on-location composting to two additional restaurants in the summer of 2004, making a total of three composting locations. Moving forward, Keystone's Environmental Department hopes to focus more on issues such as energy and water consumption in the coming years.

Kirkwood Mountain Resort California

Kirkwood's Building Maintenance Department has been conducting bi-weekly inspections of facilities to check thermostats, boilers, lights, etc., in an effort to reduce energy waste. Additionally, as fluorescent light



fixtures fail, the resort is replacing them with electronic ballasts and motion detection systems that automatically turn lights off when people leave the room. The resort also is replacing exterior lights around facilities with motion detection solar lighting. These practices and retrofits have reduced electrical consumption by 48,780-kilowatt hours.

The Kirkwood employee shuttle system expanded to include two 47-passenger tour-bus-style shuttles. This addition to the shuttle system has reduced vehicle miles traveled to over 1 million. Also, Kirkwood offers cash incentives to employees who carpool – \$10 coupons for 2 passengers and \$15 coupons for 3 or more passengers per car. The coupons are redeemable for food and merchandise at resort-owned establishments. The resort paid out over \$64,000 in Kirkwood cash to employees last year.

In addition, Kirkwood currently uses sorbent booms in creek drainages below the main road to collect oils that otherwise would head down stream. The resort plans to install an oil separator system at the vehicle maintenance shop this summer to keep even more oil from getting into the watershed.

Mammoth Mountain Ski Area California

The resort experienced much progress in 2003 and has many projects underway. Bio-diesel and energy conservation were especially successful, as well as employee environmental education and web information covering relevant environmental topics.

Massanutten Ski Resort Virginia

The resort's environmental highlights continue to come from its recycle department. Also, the resort continues to explore and implement lower energy snowmaking products.

Mission Ridge Washington

Mission Ridge continues to reduce vehicle use by sharing a transportation system that is in conjunction with a public transportation system. In addition, resort ownership changed late in the fall of 2003. This new ownership will allow Mission Ridge to expand its conservation efforts and plan for new programs and incentives.

Montana Snowbowl Montana

The resort has concentrated on the basics this year, with extra attention on snowmaking. In addition, the resort is planning to start using some renewable energy or fuel next season (if available).

Mount Snow Vermont

This year, the resort changed toilets, urinals, and sinks in Carinthia Base Lodge to low-flow fixtures activated by infrared beam for automatic



2.1 Summaries of Resort Progress

control. Water use during the 2002-2003 ski season with the old fixtures was 246,300 gallons. Water use during the 2003-2004 ski season with the new fixtures was 144,300 gallons, a reduction of 102,000 gallons of water. The resort calculates water use by actual water meter readings.

Mountain High Resort California

Mountain High Resort continues to move forward in three major areas operating under the Environmental Charter. The first area in which the resort has shown progress involves reducing energy used during snowmaking. By adding energy-efficient fan guns, Mountain High has reduced the amount of diesel fuel it consumes each snowmaking season. The second area of improvement for the resort is its conversion rate of water to snow. By purchasing additional fan guns, the resort can convert more water to snow than it could have with conventional air-water guns. The last area in which the resort has shown improvement is how it handles its waste from its oil/water separators. By changing the operational plan, Mountain High reduced the amount of hazardous wastewater that is disposed each year. The continuation of these programs will benefit both the environment and resort guests in the future.

Mt. Ashland Ski and Snowboard Resort Oregon

Mt. Ashland is proud of its many environmental initiatives, some of which are described below.

Blue Sky Renewable Energy

Through the Blue Sky Renewable Energy offered by Pacific Power, the resort purchased 38 blocks of electricity each month this year, representing a significant amount of the electricity used to power ski operations. The resort thereby prevented the release of 32 tons of CO₂ into the atmosphere over the course of the year.

Carpooling Incentive

Mt. Ashland initiated a carpool incentive program to encourage guests to share a ride to the ski area. Drivers of each vehicle with three or more passengers aboard were awarded a raffle ticket. Drawings were conducted awarding a lucky recipient a season pass for the 2004-05 season. The resort gave four season passes away toward this effort.

Adopt-A-Road

This spring, the resort organized volunteers to clean up the 8.9-mile section of the Mt. Ashland Access Road by participating in the Adopt-A-Road program. This program provides concerned citizens an opportunity to control litter and improve the appearance of access roads.

Clean-Up Day

A Mt. Ashland rite of summer, the Clean-Up Day, is scheduled for Saturday, July 31, 2004. This is a traditional opportunity for community volunteers to help clean up and get the mountain ready for the winter. In



addition, volunteers receive a complimentary lift ticket for the upcoming season.

Mt. Bachelor, Inc.

Oregon

This season, Mt. Bachelor added four-stroke snowmobiles to its fleet to reduce emissions. In addition, the Lodge Maintenance Department continued its program of converting existing light fixtures over to compact fluorescent bulbs and electronic ballasts. The resort also is converting bulbs on electrical panels to long-life LEDs. Next season, Mt. Bachelor plans to examine the new reduced-emission two-stroke snowmobiles, explore variable frequency drives for energy savings on pump motors, and work with the local energy supplier to promote green energy at some of the resort's mountain events.

Mt. Hood Meadows Ski Resort

Oregon

In partnership with the Bonneville Environmental Foundation, Mt. Hood Meadows purchased 367 Green Tags, enough to power 2 chairlifts. The resort also expanded efforts to educate and engage guests in supporting renewable power through voluntary Green Tag purchases online and at ticket windows as a means of offsetting the greenhouse gas impacts of driving to the mountain. Through the sale of \$2 mini-Green Tags and full Green Tags, the resort and its guests were able to support another 358,000 kilowatt-hours of renewable power.

In addition, efforts to expand food and beverage purchases from a 200-mile local "foodshed" took a major leap forward with sponsorship of a free Food Fair attended by more than 100 vendors, distributors, and institutional buyers. Also, state-of-the-art drainage design ensured stability and erosion control of a new Super Pipe. And an extensive public involvement process has led to several significant modifications to an anticipated expansion of facilities at a sister resort property, the Cooper Spur Mountain Resort.

Mt. Rose – Ski Tahoe

Nevada

With yet another record season at Mt. Rose - Ski Tahoe, the resort saw further accomplishments regarding environmental awareness. Existing programs like recycling and water and waste management continued. However, with master development plans entering the permitting process, a heightened awareness concerning environmental issues was brought to the forefront and the final plans were scrutinized in terms of their potential impacts.

Summer plans include the first phase of a vastly improved wastewater management system. Connecting the resort to the municipal sewer system is the final goal as Mt. Rose begins the first phase of the sewer line extension up the mountain. The remainder of the line is scheduled to be complete the following year, thus ending the need for a septic system at the main lodge facility. Additional work this off-season includes a couple of key visual improvement projects. Overhead power lines at the East



2.1 Summaries of Resort Progress

Bowl lodge area will all go underground to prepare for future site improvements, and the resort will erect rockery walls at the main lodge parking areas to repair a damaged slope wall.

Northstar-at-Tahoe California

Over the past year, Northstar-at-Tahoe has continued to implement several successful programs and has taken significant steps in constructing the new Northstar Village. The new Northstar Village will be one of the first in the nation to use the guidelines of the LEED rating system established by the U.S. Green Building Council. The resort hopes to achieve LEED certification for the entire project, not just a single building. Also, the resort has established a comprehensive and detailed sustainability plan to guide future development and operational practices.

In addition, recycling on-site native materials for erosion control and water quality improvements continues to be a highlight of Northstar's environmental efforts. The pine needle recycling program continues to grow as homeowner pine needles collected in the fire/fuels management program are used for mulch, replacing straw mulch. This material is more effective at limiting sediment transport and also is a good supply of native seeds. The composting program continues to provide additional material for restoring nutrients to disturbed sites.

Pats Peak New Hampshire

Pats Peak has been steadily investing in technology that is both earth-friendly and dollar-friendly. The resort signed an agreement with Snow Economics for an additional 100 HKD low-energy snow guns (bringing the total to over 275 towers). The resort's greatest saving potential is on the energy front, and these snow guns have enabled Pats Peak to grow and increase coverage of its mountain without increasing energy costs. This year, the resort is looking at making the HKDs more efficient by installing a baffle valve to further reduce air consumption.

Establishing Summit Reservoir for snowmaking will further reduce energy consumption, as the resort will be using gravity instead of horsepower to increase pressures in the pipelines. The resort will replenish the reservoir during off-peak seasons. And finally, Pats Peak has retired two old diesel air compressors and has switched to electric air.

Sierra-At-Tahoe Ski Resort California

Protecting the environment is a year-round job at Sierra. The resort is committed to responsible operations through its recycle, reduce, and re-use initiatives. The resort, with the help of its guests and employees, diverted 42.44 tons of recyclable waste from area landfills during the 2003/2004 season. Sierra also began beta testing bio-diesel in a few of its snowcats. The resort will continue to test bio-diesel during the 2004-2005 season to determine its mechanical performance and environmental benefits.



In addition, the resort replaced all paper towel dispensers in its bathrooms and kitchens with automatic ones. These dispensers decrease the amount of discarded white paper because only one towel is dispensed at a time. Also, the Grandview High-Speed Quad cable was replaced in October of 2003. The resort sold half of the old 10,000-foot cable, determined to be non-reusable, as scrap metal. The resort will use the other half in future cable replacements for other lifts. Also, Sierra's employee and guest mass transportation program saved over 78,000 miles in unnecessary travel to the resort. Sierra's environmental efforts continue to be a priority. The resort is committed now and into the future to making its resort an enjoyable, clean place for guests, employees, and indigenous wildlife.

Ski Anthony Lakes Oregon

The resort's efforts consist of developing and implementing a comprehensive recycling program and promoting bus and ski club transportation. The resort is always looking for ways to do more and is going with green power for the 2004-2005 season.

Smugglers' Notch Resort Vermont

Smugglers' Notch Resort is continually seeking to improve environmental performance. During the past year, the resort has implemented several new initiatives in concert with the Sustainable Slopes principles. Many of these initiatives are too new to quantify the results, but are worthy of mention here.

In the area of water conservation, Smuggler's Notch has in place an innovative system that solves two problems. There are several clay tennis courts that need watering during the drier summer months to maintain proper playing conditions. Adjacent to these courts is one of the pool complexes. Pools generate wastewater daily in the form of filter backwash. By capturing the filter backwash in holding tanks, the resort eliminates a discharge to the wastewater treatment plant and uses that water in a sprinkler system for the tennis courts. Also in connection with the pool complexes, the resort is upgrading the filter media from sand to Zeobrite, which requires much less backwashing and thereby conserves water.

In addition, Smuggler's Notch recently installed a cover system on its primary wastewater treatment lagoon. This installation, the first in Vermont, combined with a new aeration system, will enhance the treatment performance of the lagoon and eliminate the dispersal of aerosols that can present a public health concern.

On the transportation front, the resort instituted an "on demand" shuttle system using over-sized golf carts (club cars) for the summer. This system eliminates several conventional vehicles from regularly scheduled runs and has increased ridership 300 percent!



2.1 Summaries of Resort Progress

Also, the resort has laid the groundwork for making its ski operations climate-neutral from a global warming perspective. Working with NativeEnergy, the resort has designed a program to market green tags or transferable renewable energy credits to both day and destination skiers. The green tags are valued on a pro rata basis per skier day, which allows the skier to purchase offsets to the energy used to run lifts, snowmaking, grooming, and their travel to the resort. Smugglers' Notch provides an additional 25 percent match. The goal is climate-neutral skiing within 2 years.

Most significantly, the resort recently has adopted and is now working toward implementing an Environmental Management Plan. Written with input from many staff members, the plan establishes baselines in several areas and identifies goals, including timelines and objectives for action. The scope covers all of the resort's operation and development activities. The Sustainable Slopes principles provided a great source of guidance in developing this plan.

Snowbasin, A Sun Valley Resort

Utah

During this second post-Olympic winter, Snowbasin enjoyed the greatest number of visitor days in its history. With the increased visitor days come additional environmental responsibilities. The resort's most notable achievements are a consequence of the pre-Olympic buildup of its infrastructure using the highest quality, most efficient materials and systems available. The snowmaking system recycles water used for cooling, thereby reducing gallons used to make snow. Computerized operation allows snow to be made only where needed and where it is the most efficient for existing environmental conditions. In addition, the resort has developed a system of power use to properly time operation of lifts to minimize energy consumption. The food and beverage services minimize disposable materials, thereby reducing the need for recycling. The resort will begin to recycle cardboard this summer and also will provide containers for guests to encourage recycling of aluminum, plastic, and glass. Finally, the resort has developed a program to treat and re-use wastewater from its sewage lagoons to irrigate trees growing in plantations (see Section 2.2, Green Room Entries). Other goals for the immediate future include a fully implemented recycling program and a program for carpooling and public and employee transportation.

Snowbird Ski and Summer Report

Utah

Snowbird's impact on the environment has continued to improve over this past year with a commitment to improving water quality. The resort is forming a partnership with Trout Unlimited (TU) to help clean up some mine tailings on private property in American Fork Canyon. This will be the pilot project for TU's Home Rivers Project. In addition, Snowbird has been ask to participate on a Technical Advisory Committee for a nonpoint source mining plan with Utah's Department of Environmental Quality, Division of Water Quality. This committee will help set water quality guidelines for the state of Utah.



On a smaller scale, the resort added an extra chill to its cogeneration plant, which decreases the amount of water needed to cool the plant.

Snowshoe Mountain Inc.

West Virginia

Snowshoe Mountain Inc. is in the process of implementing an Environmental Management System (EMS). An EMS requires an organization to establish an appropriate strategic environmental policy that commits to maintain or exceed regulatory compliance, pollution prevention, and continual improvement.

This program will help the resort identify its environmental aspects and develop a program to reduce the environmental impacts to the mountain. Snowshoe will reap many benefits in the following areas as the project matures:

- Resource conservation
- Wildlife habitat protection
- Waste minimization
- Energy efficiency
- Training, outreach, and education

In partnership with the U.S. Fish and Wildlife Service, the resort's Habitat Conservation Plan (the first ever completed in the state of West Virginia) helps protect the two endangered species found on resort land – the Northern Flying Squirrel and the threatened Cheat Mountain Salamander.

Also, once the resort is 100 percent open, snowmaking is limited to conserve water and energy. At the Silver Creek ski area, the resort makes snow between 10pm and 6am, and at the Snowshoe area, three compressors are turned off. This season, the resort turned off snowmaking from February 9 through March 8. At Silver Creek, the resort made no snow after February 9.

Squaw Valley USA

California

Squaw Valley USA continues to take great care to implement environmental improvements. Major accomplishments over the past year include the following:

- Conducting extensive revegetation and erosion control projects
- Implementing a critical Water Quality Improvement Program to address immediate water quality needs that included improving both source control measures and sediment collection features designed to meet several environmental improvement and sustainability goals
- Using bio-diesel in resort grooming machines



2.1 Summaries of Resort Progress

Recently, the resort also created a long-term water quality improvement plan that will be implemented over the next decade. In addition, Squaw Valley has continued to emphasize resort-wide participation in a comprehensive recycling program. As a result, the resort was named a winner in the 2003 Waste Reduction Awards Program sponsored by the California Integrated Waste Management Board – the state’s primary recycling agency and a part of the California Environmental Protection Agency – for outstanding efforts to reduce waste and protect the environment. To help further promote environmental sustainability, the resort hosted a community-wide Earth Day Celebration as part of its education and outreach efforts.

Steamboat Ski & Resort Corporation Colorado

The resort’s new initiatives in 2003-2004 are described below.

Public Outreach Proposed Master Plan Amendment

The resort conducted an extensive outreach campaign to obtain public input on its newly proposed Master Plan Amendment. The resort conducted this process before the USFS accepted the amendment. The objective of the outreach program was to obtain stakeholder input prior to finalizing the plan.

The process involved conducting 11 public meetings, including community open houses with the City and County Council, City and County Planning, resort employees, season pass holders, property owners, and the Chamber of Commerce.

As part of the outreach campaign, the resort widely distributed the plan, posted it on the Steamboat Resort website, disseminated CDs of the plan, and provided press releases to the media.

New Employee Environmental Fund

The Steamboat Resort has established a fund that will provide grant money to non-profit environmental organizations to implement environmental projects.

Snowmobile Fleet Transition to Four-stroke Engines

The resort is undertaking a multi-year project to convert to four-stroke snowmobile engines, which are less polluting.

Carpooling

The resort provided rewards to skiers and riders for carpooling or riding mass transit.

Water Conservation

Educating resort staff members was a focal point this season. This education included signage and a high-touch campaign. Also, restaurant staff members learned how to change their normal water use habits in all 11 restaurant operations.



Stevens Pass Washington

Stevens Pass will continue a successful guest shuttle program from the gateway community of Sultan (43 miles) during weekends from late December through February. The program reduces single vehicle use of the upper Stevens Pass Highway and reduces parking demand at the resort. Complementing the guest shuttle program is an extensive employee transit system (free), now operating for over a decade, but in a much-expanded role the last four seasons. The transit system also is considered a valued employee benefit.

The resort's recycling program is expected to grow. The program currently includes cardboard, glass, paper, plastic bottles, aluminum, kitchen grease, scrap metal, computer parts, and anti-freeze. Recycling is emphasized through employee training and overall job expectations.

In addition, Stevens Pass donates a utility bill surcharge to its energy provider, supporting the local production of wind and solar power. The contribution subsidizes renewable power, compensating for its higher production cost.

The industry-wide Sustainable Slopes program provides a benchmark—examples set by industry peers—that helps individual resorts in developing stronger programs.

Stowe Mountain Resort Vermont

Stowe Mountain Resort has begun to implement the Stowe Mountain Resort 2000 Community Master Plan. Many of the actions outlined in this plan promote environmental sustainability, including re-using stormwater for snowmaking, committing to naturally managing the new golf course, designing and constructing buildings to be energy efficient, developing increased public transportation options, eliminating in-ground wastewater disposal, and improving winter stream flows during the snowmaking season. Over the next 10 years, the resort will direct its efforts to accomplish the many environmental goals established under the plan.

Sugar Bowl Ski Resort California

Sugar Bowl's commitment to environmental responsibility goes hand in hand with its obligation to provide a safe and high-quality experience for guests, as well as maintaining an economically viable business.

The resort continues to expand its recycling program. For the upcoming season, the resort plans to increase the number of recycle containers and place them at the top and bottom of the chair lifts.

Sugarbush Resort Vermont

The Sugarbush Resort Green Team was established at the beginning of the 2002/2003 ski season and has been working on environmental



2.1 Summaries of Resort Progress

initiatives over the last 2 years. These initiatives encompass the core values of the resort owners (Summit Ventures NE, LLC), who purchased the resort in September 2001. The goal for the 2003/2004 ski season was to begin implementing the Green Team's basic environmental objectives:

- Energy management and efficiency planning
- Solid waste and recycling
- Community outreach and environmental education

This year the Green Team also incorporated a transportation component to the list of objectives. Examples of these programs include switching from electric to propane heaters, conducting lighting retrofits, purchasing energy efficient HKD snow guns, recycling old uniforms through the NSAA SWAG program, donating old snowmaking equipment to a non-profit ski area, encouraging staff members to ride the local bus system by providing a ridership incentive, and educating staff about a new commuter run through the employee newsletters and resort training seminars. Established community programs, including Sugarbush Resort Green Up Day and the Friends of the Mad River Clean Up Day, have become annual Green Team participation events.

The Green Team has documented the results of its environmental efforts for the past two seasons in order to better understand environmental opportunities and track cost savings. In addition, the resort has adopted the Sustainable Slopes Charter as a basis for its environmental initiatives, and makes use of its partnerships with organizations like the 10 Percent Challenge and the USFS to initiate environmental projects.

Sunburst Ski Area Wisconsin

Sunburst continues to improve its snowmaking capacity to fully convert every gallon of snowmaking water to snow. Lodge facilities continue to monitor and conserve potable water in bathrooms and cafeterias. In addition, the resort makes annual improvements to older electrical fixtures, and its ski programs continue to advance bussing and carpooling to the area.

Taos Ski Valley, Inc. New Mexico

The resort's energy-efficient snow guns have shown great savings in electrical use and have reduced noise pollution. In addition, a stronger recycling effort has led to a significantly higher awareness among staff members, resulting in more glass and cardboard recycling.

Tremblant Resort Quebec, Canada

In 2003, Tremblant Resort conducted a Bicknell's Thrush inventory at the summit of the mountain to ensure that future development would not affect its habitat. Tremblant also revegetated and reconfigured a major hiking trail to reduce the risk of erosion. To keep improving its environmental performance, the resort has expanded its recycling program to include its 7 condo-hotels (total of 822 units). A video



showing every step of the recycling process also has been developed for employee training, which has increased the quality of recycling (less contamination) since everyone better understands the consequences of his/her actions. This video now is being used throughout area schools to promote recycling.

In the coming year, some of the resorts projects include the following:

- Continue expanding the recycling program in two residential-condo areas on the mountain.
- Conduct a study on the wooded strips between the ski slopes to make sure they are regenerating properly since they constitute habitat for numerous species.
- Increase knowledge about drinking water consumption by installing water meters.

Wachusett Mountain Ski Area Massachusetts

During the summer and fall of 2003, Wachusett Mountain Associates (WMA) began one of its most scrutinized and publicly debated projects ever proposed. The project, which requires clearing 8 acres of forestland on the Wachusett Mountain State Reservation to construct 2 new ski trails and a ski lift, has been in the planning and review stages for over a decade. Originally proposed to include over 20 acres of new trails, the project was scaled back due to environmental studies and mitigations made by WMA. Numerous public meetings with input from various agencies and members of the surrounding community also helped shape the final project plans. When final approval to proceed was given, the goals were to complete the project in the safest, most environmentally responsible manner possible, while attempting to mitigate the more controversial aspects of the project by providing any additional environmental opportunities that could be realized.

While clearing 8 acres of forest area may not be viewed as a project worthy of environmental recognition, the way in which it was completed and the steps that were taken to ensure it was done in an environmentally responsible manner should be considered. Years of planning produced a thoroughly reviewed work plan with input from the general public and a variety of agencies, including the EPA; Massachusetts Departments of Environmental Protection, Conservation and Recreation, Fish & Wildlife, Historic Commission; several local conservation commissions; and other interested advisory groups and councils.

The resort conducted water quality monitoring of the construction site on a daily basis and more frequently during storm events. Throughout the construction and especially during storm events (at which time construction was halted), WMA representatives were on the site to ensure the site's integrity.



2.1 Summaries of Resort Progress

Finally, as part of WMA's commitment to the reservation, WMA voluntarily proposed to donate the proceeds of any timber harvested at the site during construction to the Massachusetts Department of Conservation and Recreation. This donation will amount to approximately \$20,000 that can be used to improve the overall reservation or other reservations in the state.

WMA is extremely pleased with the results of the trail expansion to date and is proud to point out that all of the goals outlined have been met. Although the project was controversial, WMA felt it still could be completed in an environmentally sensitive manner.

WMA will continue to look for additional areas where future planning and small improvements can have a large impact on its most important resource, the surrounding environment.

Waterville Valley Resort New Hampshire

In 2003-2004, the resort installed low-consumption, automatic toilets. The resort also made efforts to minimize and re-use construction waste and more closely monitor waste containers. Waterville Valley's major emphasis for 2004-2005 will be cleaning up and/or recycling salvage-type metals and a historical waste dump.

Whistler & Blackcomb Mountains British Columbia

The resort anticipates significant water savings by replacing the snowmaking reservoir liner. In addition, the energy retrofits the resort began in 2003 were completed in 2004 and will save over 2,500,000 kilowatt-hours per year. These savings will represent an 11 percent reduction in electrical consumption at the resort. Also, the resort has initiated a composting program for its restaurants, starting with a pilot program in the Roundhouse. Employee carpooling with fleet vehicles has expanded to include 6 vehicles and more than 50 commuters from Squamish and Pemberton. The resort's comprehensive recycling program has reduced waste by 30 percent per year (from the previous year) for the past 4 years. Last year, the resort diverted an additional 480 tons from the year before. And finally, the resort's Environmental Fund has raised over \$80,000 and has sponsored 9 local projects to date.

Whiteface Mountain Ski Center New York

According to NYSDEC requirements, Whiteface Mountain must prepare a Unit Management Plan (UMP) every 5 years. This plan must include inventories of the area's ecosystems, existing facilities, types and extent of actual and public use of the area, carrying capacity, management objectives, etc. The process provides individuals and interest groups an opportunity for comment. The final UMP takes into consideration all comments and recommendations made on the public review draft.

This document is an ideal planning opportunity for proposed improvements to Whiteface. After 2 years of preparation, the resort



presented the Final UMP to the NYSDEC in May. Environmentally, the document includes a best practice Stormwater Pollution Prevention Plan, which the resort will follow closely during trail and other major construction projects.

It should also be noted that Whiteface has agreed to delay construction on trail work above 2,800 feet until August of each year in order to avoid the potential for affecting the nesting season of the Bicknell's Thrush, which is categorized as a species of special concern. The resort also is subsidizing a report that will help to evaluate future high-elevation ski area development and implementation of measures to mitigate impacts to the Bicknell's Thrush.

**Winter Park Resort
Colorado**

The resort continued to implement the AreaNet, which has reduced the amount of electric energy consumed and the amount of environmental pollutants associated with excessive use of electrical energy. Winter Park's primary objectives were to decrease the amount of kilowatt-hours generated by its electrical generator and to measurably reduce the by-product pollutants into the environment by significantly reducing electric demands.

2.2 GREEN ROOM ENTRIES

In past years, resorts were invited to share specific environmental success stories related to the 21 Environmental Principles of the Charter. Since resorts were not required to answer questions related to the 21 Principles this year, we encouraged them to submit information on up to three successful environmental projects or programs.

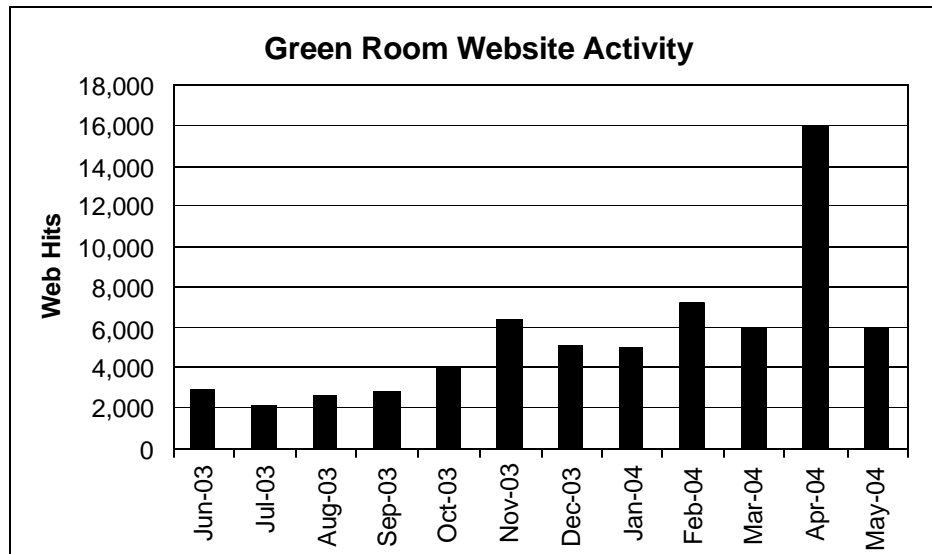
In addition to including these success stories in this year's *Annual Report*, they also will be used to update the Green Room database. Detailed information on Principles in Action is featured in NSAA's Green Room, an online environmental database that was launched in late 2001 and is updated annually. The Green Room can be accessed through the Sustainable Slopes Section of the NSAA's web-site at www.nsaa.org. In addition to details on innovative actions that resorts are taking under the 21 Principles, the Green Room identifies resorts that have received national environmental excellence awards through Time4 Media's Mountain Sports Media. The Green Room also provides contact information for each of the reported successes.

This online environmental database is intended to be a resource for environmental decision-making and a place to share ideas on tested programs or projects that will enhance the industry's environmental performance. In addition to fostering networking among the resorts, the Green Room is a public resource for anyone interested in the highlighted areas of progress. The Green Room remains one of the most visited sections of NSAA's website. The graph below shows a history chart of the website use during a recent annual period. The spike observed for April



2.2 Green Room Entries

2004 could likely be related to the time period of the Assessment Tool reporting.



The remainder of this section lists several of the specific projects that resorts reported in 2004. Note that the examples identified here are intended to be illustrative of environmental leadership in the industry and do not represent an exhaustive list of all environmental projects or programs at all resorts. Furthermore, this list only includes projects implemented in the timeframe of this *Annual Report, 2003-2004*. The projects are organized by topic (e.g., Planning, Design and Construction, Energy, Water, etc.).

Planning, Design and Construction

Aspen Skiing Company – Aspen Highlands, Colorado

Project Title: Aspen Highlands Patrol Headquarters

The new Highlands Patrol Headquarters is probably the greenest patrol building in the ski industry. The roof is structural insulated panels that have an R-60 insulation value (building code specifies roofs to be R-37). Wall insulation is recycled cotton. Exterior siding and trim are a non-wood product called Hardi Plank. This durable material will not split, crack, rot, or shrink. In addition, many components of the buildings are re-used: the large picture windows came from the Highlands Center. The floor is a recycled rubber product. Some of the structural steel for deck support came from old lifts that were dismantled. Kitchen cabinets and counter tops were salvaged from a residential demolition. Bathroom sink faucets are auto-shut-off to conserve water. The water heater is a 10-gallon heat-on-demand unit that saves electricity. The building also includes four composting toilets for guests and patrol staff. The resort maintained as many of the surrounding tree stands as possible, cutting only four trees. The building itself is invisible to passers by since it is nestled behind a cliff, limiting aesthetic impacts. Passive solar gain provides much of the heat, and ceiling fans recirculate heat to the living space. Clerestory windows allow ventilation if there is too much solar



gain. In addition, the building is wired so that next summer the resort can install photovoltaic panels on the roof.

Aspen Skiing Company – Snowmass, Colorado

Project Title: Snowmass Golf Clubhouse

The new Snowmass golf clubhouse is one of the greenest commercial buildings in the state, beating local energy codes by 63 percent based on third-party computer models (contact Houghton@reginc.org for verification). ASC has submitted the building for LEED Gold certification through the same program used at the Sundeck (for information on LEED, see www.usgbc.org). The Sundeck is one of only four LEED buildings in Colorado. The Snowmass golf clubhouse achieves its high energy efficiency rating by using relative warmth or “coolth” from a nearby pond to heat and cool the building (same system as the Sanctuary). In addition, the building features the following:

- A roof with an insulation rating of 55.5
- Certified sustainably harvested wood in both building structure and cabinets
- Recycled and recyclable carpet
- One hundred percent wind power
- Radon control
- Low volatile organic compounds (VOC) paints and sealants
- Super-efficient showerheads
- Toilets with a low- and high-volume flush option (enabling the building to beat water efficiency codes by 30 percent)

Bretton Woods Mountain Resort, New Hampshire

Project Title: Bretton Woods Base Lodge Expansion

On November 21, 2003, the Bretton Woods Base Lodge expansion was completed. Throughout this project, the resort has placed a strong emphasis on installing energy-efficient mechanical systems, using long-lasting materials, and re-using as much of the existing structure as practical. The overall impact of this project is incredible. Although the building is 37 percent larger than it was before, it maintains its cozy atmosphere, fits comfortably in the surrounding environment, and is a much more efficient building to operate.

Bretton Woods Mountain Resort, New Hampshire

Project Title: Mt. Rosebrook Expansion

Conscientious forestry and vegetative practices are paramount at Bretton Woods. Careful siting and trail design of new terrain from the summit of Mt. Rosebrook and elsewhere ensure abundant wildlife habitat and food sources. Instead of clear-cutting all trails, many of Bretton Woods’ glades



2.2 Green Room Entries

are simply the result of removing weak and dead trees, leaving a healthy stand that offers challenge and diversity to skiers and riders.

Water

Snowbasin – A Sunvalley Resort, Utah

Project Title: Sewage Lagoon Tree Farm Sprinkler System

The resort constructed sewage lagoons for wastewater treatment in 2001. When the treated wastewater meets environmental standards, the resort sprinkles it onto native vegetation adjacent to the treatment facility. Beginning in 2004, the resort will use the treated wastewater to irrigate tree plantations downhill from the lagoons. Trees will be used for landscaping and revegetation as needed. The resort will conduct a feasibility analysis to determine the suitability of this program for future landscape and golf course irrigation projects.

Energy

Aspen Skiing Company – Buttermilk, Colorado

Project Title: Snowmaking Compressor Retrofit

At Buttermilk's snowmaking system, ASC replaced a screw-compressor with a centrifugal compressor. The old compressor was ancient and had an enormous negative environmental impact (screw compressors blow oil out onto the hill as part of the snowmaking process). Moreover, screw compressors break down often and require lots of maintenance. Those issues aside, the new compressor is 30 to 40 percent more efficient than the old one. This translates into annual savings of \$17,000 to \$22,610, or 333,333 kilowatt-hours (assuming \$20k savings). ASC also will be replacing a screw compressor on Aspen Mountain, with a projected savings of \$23,375 to \$35,078, or 466,666 kilowatt-hours. In addition to the dollar savings for the two compressors, ASC is eliminating 1.3 million pounds of CO₂ (the primary greenhouse gas) annually. From an energy perspective, installing these compressors is like adding three more Snowmass hydroelectric projects to ASC mountains.

Blue Mountain Resorts, Ontario, Canada

Project Title: Energy Use for Facilities - Co-generation at Blue Mountain

The recent installation of a combined heat and power system at Blue Mountain is yielding efficiencies of 85 percent by providing 30 kilowatt hours of electrical energy and 55 kilowatt hours of thermal energy, or 190,000 British thermal units per hour. The objective behind installing a combined heat and power (CHP) system is to reduce the operating costs across facilities and also to fix and control costs of operation as much as possible.

The first stage of this pilot project involved a 30-kilowatt Capstone turbine, a stand-alone heat exchanger (HX), and electrical and mechanical infrastructure that would accommodate an additional 90 kilowatts should thermal requirements be sufficient. At present, recovered thermal energy heats incoming water, which feeds 90 hotels



rooms, laundry services, and dishwashing. Currently not being fed by the system are hot tubs and a swimming pool; however, on the basis of monitoring data, another 60 kilowatts will be justifiable.

The 30-kilowatt turbine is a load following “Grid-Connect” unit. If grid power is lost, the unit shuts down and restarts 20 minutes after grid power is restored. In this case, a 480-volt to 600-volt step-up transformer was needed to tie into the switchgear. Other versions of this model include “Stand Alone” and “Dual Mode,” but because the resort’s system was less than 200 kilowatts, the grid-connect model made the interconnection agreement relatively simple.

The Capstone microturbine the resort uses is relatively small (75” x 28” x 53”) and generates low emissions ranging from 2 to 9 parts per million V NO_x at 15 percent O₂ at full load. Although the unit runs on natural gas, the turbines can be designed to run on propane, diesel, kerosene, oil field flare-gas, and biogas from agriculture or waste water landfill sites with energy content as low as 350 British thermal units per cubic foot.

The resort will not be able to report true cost or energy savings numbers until the micro-turbine has operated for at least a year. However, preliminary efficiency ratings are very promising.

Product Re-use and Recycling

Blue Mountain Resorts, Ontario, Canada

Project Title: Waste Management - Industrial Composting

In order to keep food waste out of the landfill, Blue Mountain established a policy to compost all food waste generated at banquets, including preparation and table scraps. First, the resort established an agreement with its waste hauler to collect the compost. Compostable materials include all food waste, fruits, vegetables, meats, bones, shell fish, poultry, dairy products, eggs including shells, cooked foods, leftovers, coffee grounds and filters, tea bags, paper napkins, paper hand towels, and facial tissue. This past winter, the resort introduced the program at the base lodges. Kitchen managers and supervisors were responsible for training staff members on composting. Signs were placed next to sinks and work areas to remind staff members about composting. Throughout 2003-04, the resort composted 50 tons of kitchen waste. Nearly 20 tons (40 percent of the annual total) of composted waste was collected between December and March after the new program was introduced. The resort’s green team is enthusiastic about the success of the composting program and has helped encourage its expansion to include staff cafeterias.

Blue Mountain Resorts, Ontario, Canada

Project Title: Waste Management - Sort @ Source Recycling Project

In winter 2004, Blue Mountain implemented a pilot Sort @ Source recycling program in the village to reduce waste. Guests were provided with in-room recycling tools (separate recycling boxes for paper and co-mingle products). Room attendants would place bins in hallways and an



2.2 Green Room Entries

extra helper would sweep each floor and sort the recyclables. In one month of this project, the resort successfully diverted 180 cubic yards of recyclables that previously would have been thrown into the garbage. The resort also has found that the room attendants have maintained their productivity level from the 2002-2003 Season. Sort @ Source has been well received. Staff members believe the resort is doing the right thing by recycling. There are plans to conduct a complete cost evaluation on this project to determine if Sort @ Source is an approach that can be introduced resortwide.

Wildlife and Forest Management

Blue Mountain Resorts, Ontario, Canada

Project Title: Managed Forest Plan - Eastern Bluebird Outreach Campaign

Since 1996, Blue Mountain Resort has had a Managed Forest Plan. The resort participates in Canada's Federal Managed Forest Tax Incentive Program (MFTIP). The goal of MFTIP is to maintain or enhance healthy forests that contribute to maintaining a healthy environment. The program is designed to increase landowner awareness about forest management. Blue Mountain's priority objectives behind its forest plan are to manage for recreation, environmental protection, and wildlife.

The resort's current forest plan specified that it should establish a bluebird nest box trail. Blue Mountain located the trail in the old orchard area and near other open spaces that provide ideal habitat for bluebirds. Bluebird populations have recovered since the 1980s, when population numbers were so low that the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) listed them as vulnerable. Nest box trails are believed to have played a major role in bringing bluebirds back to many areas and have helped to reverse their vulnerable status so that they are no longer at risk.

This past spring, the resort launched its Bluebird Outreach Campaign. Green team members visited local grade two and grade five classes. The students were eager to learn about bluebird ecology and conservation and painted the nest boxes. The nest boxes have been installed on the mountain, and will be monitored regularly throughout the summer season.

Jackson Hole Mountain Resort, Wyoming

Project Title: Whitebark Pine Restoration

In 2003, the Whitebark Pine Foundation (www.whitebarkfound.org) contacted JHMR and other ski areas that have serious white pine die-off. JHMR has since become one of the only ski area to collect seeds from resistant trees and set up a long-term plan for whitebark restoration. According to Melissa Jenkins, director of the foundation, JHMR soon will be surpassing even the work that the USFS has done in restoring this dying tree that is so critical for alpine wildlife. JHMR and the USFS determined that 80 to 90 percent of the whitebark pine on the mountain are infected with blister rust and are dying. The JHMR whitebark pine



restoration program was established to protect this tree in four stages. It will be a multi-year project, and each stage has its own goals and measurement criteria.

Stage #1: Identify trees (called “plus” trees) that appear resistant to the fungus and collect their seeds. In 2003, JHMR employees helped the USFS collect one bushel of seeds from the four “plus” trees at the resort. The seeds were sent to a USFS lab for resistance testing and propagation.

Stage #2: Protect standing “plus” trees from other attacks, such as pine beetles. In 2004, JHMR and the USFS will install on “plus” trees packets of Verbenone, an anti-aggregation pheromone or a naturally-occurring substance that repels beetles. JHMR will inspect the “plus” trees annually to see if they have been attacked.

Stage #3: Thin invasive subalpine fir trees to re-create space for whitebark pine. In 2005, JHMR and the USFS will thin out subalpine fir trees that are growing where whitebark used to grow to create space for new saplings and to reduce fire hazards. The initial goal will be to reduce fir populations by 10 percent.

Stage #4: Plant resistant seedlings from the “plus” trees. In 2006 or 2007, JHMR and the USFS will plant resistant whitebark seedlings that have been collected from “plus” trees to replace many of the whitebark that have died out. The goal will be to plant incrementally to bring whitebark pine populations back to their former level.

Stowe Mountain Resort – Vermont

Project Title: SMR 2000 Community Plan

The resort exchanged over 2,000 acres of significant land with the State of Vermont and established a wildlife conservation easement on an additional 800 acres. Stowe Mountain also relocated a top lift terminal to allow natural revegetation for rare bird species habitat.

Wachusett Mountain Ski Area, Massachusetts

Project Title: New Trail Construction and Mitigation

Wachusett Mountain Ski Area, located on state park land in Massachusetts, is operated by WMA. During the summer and fall of 2003, WMA began one of its most scrutinized and publicly debated projects ever proposed. The project required clearing 8 acres of forestland to construct 2 new ski trails and a ski lift. Originally proposed to include over 20 acres of new trails, the project was scaled back due to environmental studies and mitigations made by WMA. Numerous public meetings with input from various agencies and members of the surrounding community also helped shape the final project plans. When final approval to proceed was given, the goals were to complete the project in the safest, most environmentally responsible manner possible, while attempting to mitigate the more controversial aspects of the project by providing any additional environmental opportunities that could be realized.

2.2 Green Room Entries

While clearing 8 acres of forest area may not be viewed as a project worthy of environmental recognition, the way in which it was completed and the steps that were taken to ensure it was done in an environmentally responsible manner should be considered. Years of planning produced a thoroughly reviewed work plan with input from the general public and a variety of agencies. WMA worked on a daily basis with several representatives of the Massachusetts Department of Conservation and Recreation, as well as conservation commission and monitoring board members during the construction to ensure the work was progressing as planned and all environmental safeguards were in place.

After WMA received final approval to proceed, a small group of protesters attempted to stop the work. During this conflict, WMA respected the protesters differing views on the project and provided them an opportunity to make their views known. When construction began, one of WMA's main concerns became the safety of people that were on the site. WMA is proud to point out that there were no accidents or incidents during project construction.

The weather was a significant factor during construction as several unusually heavy rainstorms tested the erosion control measures that were in place. However, throughout project construction, the protections that had been planned worked well on the severely sloped site. WMA monitored water quality at the construction site daily (more frequently during storm events) and took appropriate action to ensure the site's integrity whenever necessary.

To date, the project is not complete. Final grading of the site, as well as the construction of a ski lift, is proposed for the summer of 2004. Currently, one of the trails is being used for skiing and riding. After the site work is complete next summer, the area will become meadow habitat. Like the other ski trails at the Wachusett Mountain State Reservation, WMA uses a hands-off approach to ski trail maintenance. WMA uses no chemicals or fertilizers of any kind on the trails, allows natural plant species to flourish, and mows the trails only during the late fall when plant and animal reproductive cycles are over. The Massachusetts Department of Conservation and Recreation ecologist employed on the reservation has found several species of rare plants that are thriving on the meadow environment that the ski trails provide during the spring, summer, and fall, as well as countless species of insects, birds, and animals that inhabit the area.

Finally, WMA voluntarily proposed to donate to the Massachusetts Department of Conservation and Recreation the proceeds of any timber harvested at the site during construction. This donation will amount to approximately \$20,000.



Wetlands

Bretton Woods Mountain Resort, New Hampshire

Project Title: Lake Carolyn

During this summer, the resort will continue to develop a new 5-acre, spring-fed lake at the base of Bretton Woods. In addition to serving as a water source for snowmaking, the lake is designed primarily as a wildlife habitat and summer recreation site. Lake Carolyn will offer open water, marsh areas, emergent wetlands, riparian buffers for natural filtration, and gravel bars for trout-spawning habitat.

Transportation

Blue Mountain Resorts, Ontario, Canada

Project Title: Transportation – Staff Carpooling Incentive Program

The resort launched its first Carpooling Incentive Program for staff members in winter of 2004. The program lasted for the duration of the ski season and featured separate incentives for both drivers and passengers. Through “Drive and Win!” drivers would earn \$1 per passenger per day worth of Blue Mountain Buck\$ that could be spent at any Blue Mountain food or retail facility. In addition, drivers had their names entered into a grand prize drawing at the end of the season for a digital camera and a photosmart printer. “Get in the Trunk!...Punk!” was the program for passengers. Each time staff members caught a ride to and from work with a co-worker, they had their names entered into a bi-weekly drawing for great prizes, including ski jackets, a flat screen TV, a DVD player, etc.

Sign-up boards were available in staff cafeterias and common areas to help connect drivers and passengers. The program was promoted through email, voicemail, and the staff newsletter, the Blue Bulletin. The carpooling program was a great opportunity to educate staff members about the benefits of reducing greenhouse gas emissions and keeping winter cool. Participation was fairly good. Throughout the course of the season, staff members carpoled almost 2,800 times. Through this program, the resort collectively avoided producing 14 tons of CO₂ emissions!

It seems reasonable to assume that as the resort’s environmental program continues to develop and a green culture among staff members continues to grow, the resort can expect improved participation in other green initiatives.

Education and Outreach

Jackson Hole Mountain Resort, Wyoming

Project Title: Plant Trees With a Pass

JHMR has long considered itself not just a resort but also part of a community. Other ski resorts also try to work with their communities,



2.3 Environmental Indicators

but JHMR has taken steps beyond traditional outreach programs. One of these programs is called "Plant Trees with a Pass."

JHMR teamed up with Washington, D.C.-based American Forests to sell green fabric neck lanyards to hold a ski pass. The lanyards sell for \$10 with proceeds supporting tree planting through the American Forests' Global ReLeaf program. Global ReLeaf has planted over 20 million trees in the last 15 years. Overall, JHMR donated more than \$1,500 to American Forests. American Forests used this donation to plant more than 1,500 native whitebark pines in high elevation areas near Yellowstone National Park. The planted trees will reduce erosion, provide wildlife habitat, beautify burned areas, and absorb 3/4 ton of CO₂ over their lifetimes to slow global warming. JHMR was the first ski area to support such a program with American Forests.

Mt. Ashland Ski and Snowboard Resort, Oregon

Project Title: Winter Science Program

The objective of the resort's Snow Science Program is to give youth an opportunity to understand and experience the winter environment. The program engages youth at an experiential level in a classroom devoid of walls and ceilings to better understand the mountain in winter. The program is implemented as a field trip from local schools and is intended to complement the resort's award-winning Youth Summer Service Program. Snow Science is a winter counterpart focused on the Mt. Ashland Association mission of providing educational opportunities that foster an understanding and stewardship of the environment for the future caretakers of the area. Program components include orienting youth to winter ecology and basic winter survival, promoting understanding of how ski area operations work in concert with environmental safeguards, and lowering the frequency of lost and injured youth using the mountain. Educating kids about the winter environment helps foster a better understanding of environmental stewardship in the resort's youngest stakeholders.

Tremblant Resort, Quebec, Canada

Project Title: Training Video on Recycling

Tremblant spent less than \$1,000 to produce a video showing every step of the recycling process from disposal (hotels, offices, pedestrian village, etc.) to the regional sorting facility. The resort developed the video for employee training. This training increases the quality of recycling since everybody better understands the consequences of their actions. This video now is being used throughout area schools to promote recycling.

2.3 ENVIRONMENTAL INDICATORS

As in previous years, we used environmental indicators to estimate the environmental impacts of sustainability efforts in the ski industry from just a few data points. These indicators are used to determine an order of magnitude estimate of industry efforts by aggregating information on industry-wide energy savings, renewable energy generation/purchase, water conservation, and waste diversion. Resorts were not required to



report on *total* utility use and waste generation this year. Instead, reporting was specific to project savings. In addition, this year's Assessment Tool continues to consider climate change impacts based on resort actions. Climate change results are discussed in detail in Section 2.4.

The Environmental Charter encourages resorts to establish systems for routinely quantifying both their environmental impacts (in terms such as resource use and waste generation) and their avoided impacts (such as transportation demand reduction) through their collective projects. At the same time, the Charter continues to recognize that measuring detailed resource consumption takes expertise and resources that may not be available for all resorts. NSAA continues to pursue work with Partnering Organizations to provide training to resorts on establishing tracking systems and more robust metrics for evaluating their environmental programs.

Overall, the Assessment Tool used for this fourth year of implementation continues to move toward a more expanded and quantitative assessment. NSAA selected four environmental indicators to characterize the environmental state of the industry for the fourth *Annual Report*: (1) water conservation; (2) electric energy savings, renewable generation, and renewable purchases; (3) waste diversion through recycling and material use reduction; and (4) transportation demand reduction.

Similar to last year, the Assessment Tool breaks out water conservation and use into two categories: snowmaking operations (non-consumptive) and all other operations (consumptive). By definition, non-consumptive water use indicates the resource is *returned to the watershed* following its use. This year, energy savings also are broken down into savings related to electric energy efficiency, generating onsite renewable energy, and purchasing certified renewable energy from a utility or through a program such as Green Tags.

Following through on last year's goal of moving toward more quantitative results and to foster data comparisons from year to year, we asked responding resorts for quantities in each topic area. Resorts indicated what they are conserving through their collective best environmental practices.

Extrapolating to an Industry-wide Impact

Table 2-1 totals each of the quantitative questions in the Assessment Tool based on information from reporting resorts. When comparing Table 2-1 information to previous years, increasing trends (percent increases) indicate that conservation efforts have expanded or are more thoroughly reported. For 2004, Table 2-1 information tells us that reporting resorts collectively are accomplishing the following:



2.3 Environmental Indicators

- Resorts are conserving approximately 335 million gallons of water for snowmaking per year, an estimated 20 percent increase over 2003.
- Resorts are conserving approximately 42 million gallons of water for consumptive uses per year, a 40 percent decrease from 2003.
- Resorts are conserving approximately 39 million kilowatt-hours per year of electric energy, a 25 percent decrease from 2003.
- Resorts are diverting approximately 8,190 tons per year of solid waste from landfills, either through source reduction or recycling, an 83 percent increase over 2003.
- Resorts are reducing approximately 46 million vehicle miles traveled (VMT) per year, an 18 percent decrease from 2003.

In regard to generating and purchasing renewable energy, the resorts reported the following:

- Five resorts reported total onsite generation of 941,994 kilowatt-hours for 2003.
- Twenty-one resorts reported total renewable purchases of 47 million kilowatt-hours for 2003.

Of the water savings, energy savings, and avoided VMTs categories, all four categories showed a decreasing trend from 2003. However, we considered that the decreases in overall totals may be indicative of the decrease in reporting resorts rather than actual decreasing trends at ski resorts. The data normalized per skier visits (e.g., energy savings/skier visits, etc.) is not affected by the number of reporting resorts and allows for direct comparison with the 2003 data. The normalized factors (according to Table 2-2) for each resource reflect the following:

- Resorts are conserving approximately 14.4 gallons of water in snowmaking operations per skier visit, an estimated 37 percent greater than 2003.
- Resorts are conserving approximately 1.8 gallons of water for consumptive uses per skier visit, a 31 percent decrease from 2003.
- Resorts are saving approximately 1.7 kilowatt-hours of electric energy per skier visit, a 11 percent decrease over 2003.
- Resorts are diverting approximately 0.7 pound of solid waste per skier visit, either through reduced use or recycling.
- Resorts are avoiding approximately 2.0 VMTs per skier visit, a 5 percent decrease from 2003.



2.3 Environmental Indicators

In the end, the normalized factors corroborate the increases in savings related to water conservation for snowmaking operations. Additionally, the normalized factors confirm the decreasing trends related to water conservation for consumptive uses, electric energy savings, and avoided VMTs. A normalized factor for diverted solid waste was not developed for the 2003 report; thus, a direct comparison was not possible.

These results may be indicative of industry-wide trends. First, in its fourth year, Sustainable Slopes is a maturing program. Reporting resorts may have already made the easier and more obvious changes that produce recognizable savings, and now are endeavoring into greater challenges of more creative or expensive savings projects. Second, the results may be reflective of the challenging financial times in which resorts, not unlike many businesses in the nation, are operating.

Table 2-1 indicates the low, high, and average response for each environmental indicator from the reporting resorts. (It should be noted that a “o” response may indicate a lack of data for this measurement rather than a lack of effort in relation to the resource in question.)

**Table 2-1
Environmental Indicators Response Summary**

Environmental Indicator	
<i>Snowmaking Operations Water Savings</i>	
Low (Gallons)	0
High (Gallons)	85,000,000
Average (Gallons)	5,580,193
<i>Consumptive Water Savings</i>	
Low (Gallons)	0
High (Gallons)	12,131,000
Average (Gallons)	699,720
<i>Electric Energy Savings</i>	
Low (kilowatt-hours [kWh])	0
High (kWh)	7,694,850
Average (kWh)	650,021
<i>Renewable Energy Generated</i>	
Low (kWh)	0
High (kWh)	937,700
Average (kWh)	15,700
<i>Renewable Energy Purchased</i>	
Low (kWh)	0
High (kWh)	22,727,000
Average (kWh)	791,477
<i>Waste Diverted</i>	
Low (Tons)	0
High (Tons)	1,300
Average (Tons)	137
<i>Avoided Vehicle Miles Traveled (VMT)</i>	
Low	0
High	18,601,420
Average	763,844



2.3 Environmental Indicators

Table 2-1 emphasizes the importance of water savings from snowmaking at ski resorts. The high and average of this indicator exceed those of consumptive water savings by a factor of at least seven. The table also depicts the importance of a new indicator included in this year's report – renewable energy purchases. Both the high and average responses of this indicator exceed the other two related energy indicators. This may be reflective of the year's focus on the "Keep Winter Cool" Campaign, NSAA's partnership with NRDC, and our new Partnering Organization's (BEF) emphasis on the Green Tags program.

Analysis by Region

In addition to looking for overall trends, we analyzed the data collected by geographic region. The regions used for this analysis are defined below:

Northeast (NE)

Maine
Vermont
New Hampshire
Connecticut
Massachusetts
Rhode Island

Southeast (SE)

Virginia
West Virginia
North Carolina
South Carolina
Tennessee
Georgia

Midwest (MW)

North Dakota
South Dakota
Nebraska
Minnesota
Iowa
Missouri
Wisconsin
Illinois
Indiana
Michigan
Ohio

Mid-Atlantic (MA)

Pennsylvania
New Jersey
New York

Northern Rockies (NR)

Idaho
Montana
Wyoming
Utah

Pacific Northwest (PN)

Washington
Oregon
Alaska

Sierras (SI)

California
Nevada
Arizona

Canada (CN)

Central Rockies (CR)

Colorado
New Mexico



2.3 Environmental Indicators

Table 2-2 displays the total and normalized indicators of the 2004 Assessment Tool by geographic region.

**Table 2-2
Environmental Indicators by Region**

Environmental Indicator	CR	CN	MA	MW	NE	NR	PN	SE	SI	All Resorts
<i>Snowmaking Operations Water Savings</i>										
Total Savings (M gallons) ¹	34.6	75.4	59.2	8.0	16.0	12.7	1.5	105.0	22.4	334.8
Normalized Indicator (gallons/skier visit)	5.4	21.6	54.4	27.5	6.5	3.9	1.0	180.3	5.4	14.5
<i>Consumptive Water Savings</i>										
Total Savings (M gallons) ²	3.0	0.2	1.3	0.2	8.2	8.9	3.2	12.1	4.8	42.0
Normalized Indicator (gallons/skier visit)	0.47	0.06	1.21	0.52	3.3	2.73	2.1	20.83	1.17	1.81
<i>Electric Energy Savings</i>										
Total Savings (MWh) ³	11,141	4,214	4,407	233	6,149	2,081	504	7,803	2,469	39,001
Normalized Indicator (kWh/skier visit)	1.7	1.2	4.0	0.8	2.5	0.6	0.3	13.4	0.6	1.7
<i>Renewable Energy Generation</i>										
Total Generated (MWh)	3.65	0	0	0	0.06	0.26	0	0	938.03	942.0
Normalized Indicator (kWh/skier visit)	0.00057	0	0	0	0.00002	0.00008	0	0	0.22671	0.04062
<i>Renewable Energy Purchased</i>										
Total Purchased (MWh)	13,437	22,727	38	12	2,750	1,308	1,829	0	5,388	47,489
Normalized Indicator (kWh/skier visit)	2.10	6.53	0.03	0.04	1.12	0.400	1.21	0	1.30	2.05
<i>Waste Diverted</i>										
Total Diverted (tons)	3,062	826	423	118	336	2,329	88	274	735	8,191
Normalized Indicator (pounds/skier visit)	0.96	0.47	0.78	0.81	0.28	1.43	0.12	0.94	0.36	0.71
<i>Avoided VMT</i>										
Total Use (M VMT) ³	5.57	1.32	0.12	0.02	0.78	7.96	7.58	1.20	21.28	45.83
Normalized Indicator (VMT/skier visit)	0.87	0.38	0.11	0.06	0.32	2.44	5.02	2.07	5.14	1.98

¹ M gallons = 1 million gallons.

² M VMT = 1 million VMT.

³ MWh = megawatt hour

When comparing the normalized 2004 results of Table 2-2 to 2003 data, most regions reported improvement related to the indicators. (Renewable energy purchased, renewable energy generated, and waste diverted are not counted as these indicators are new or newly revised in this year's Assessment Tool.) The following list presents the improvements related to Indicators for each region:

- CR: snowmaking operations water savings and avoided VMT
- MA: snowmaking operations water savings
- MW: avoided VMT
- NE: consumptive water savings, electric energy savings, avoided VMT



2.4 Climate Change Impacts

- NR: consumptive water savings, electric energy savings, avoided VMT
- PN: electric energy savings and avoided VMT
- SE: snowmaking operations water savings and avoided VMT
- SI: consumptive water savings and avoided VMT

Interpreting the Data

Although the quantitative aspects of the Assessment Tool are approximate, the results do offer some useful information. Table 2-2 quantifies savings indices based on skier visits for each of the Assessment Tool questions. Endorsing resorts can use these indices to compare their own performance against other industry-wide and regional norms.

For example, the normalized indicator of water savings in snowmaking operations for the Northern Rockies (NR) region is 3.9 gallons per skier visit. A resort in that region, then, with approximately 200,000 skier visits is projected to save approximately 780,000 gallons of water each year for snowmaking operations. Actual savings quantities then can be applied to determine if the resort's efforts are greater than or less than this benchmark.

2.4 CLIMATE CHANGE IMPACTS

We made order of magnitude estimates to measure climate change impacts related to the following:

- Conserving electrical energy, generating renewable energy, and purchasing renewable energy
- Reducing waste and recycling
- Reducing transportation demands

To determine climate change impacts related to electrical energy conservation, we applied the respective statewide CO₂ emission factor (from the DOE's Energy Information Administration) to the resorts' estimated energy (kilowatt-hour) savings or use of renewable energy (through onsite generation or purchase). For waste reduction and recycling, we asked resorts to estimate the percentages of materials (office paper, cardboard, etc.) that either were reduced or recycled to account for the total amount of diverted waste. We then applied the relevant equivalent CO₂ emission factors related to the recycling or reduction of the various materials (based on data from the EPA). Finally, for transportation demand reduction, we asked resorts to indicate the breakdown of vehicle type (gas trucks, diesel buses, hybrid electric cars, etc.) involved in their various transportation demand reduction strategies. We then applied fuel efficiency factors (miles per gallon [MPG]) and equivalent CO₂ emission factors related to the fuel type to determine reduced pounds of CO₂ resulting from transportation measures.



Table 2-3 summarizes the overall results of resort responses related to climate change impacts. This table indicates the low, high, and average response for each associated environmental indicator. (Again, note that a “o” response may indicate a lack of data for this measurement rather than a lack of any impact from the action in question.)

**Table 2-3
Climate Change Impacts Summary**

<i>Electric Energy Saved, Renewable Energy Generated and Purchased</i>	
Low (lbs CO ₂ reduction)	0
High (lbs CO ₂ reduction)	33,572,549
Average (lbs CO ₂ reduction)	1,503,598
<i>Waste Reduced/Recycled</i>	
Low (equivalent lbs CO ₂ reduction)	9,106
High (equivalent lbs CO ₂ reduction)	14,249,931
Average (equivalent lbs CO ₂ reduction)	1,272,346
<i>Avoided VMT</i>	
Low (equivalent lbs CO ₂ reduction)	0
High (equivalent lbs CO ₂ reduction)	80,781,450
Average (equivalent lbs CO ₂ reduction)	2,591,057

The data for Table 2-3 also can be totaled to extrapolate an industry-wide climate change reduction (an order of magnitude estimate). Collectively, reporting resorts are reducing their impacts on the climate by reducing the following:

- 90,215,882 pounds CO₂ emissions by conserving electrical energy and generating or purchasing renewable energy
- 76,340,742 equivalent pounds of CO₂ emissions by reducing waste and recycling, an improvement of approximately 156 percent over 2003
- 155,463,435 equivalent pounds of CO₂ emissions by reducing transportation demands, an improvement of approximately 6 percent over 2003
- 322,020,059 total pounds of CO₂ emissions from all energy, waste and transportation reduction measures

To add perspective to the CO₂ reductions quantified above, consider the following:

- Eliminating 25 pounds of CO₂ emissions each year is equal to planting one tree. Collectively, the reporting resorts’ total efforts are equal to planting almost 13 million trees.
- Eliminating 2,400 pounds of CO₂ emissions is equal to not driving a car from New York to Los Angeles. Collectively, the reporting



2.4 Climate Change Impacts

resorts' total efforts are equal to not driving a car from New York to Los Angeles nearly 135,000 times.

These results show that avoided VMT efforts nearly outweigh efforts related to waste and energy combined. As such, these factors indicate that how skiers arrive at resorts is at least equally as important as on-mountain operations in terms of climate change.

Analysis by Region

In addition to looking for overall trends in reducing CO₂ emission, we analyzed the data collected by geographic region in Table 2-4. As this is the first year for regional CO₂ factors, we were unable to compare this year's data with that from previous years; however, we will include this comparison in the 2005 report.

**Table 2-4
Climate Change Impacts by Region**

Climate Change Impact	CR	CN	MA	MW	NE	NR	PN	SE	SI	All Resorts
<i>Electric Energy Saved, Renewable Energy Generated, Green Energy Purchased</i>										
Total Reduction in CO ₂ (M lbs CO ₂) ¹	47.34	5.19	3.81	0.39	6.00	6.17	0.61	15.33	5.37	90.21
Normalized Indicator (lbs CO ₂ /skier visit)	7.4	1.5	3.5	1.3	2.5	1.9	0.4	26.3	1.3	3.9
<i>Waste Reduced/Recycled</i>										
Total Reduction in CO ₂ (M equivalent lbs CO ₂)	22.10	6.75	4.31	0.91	2.65	27.06	1.01	2.95	8.60	76.34
Normalized Indicator (equivalent lbs CO ₂ /skier visit)	3.46	1.94	3.96	3.13	1.08	8.28	0.67	5.06	2.08	3.30
<i>Avoided Vehicle Miles Traveled (VMT)</i>										
Total Reduction in CO ₂ (M equivalent lbs CO ₂)	13.62	1.56	2.73	0.07	1.60	21.18	26.54	1.79	86.37	155.46
Normalized Indicator (equivalent lbs CO ₂ /skier visit)	2.13	0.45	2.51	0.25	0.65	6.48	17.57	3.07	20.88	6.70
<i>Total Of All Above Impacts</i>										
Total Reduction in CO ₂ (M equivalent lbs CO ₂)	83.1	13.5	10.9	1.4	10.3	54.4	28.2	20.1	100.4	322.3
Normalized Indicator (equivalent lbs CO ₂ /skier visit)	13.0	3.9	10.0	4.7	4.2	16.7	18.6	34.5	24.3	13.9

¹ M lbs = 1 million pounds.

According to Table 2-4, the top regions for each respective climate change impact are listed below:

- Energy: Southeast (SE)
- Solid waste: Northern Rockies (NR)
- VMT: Sierras (SI)
- Overall: Southeast (SE)



3.0 CONTRIBUTIONS OF PARTNERING ORGANIZATIONS

NSAA and the endorsing resorts are fortunate to have outside organizations playing a key role in Sustainable Slopes. Our Partnering Organizations, which are listed in Section 1.3, were instrumental in the initial development of the Environmental Charter, and continue to provide their expertise and perspectives as the program evolves.

We are pleased to add two new Partnering Organizations this year, the Bonneville Environmental Foundation (BEF) and the Wildlife Habitat Council (WHC).



The BEF's partnership with the NSAA is intended to help build public awareness for the Sustainable Slopes program and to promote support for clean, alternative energy (commonly referred to as green power) among participating ski areas and their guests. BEF is a 501 (C)(3) nonprofit organization with the mission of supporting and developing new sources of alternative energy, including wind, solar, and biomass power. BEF supplies clean, alternative energy products to utilities, individuals, and corporations located across the United States, including several ski areas. BEF encourages all ski areas to consider supporting alternative energy as part of their broader goals related to sustainability. In 2000, BEF pioneered the concept of Green Tags, which enables consumers everywhere, independent of their electric utility or their geographic location, to support alternative energy resources and the environmental benefits that result from reducing our reliance on burning fossil fuels to produce electricity.

Through partnership with Mt. Hood Meadows Ski Resort in Oregon, BEF developed the Mini-Green Tag as a retail point-of-purchase option available to the guests who frequent the ski area. Mini-Green Tags give skiers and snowboarders the opportunity to reduce their own environmental impacts associated with travel to and from the ski area and to actively participate in the ski area's program to support sustainability. First launched during Sustainable Slopes day 2003, Mini-Green Tags are now offered at Mt. Hood Meadows, Cooper Spur, and Northstar-at-Tahoe ski areas.



3.1 Why Partnering Organizations are Participating



WHC, created in 1988, is a nonprofit, non-lobbying (501)(c)(3) group of corporations, conservation organizations, and individuals dedicated to enhancing and restoring wildlife habitat. WHC helps landowners, particularly companies, manage their unused lands in an ecologically sensitive manner for the benefit of wildlife. WHC's members include 120 companies, more than two dozen conservation groups, and supporters and contributors who work together to broaden the understanding of wildlife values.

WHC is interested in pursuing a demonstration project with members of NSAA as ski areas typically own or operate large tracts of land featuring high biodiversity and/or conservation value. One such demonstration program could involve habitat certification. WHC offers a *Corporate Habitat Certification/ International Accreditation Program* that recognizes commendable wildlife habitat management and environmental education programs at individual sites. WHC certification adds value to programs by providing third-party credibility and an objective evaluation of projects. Individual ski areas could work with WHC biologists to achieve Habitat Certification under this proposal.

A second opportunity for ski area collaboration with WHC would be enrollment in the *Corporate Campaign for Migratory Bird Conservation*. The fundamental goal of this program is to increase migratory bird populations through habitat expansion by engaging corporations and other private landowners in conservation activities. This is an important conservation effort since birds perform a variety of functions vital to maintaining ecosystem vitality, including roles in seed dispersal, pest control, and pollination. Furthermore, birds are an important link in the trophic (food) chain. Moreover, bird populations serve as highly visible indicators of habitat quality; the presence or absence of an assemblage of bird species can be used to gauge overall ecosystem health. When management activities create, restore, or maintain indigenous habitat types for birds, many other species benefit as well.

3.1 WHY PARTNERING ORGANIZATIONS ARE PARTICIPATING IN SUSTAINABLE SLOPES

There are several common reasons why the Partnering Organizations are involved in Sustainable Slopes:

- The Charter fits in well with the mission and goals of the Partnering Organizations.



3.1 Why Partnering Organizations are Participating

- The Charter provides a vehicle for Partnering Organizations to get their environmental information and technical assistance out to those who may benefit.
- Partnerships and collaboration are a large part of how many of the Partnering Organizations do business.

...the number one reason for supporting Sustainable Slopes...is that it leads to improved environmental performance.

However, the number one reason for supporting Sustainable Slopes, expressed either directly or indirectly by all Partnering Organizations, is that it leads to improved environmental performance. As Mark Sinclair of CLF noted from the start, “Regulations can prevent the worst in the ski industry, but they can’t bring out the best.”

Testimonials on motivations for partnering are provided below.

Getting Their Message Out

Having relationships with ski areas through the Sustainable Slopes program allows us access to potentially millions of consumers who, independent of their electric utility or their geographic location, will be able to support alternative energy resources through our programs.— (BEF).

Without the Sustainable Slopes program, most resorts would not be able to learn about and take advantage of EPA’s voluntary programs and other available assistance.—(EPA).

The Charter offers a vehicle for us to get our Responsible Use message out to visitors who enjoy these destination spots.— (LNT).

The Sustainable Slopes program is an efficient way to communicate with hundreds of resorts whose land holdings include important wildlife habitat.— (WHC).

Fitting in with Their Missions and Goals

The concepts fit in well with our own missions and goals (TC).

Sustainable Slopes as a concept is on point and on mission with what we are trying to promote where we work in mountain communities (TMI).

We are very interested in seeing the process because we are building our program ground up now too. The Charter also is very consistent with the NPS mission of protecting the environment and developing evaluation tools that can be applied to our winter sport programs (NPS).

Energy is a thread that touches almost all aspects of ski areas' operations. This certainly fits within our strategic plan of leading the nation in the research, development, and deployment of affordable, advanced, clean energy (DOE).



3.1 Why Partnering Organizations are Participating

The NYSDEC supports the NSAA and the application of the Environmental Charter's principles at ski areas in New York because it fits in with the mission of building partnerships that foster an understanding of how to use and protect the environment and how to work to become better stewards of land, infrastructure, and natural resources (NYSDEC).

The principles encouraging enhancement and restoration of wildlife habitat are consistent with our organization's mission to increase the overall amount and biological value of wildlife habitat on private land (WHC).

Improving Environmental Performance

Improved environmental performance by resorts using cleaner energy sources and reducing CO₂ emissions is an important step toward improved sustainability (BEF).

Improved environmental performance by ski areas translates into improved environmental and health benefits to citizens and the state (CDPHE).

The Charter allows us to move away from our historical regulatory battles with the industry to a more cooperative dialogue. Regulations can prevent the worst in the ski industry, but they cannot bring out the best. The Charter raises the bar for environmental performance beyond compliance toward true sustainability (CLF).

Whatever we can contribute to help the ski industry improve its environmental performance directly benefits us because these efforts help to maintain high environmental quality on national forest service lands that are permitted to ski areas (USFS).

EPA's mission is to protect human health and the environment. Actions a ski area takes through Sustainable Slopes help to achieve this goal. With greater participation and effort, the ski industry is capable of reducing its impacts in a measurable and significant way. The ski industry could play an exemplary role for improved, quantified environmental performance both nationally and worldwide for the tourism and recreation industry. The Sustainable Slopes partnership and this *Annual Report* are a step toward that end (EPA).

Collaboration is the Key

Our whole charter is to embrace and underwrite public/private partnerships on both public and private lands (NFWF).

In our partnering with other industries, we have seen excellent results when this type of proactive visioning occurs. (DOE)

"The Charter raises the bar for environmental performance beyond compliance toward true sustainability" (CLF).



3.2 HOW PARTNERING ORGANIZATIONS ARE GETTING INVOLVED

"In partnering with other industries, we've seen excellent results when this type of proactive visioning occurs" (DOE).

Not only do Partnering Organizations have valuable expertise to share, they are providing other key services as well:

- Resources
- Direct technical assistance to resorts
- Training
- Communication/education/outreach
- Referrals to relevant programs and resources
- Integration of Charter Principles into development reviews
- Initiation of regional and resort-level projects

A brief summary of the contributions of the Partnering Organizations to Sustainable Slopes is provided below.

Resources

The **USFS** provided a grant to NSAA to support the 2003 Assessment Tool data collection and self-assessment effort that form the basis for this *Annual Report*. The USFS also helped fund the initial stakeholder process that NSAA instituted to develop the Environmental Charter in 1999 and 2000.

NFWF provided grants to NSAA for the 2000/2001 and 2001/2002 seasons to develop and implement the data collection and self-assessment process that serves as the basis for this *Annual Report*. NFWF also participated in the Sustainable Slopes Outreach Campaign in Colorado in 2002.

DOE partnered with Aspen Skiing Company, Jiminy Peak Ski Area, and NSAA to sponsor the educational Public Broadcast System (PBS) show "Spotlight On: The Environment," which featured Sustainable Slopes and aired on 300 PBS stations for 3 months during the 2001 ski season. The show aired 991 times and was seen by 5 million viewers.

DOE's Office of Industrial Technologies funded a study in 2004 to explore the role that distributed energy resources (DER) can play towards optimizing energy management at U.S. ski resorts. The study, completed by The Brendle Group, Inc. and Spirae, Inc. was based on a compilation of existing DER practices across the industry as well as a more targeted analysis of potential opportunities for two Colorado ski resorts: Aspen Skiing Company and Vail Mountain. The study is aimed at examining the adoption of mature DER technologies within ski area operations.

Direct Technical Assistance to Resorts

CDPHE and the Colorado Governor's Office of Energy Management and Conservation (OEMC) are partnering to assist small and medium sized



3.2 How Partnering Organizations are Getting Involved

businesses, including ski resorts, with energy efficiency through its *State Partners for Energy and the Environment* program. This program has already completed an energy assessment of Beaver Creek Resort and will be assessing Sunlight and Keystone Resorts in the summer of 2004. More information on the program can be found at: <http://www.state.co.us/oemc/programs/commercial/index.htm>.

Additionally, **CDPHE**, with joint funding from the **EPA**, has provided direct technical assistance to two Colorado ski resorts, Arapahoe Basin and Aspen Skiing Company, through a multi-year pilot program. The pilot program included a top to bottom audit of resort practices and analyses for improving environmental performance and efficiencies. The results of the project were compiled in the *Greening Your Ski Area--A Pollution Prevention Handbook* and disseminated to the industry nationally through NSAA last year. (A link to a copy of the *Handbook* is available on NSAA's website at www.nsaa.org. Click on "Environmental Charter" to find it. Hard copies are available through NSAA by emailing katep@nsaa.org.) With assistance from CDPHE, Tetra Tech EM Inc., and The Brendle Group, NSAA provided training to resorts on the *Handbook* during the Eastern and Western Winter Conferences in January 2002, and also through a special training workshop hosted by Keystone Resort in April 2002. The training sessions were well received and have sparked further progress toward improving environmental performance in the industry.

The *Handbook* includes chapters on most of the on-mountain aspects of the Charter, including Lift Operations, Snowmaking, Vehicle Maintenance, Buildings, and Construction. It also offers guidance on program elements, such as setting performance goals and metrics, marketing successes, and conducting public relations. Finally, the *Handbook* details demonstrated cost savings by the participating resorts in an unprecedented manner. At this time, NSAA is exploring options for making the *Handbook* training program available on-line as an interactive training program so that more resorts can benefit from it.

DOE's Office of Industrial Technologies has provided energy audits at Aspen Skiing Company and Stratton Mountain Ski Resort in conjunction with the **CDPHE** Pilot Program. The goal was to provide the industry with two case-specific audits. Contacts for the ski industry have been provided to DOE's regional offices for alternative fuel vehicle programs (Clean Cities). DOE's regional offices will continue to provide front-end support to ski resorts interested in deploying alternatively fueled vehicles and purchasing wind power.

Although it has not worked directly with ski resorts yet, **TMI** has technical expertise available for hire on a contract basis. TMI's mission and expertise is three-fold: (1) protecting habitat, (2) protecting culture, and (3) advancing the economics of the regions. TMI is poised to help resorts with an objective outside environmental audit or to help design a constructive program around the three principles listed above. TMI's



3.2 How Partnering Organizations are Getting Involved

services include auditing, planning, and fine-tuning environmental programs.

As mentioned previously, in 2000, **BEF** pioneered the concept of Green Tags, which enables consumers everywhere, independent of their electric utility or their geographic location, to be able to support alternative energy resources and the environmental benefits that result from reducing our reliance on burning fossil fuels to produce electricity. BEF's Green Tags are Green-e certified by the Center for Resource Solutions. Visit Online at: www.Green-e.org. In purchasing Mini-Green Tags, ski area guests have reduced approximately 900,000 pounds of greenhouse gases to date.

Training

DOE conducted training seminars for ski areas during NSAA's 2000 Fall Education Seminars. The training sessions were held in eight regions across the country and helped resorts identify opportunities for becoming more energy efficient and for applying clean energy technology.

EPA conducted training workshops on waste reduction, energy and water efficiency for resorts, and environmental management systems (EMS) in conjunction with NSAA's Eastern and Western Winter Conferences in January of 2001.

CDPHE, as part of its joint project with **EPA** (see description under technical assistance above), shared the results of its project with the rest of the industry in resort training workshops held in conjunction with NSAA's Eastern and Western Winter Conferences in January of 2002.

NYSDEC developed a training video this year for ski areas entitled "Pollution Prevention for New York State Ski Areas: Doing Your Part." The video addresses four areas of environmental performance: (1) Energy Conservation and Use, (2) Habitat Protection, (3) Waste Management, and (4) Water Resources. It addresses principles of pollution prevention that ski areas can use to ensure sound environmental stewardship. The training video addresses simple as well as technical operational procedures that can improve overall environmental performance and contribute to cost savings, and it reinforces many of the principles laid out in the Sustainable Slopes Charter. Copies of the training video (in VHS or DVD format) are available through the NYDEC Pollution Prevention Unit at (518) 402-9469.

Communication/Education/Outreach

LNT provides materials on outdoor ethics to resorts for Sustainable Slopes Day each February. In March 2003, LNT participated in Ski For Nature Day with several Utah resorts to benefit the Utah Chapter of the Nature Conservancy. In the future, LNT would like to create some educational pieces (booklets, hang tags, signage, etc.) that more actively present the sustainability message to the end user. This could be done in



3.2 How Partnering Organizations are Getting Involved

partnership with NSAA or even with particular resorts in a more customized fashion.

EPA sponsored environmental outreach materials for the Sustainable Slopes Outreach Campaign in February 2001.

LNT, CDPHE, USFS, and TPL are judges for Mountain Sports Media's Golden Eagle Awards for Environmental Excellence. The award program recognizes resorts that have excelled in particular areas of environmental concern and is managed by Mountain Sports Media, publishers of *SKI*, *SKIING*, and other magazines.

NYSDEC supports the efforts of its Pollution Prevention Unit, which is advocating the Charter Principles within the agency through its outreach programs to ski areas and through its partnership with the statewide ski area association, Ski Areas of New York (SANY).

The **USFS** will be celebrating its Centennial in 2005. In conjunction with this celebration, the USFS will raise the visibility of its longstanding partnership with the ski industry in protecting natural resources and its support of the Sustainable Slopes program.

Referrals to Programs and Resources

During training at NSAA's 2001 conferences, EPA highlighted four programs that can provide direct technical assistance to ski resorts: (1) WAVE (water alliance for voluntary efficiency - www.epa.gov); (2) Energy Star program, which has a broad array of energy efficiency information, software tools, product lists, and a certification program; (3) Waste Wise, which is a waste reduction and recycling technical assistance program; and (4) Environmental Management Systems (EMSs), a tool for identifying, prioritizing, and addressing environmental impacts. EMS is the holistic tool that can provide a systematic structure for resorts to completely implement the Environmental Charter. These are just four of EPA's voluntary programs; there are many other resources and programs available to resorts through the EPA.

...four EPA programs that can provide direct assistance to ski resorts:

- ***WAVE***
- ***Energy Star***
- ***Waste Wise***
- ***EMS***

Integration of Environmental Principles into Development Reviews

Teton County uses the Environmental Charter as a guide in interacting with ski resorts on its Master Development Plans.

The **USFS** continually works with public land resorts on planning new developments, and provides its specialized expertise to enhance the environmental performance of these specific projects. In September 2002, NSAA and the **USFS** renewed a national Memorandum of Understanding on their partnership, highlighting the agency's support of the Sustainable Slopes program. The USFS anticipates that a case-by-case learning tool on resort environmental practices can be used and distributed by NSAA to the member organizations.



Initiation of Regional-level Projects

CLF and the NFWF hope to get more involved in partnering with eastern resorts on climate change-related project.

The USFS is represented on the steering committee of a unique ski area environmental partnership among the Sierra Business Council, Lahontan Regional Water Quality Control Board, Alpine Meadows, Heavenly, Mammoth Mountain, and Northstar-at-Tahoe resorts in California. The goal of the partnership is to reduce soil erosion and improve water quality at ski areas in the Sierra Nevada.

3.3 FUTURE WORK WITH PARTNERING ORGANIZATIONS

While the contributions outlined in Section 3.2 are impressive, another major benefit from Partnering Organizations' involvement in Sustainable Slopes comes from putting their expertise to work as we continue to improve the Charter and the Assessment Tool. Many of the Partnering Organizations have more to offer:

- Direct experience with developing voluntary environmental programs for other industries
- A long history of working with ski resorts and/or mountain communities on environmental issues
- Technical expertise in specific subject areas covered by the Environmental Principles

In combination, this experience is invaluable toward improving the Sustainable Slopes program. NSAA also wants to encourage new Partnering Organizations for the Sustainable Slopes program.



4.0 GOALS FOR THE FUTURE

As in past years, we find it valuable to periodically evaluate the overall performance of the Sustainable Slopes program and look for ways to improve it. This approach has resulted in an evolving program and allows us to be responsive to feedback from our Partnering Organizations and the resorts that participate in the program.

The coming year marks the five-year anniversary of the adoption of our Environmental Charter. Much has changed since 2000. Our Partnering Organizations have changed, the number of endorsing resorts has grown, and resort environmental programs and best practices have changed over time. To reflect these changes and to ensure that our principles are current and incorporate the latest technology to foster continuing improvement in environmental performance, in 2005 we plan to revisit our original Charter document. An updated Environmental Charter document will be available in electronic format through NSAA's website in 2005.

Last year, we set an important goal of streamlining and refining the annual reporting process. This year we met that goal through significant changes to the assessment tool. In addition to streamlining the tool, we emphasized the collection of quantitative data over qualitative data and dramatically improved the instructions for resorts to improve the accuracy of the data collected. In the future, we will continue to make improvements to the assessment tool and our data collection process in response to partner and resort feedback. We will also improve the support provided to resorts (better instructions and sample calculations) so that they will be equipped to gather and report the data necessary to support this Annual Report.

Because of strong resort interest, and in support of the "Keep Winter Cool" campaign, we will continue to request information that allows us to convert energy, solid waste, and transportation savings into greenhouse gas reductions.

We will remind resorts at the end of 2004 what needs to be tracked so that it is easier for resorts to complete the quantitative reporting form in spring 2005.

We will continue our efforts to recruit more resorts to endorse the Charter and to participate in our annual data collection process.

We will continue to look to Partnering Organizations to generate pilot program ideas, foster better sharing of learning, and provide more training, direct technical assistance, and resources to endorsing resorts.

In conclusion, NSAA remains extremely pleased with the progress made to date under the Sustainable Slopes program. Resort environmental programs continue to exceed expectations. Resorts have been highly

4.0 Goals for the Future

successful in implementing the Environmental Principles and can set goals for future improvement using the results of this and past years' assessments. As always, we welcome further input and participation as we continue to improve the Sustainable Slopes program in the coming year.



APPENDIX A
LIST OF ENDORSING RESORTS
AND CONTACT INFORMATION

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
49 Degrees North Mountain Resort	WA	John Eminger	(509) 935-6649	ski49n@ski49n.com
Alpine Meadows Ski Resort	CA	Fern Elufson	(530) 583-4232	fern@skialpine.com
Alpine Meadows Ski Resort	CA	Matt Janney	(530) 583-4232	fern@skialpine.com
Alta Ski Area	UT	Onno Wieringa	(801) 359-1078	onnow@alta.com
Alta Ski Area	UT	Mark Polish	(801) 359-1078	markp@alta.com
Alyeska Resort	AK	David Wilson	(907) 754-1111	dwilson@alyeskaresort.com
Angel Fire Resort	NM	Jon Mahanna	(505) 377-4206	jmahanna@angelfireresort.com
Arapahoe Basin	CO	Rusty Pawlikowski	(970) 468-0718	rustyp@a-basin.net
Arapahoe Basin	CO	Alan Henceroth	(970) 468-0718	alanh@a-basin.net
Arizona Snowbowl	AZ	Eric Borowsky	(928) 779-1951 x119	
Arizona Snowbowl	AZ	Kim Clark	(928) 779-1951 x113	kclark@arizonasnowbowl.com
Ascutney Mountain Resort	VT	John Plausteiner	(802) 484-7711	
Aspen Highlands	CO	Auden Schendler	(970) 925-1220	aschendler@aspensnowmass.com
Aspen Mountain	CO	Auden Schendler	(970) 925-1220	aschendler@aspensnowmass.com
Attitash Bear Peak	NH	Tom Chasse	(603) 374-2368	tchasse@attitash.com
Attitash Bear Peak	NH	Sven Cole	(603) 374-2368	scole@attitash.com
Attitash Bear Peak	NH	Russ Van Deursen	(603) 374-2368	rvandeursen@attitash.com
Balsams Wilderness	NH	Richard Harris	(603) 255-3951	psiadix_03576@yahoo.com
Bear Creek Ski & Recreation Area	PA	Mark Schroetel	(610) 682-7100 x332	marks@skibearcreek.com
Bear Mountain Resort	CA	Brent Tregaskis	(909) 585-2519	btregaskis@bearmtn.com
Beaver Creek Resort	CO	Jim Funk	(970) 949-5750	jfunk@vailresorts.com
Beaver Mountain Ski Area	UT	Travis Seeholzer	(435) 753-0921	beaver@cache.net
Belleayre Mountain	NY	Patricia McVitty	845) 254-5600 x447	pgmccvitt@gw.dec.state.ny.us
Big Bear Mountain Resort	CA	Brent Tregaskis	(909) 585-2519	btregaskis.bm@boothcreek.com
Big Mountain Ski & Summer Resort	MT	Pat Wood	(406) 862-1900	pat@bigmtn.com
Big Mountain Ski & Summer Resort	MT	Jami Phillips	(406) 862-1900	jamip@bigmtn.com
Big Mountain Ski & Summer Resort	MT	Judith Ross	(406) 862-1900	wsixec@bigmtn.com
Big Sky Resort	MT	Madeleine Bessire	(406) 995-5000	
Black Mountain Ski Area	NH	John Fichera	(603) 383-4490	johnf@blackmt.com
Blacktail Mountain Ski Area	MT	Steve Spencer	(406) 844-0999	skiing@blacktail.com
Blue Mountain Resorts	ON	Krystin Rennie	(705) 445-0231	krennie@bluemountain.ca
Bogus Basin Ski Resort	ID	Steve Shake	(208) 332-5100	steve@bogusbasin.com
Bolton Valley Resort	VT	Mike Gallas	(802) 434-3444	mgallas@boltonvalley.com
Boreal Mountain Resort	CA	John Booth	(530) 426-3666	castle@thegrid.net
Boston Mills/Brandywine Ski Resort	OH	Kent Graham	(330) 467-2242	kgraham@bmbw.com
Boston Mills/Brandywine Ski Resort	OH	Sue Kananen	(330) 467-2242	skananen@bmbw.com

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
Breckenridge Ski Resort	CO	Cat Blackman	(970) 453-5000	
Bretton Woods Mountain Resort	NH	Jason Doyle	(603) 278-3302	jdoyle@brettonwoods.com
Bridger Bowl Ski Area	MT	Terry Abelin	(406) 587-2111	bridgerbowl@imt.net
Brighton Ski Resort	UT	Zane R. Doyle	(801) 532-4731	rdoyle@skibrighton.com
Bristol Mountain Winter Resort	NY	Daniel Fuller	(585) 374-6000	dfuller@bristolmt.com
Brodie Mountain Resort	MA	Jim Van Dyke	(413) 443-4752	jvandyke@jiminy.com
Bromley Mountain Resort	VT	John Cueman	(802) 824-5522	jcuan@bromley.com
Brundage Mountain Resort	ID	Larry Shake	(208) 634-4151	larrys@brundage.com
Bryce Resort	VA	Horst Locher	(540)856-2121	skiinfo@bryceresort.com
Bryce Resort	VA	David Roden	(540)856-2121	Manager1@bryceresort.com
Buttermilk Mountain	CO	Auden Schendler	(970) 925-1220	aschendler@aspensnowmass.com
Camelback Ski Area	PA	Richard Wiseman	(570) 629-1661	wiseman@skicamelback.com
Cannon Mountain	NH	Lorri Souza	(603) 823-8800 x721	lsouza@dred.state.nh.us
Cascade Mountain Ski & Snowboard Area	WI	Rob Walz	(608) 742-5588	robwalz@cascademountain.com
Cascade Mountain Ski & Snowboard Area	WI	Rick Gregorio	(608) 742-5588	rickgregorio@cascademountain.com
Cataloochee Ski Area	NC	Chris Bates	(828) 926-0285	cbates@cataloochee.com
Copper Mountain Resort	CO	Chris Colman	(970) 968-2882	colmanc@coppercolorado.com
Copper Mountain Resort	CO	Steve Paccagnan	(970) 968-2882	paccagnans@coppercolorado.com
Cranmore Mountain Resort	NH	Hamish Teasdale	(603) 356-8500	hreasdale.mc@boothcreek.com
Crested Butte Mountain Resort	CO	Mary Jo Somrak	(970) 349-4000	msomrak@cbmr.com
Crystal Mountain Resort	MI	Michael Call	(231) 378-2000	michaelcall@crystalmountain.com
Crystal Mountain, Inc.	WA	Lorna Fluegel	(360) 663-2265	mainoffice@skicrystal.com
Crystal Mountain, Inc.	WA	Bill Steel	(360) 663-2265	bill@skicrystal.com
Dartmouth Skiway	NH	Bill Ulinski	(603) 795-2143	
Deer Valley Resort Company	UT	Bob Wheaton	(435) 649-1000	bwheaton@deervalley.com
Devil's Head Resort & Convention Center	WI	Joe Vittengl	(608) 493-2251	joe@devilsheadresort.com
Devil's Head Resort & Convention Center	WI	Rob Scheibel	(608) 493-2251	rob@devilsheadresort.com
Discovery Ski Area	MT	Peter Pitcher	(406) 563-2184	peter@skidiscovery.com
Dodge Ridge Ski Area	CA	Frank M. Helm, Jr.	(209) 965-4444 x306	frankhelm@dodgeridge.com
Durango Mountain Resort	CO	Mike McCormack	(970) 247-9000	mmcormack@durangomountain.com
Eaglecrest Ski Area	AK	Gary Mendivil	(907) 586-5284	gary_mendivil@ci.juneau.ak.us
Eldora Mountain Resort	CO	Rob Linde	(303) 440-8700 x243	rob.linde@eldora.com
Gore Mountain Ski Area	NY	Kurt Wisell	(518) 251-2411	kurt@goremountain.com
Gore Mountain Ski Area	NY	Michael Pratt	(518) 251-2411	mike@goremountain.com
Gore Mountain Ski Area	NY	Kurt Wisell	(518) 251-2411	kurt@goremountain.com

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
Grand Targhee Ski & Summer Resort	WY	Larry Williamson	(307) 353-2300 x1300	lwilliamson@grandtarghee.com
Grand Targhee Ski & Summer Resort	WY	Andy Steele	(307) 353-2300 x1348	asteel@grandtarghee.com
Greek Peak Mountain Resort	NY	W. Scott King	(607) 835-6111 x134	info@greekpeak.net
Gunstock Area	NH	J. Douglas Irving	(603) 293-4341 x106	doug@gunstock.com
Heavenly Mountain Resort	NV	Andrew Strain	(775) 586-2313	astrain@vailresorts.com
Hidden Valley Ski Area	MO	Tim Boyd	(636) 938-5373	timboyd@direpc.com
Holiday Valley Resort	NY	Jane Eshbaugh	(716) 699-2345	jeshbaugh@holidayvalley.com
Holiday Valley Resort	NY	Dennis Eshbaugh	(716) 699-2345	deshbaugh@holidayvalley.com
Hoodoo Ski Area	OR	Chuck Shepard	(541) 484-6595	umbrella96@aol.com
Hunter Mountain	NY	Scott Berwick	(518) 263-4223	sberwick@huntermtn.com
Hyland Ski and Snowboard Area	MN	Fred Seymour	(763) 694-7800	fseymour@threeriversparkdistrict.org
Jackson Hole Mountain Resort	WY	Tom Spangler	(307) 733-2292	toms@jacksonhole.com
Jackson Hole Mountain Resort	WY	Jerry Blann	(307) 733-2292	jerryb@jacksonhole.com
Jiminy Peak - The Mtn. Resort	MA	Jim Van Dyke	(413) 738-5500 x370	jvandyke@jiminy.com
Keystone Resort	CO	David November	(970) 496-2316	dnovember@vailresorts.com
Killington Resort	VT	John Cole	(802) 422-3333	jcole@killington.com
Kirkwood Mountain Resort	CA	Jan Reed	(209) 258-6000	jreed@kirkwood.com
Kirkwood Mountain Resort	CA	Dave Myers	(209) 258-6000	davemyers@kirkwood.com
Liberty Mountain Resort	PA	Lonny Whitcomb	(717) 642-8282 x3388	lwhitcomb@skiliberty.com
Lookout Pass Ski Area	ID	Phil Edholm	(208) 744-1301 x10	phil@skilookout.com
Loon Mountain Recreation Corp.	NH	Ralph Lewis	(603) 745-8111 x5511	rlewis.lm@boothcreek.com
Lost Trail Ski Area, Inc.	MT	Bill Grasser	(406) 821-3742	ski@losttrail.com
Loveland Ski Area	CO	Ken Abrahamson	(303) 569-3203	kena@skiloveland.com
Mammoth Mountain Ski Area	CA	Rusty Gregory	(760) 934-2571	rusty@mammoth-mtn.com
Mammoth Mountain Ski Area	CA	Lisa Isaacs	(760) 934-2571 x3443	lisaacs@mammoth-mtn.com
Massanutten Ski Resort	VA	Steven Showalter	(540) 289-4950	sshowalter@massresort.com
Mission Ridge	WA	Michael Bourton	(509) 663-6543	mbourton@nwi.net
Mohawk Mountain Ski Area	CT	Carol Lugar	(860) 672-6100	mmtn1@mohawkmtn.com
Monarch Ski and Snowboard Area	CO	Rich Moorhead	(719) 539-3573	moorrich@amigo.net
Mont Ste-Marie Resort	PQ	Pascale-Isabelle Godin	(819) 467-5200	
Montana Snowbowl	MT	Bradley Morris	(406) 549-9777	brad@montanasnowbowl.com
Mount Bohemia	MI	Jim Rempel	(906) 487-9757	bear@up.net

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
Mount Snow Resort	VT	Scott Reeves	(802) 464-3333	sreeves@mountsnow.com
Mount Snow Resort	VT	Gina Sarlo	(802) 464-3333	gsarlo@mountsnow.com
Mount Snow Resort	VT	Heath Woods	(802) 464-3333	hwoods@mountsnow.com
Mount Sunapee	NH	Jay Gamble	(603) 763-2356	jgamble@mtsunapee.com
Mount Tone Ski Area	PA	Ray Handley	(570) 842-2544	
Mountain Creek	NJ	Michael Renfrew	(973) 827-3900	mrenfrew@mountaincreek.com
Mountain Creek	NJ	Shannon McSweeney	(973) 827-3900	smcsweeney@mountaincreek.com
Mountain High Resort	CA	Paul Bauer	(760) 249-5808	pbauer@mthigh.com
Mt. Ashland Ski Area	OR	Jeff Hanson	(541) 482-2897	jhanson@mtashland.com
Mt. Bachelor, Inc.	OR	Chip Hill	(541) 382-2442	chill@mtbachelor.com
Mt. Bachelor, Inc.	OR	Dan Rutherford	(541) 382-2442	drutherford@mtbachelor.com
Mt. Hood Meadows Ski Resort	OR	David Riley	(503) 337-2222 x259	driley@skihood.com
Mt. Hood Meadows Ski Resort	OR	Jodie Mears	(503) 337-2222	jmears@skihood.com
Mt. Hood Meadows Ski Resort	OR	Stuart Wilson	(503) 337-2222	swatson@gore.com
Mt. Hood Ski Bowl	OR	H. Todd Wheeler	(503) 272-3206	htodd@aol.com
Mt. Hood Ski Bowl	OR	Kirk Hanna	(503) 272-3206	khanna@skibowl.com
Mt. La Crosse	WI	Todd Schini	(608) 788-0044	info@mtlacrosse.com
Mt. Rose - Ski Tahoe	NV	Paul Senft	(775) 849-0704	ps@skirose.com
Mt. Shasta Board & Ski Park	CA	Gary Nordell	(530) 926-8600	skipark@snowcrest.net
Mt. Spokane Ski & Snowboard Park	WA	Brad McQuarrie	(509) 238-2220 x203	bradmquarrie@mtspokane.net
Northstar-at-Tahoe	CA	Terri Viehmann	(530) 562-1010	tviehmann.ns@boothcreek.com
Northstar-at-Tahoe	CA	John Loomis	(530) 562-1010	jloomis.ns@boothcreek.com
Nub's Nob Ski Area	MI	James Bartlett	(231) 526-2131 x10	bart@nubsnob.com
Okemo Mountain Resort	VT	Pam Cruickshank	(802) 228-4041	pamc@okemo.com
Otis Ridge	MA	Al Hewett	(413) 269-4444	oridge@vgernet.net
Panorama Resort	BC	Gordon Ahrens	(604) 343-6941	gahrens@intrawest.com
Paoli Peaks, Inc.	IN	Felix Kagi	(812) 723-4696 x224	frkagi@kiva.net
Park City Mountain Resort	UT	Vern Greco	(435) 649-8111	verng@pcski.com
Pats Peak	NH	Kris Blomback	(603) 428-3245	kris@patspeak.com
Pebble Creek Ski Area	ID	Mary Reichman	(208) 775-4452	info@pebblecreekskiarea.com
Pebble Creek Ski Area	ID	Dana Lucid	(208) 775-4452	info@pebblecreekskiarea.com
Peek 'n Peak Resort & Conference Center	NY	Brad Gravink	(716) 355-4141	skiinfo@pknpk.com
Pomerelle Mountain Resort	ID	A.W. Anderson	(208) 673-5599	andrwood@atcnet.net
Powder Ridge Ski Area	CT	Kenneth Leavitt	(860) 349-3454	leavittkr@aol.com
Powder Ridge Ski Area	MN	Jerry Wahlin	(320) 398-5295	prfun@cloudnet.com
Powderhorn Resort	CO	W. Steven Bailey	(970) 268-5700 x2028	sbailey@powderhorn.com
Powderhorn Resort	CO	Jim O'Loughlin	(970) 268-5700 x2081	jimo@powderhorn.com

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
Red Lodge Mountain	MT	Rob Ringer	(406) 446-2610	rringer@redlodgemountain.com
Red River Ski Area, Inc.	NM	Mike VanOrmer	(505) 754-2223	redriver@newmex.com
Saddleback Ski Area, Inc.	ME	Tom McAllister	(207) 864-5671	tom@saddlebackmaine.com
Seven Springs Mountain Resort	PA	Scott Bender	(814) 352-7777	sbender@7springs.com
Shawnee Peak Ski Area	ME	Chet Homer	(207) 647-8444	cehiii@aol.com
Sierra Summit Mountain Resort	CA	Richard Kun	(559) 233-2500	rck@snowsummit.com
Sierra-at-Tahoe Ski Resort	CA	Evan MacClellan	(530) 659-7453	emaccllellan.st@boothcreek.com
Ski Anthony Lakes	OR	Amy Barnes	(541) 856-3277	abarnes@anthonylakes.com
Ski Bluewood	WA	Bruce Goodell	(509) 382-4725	Bruce@bluewood.com
Ski Cooper	CO	Clint Yant	(719) 486-2277	anned@skicooper.com
Ski Cooper	CO	Anne Dougherty	(719) 486-2277	anned@skicooper.com
Ski Denton	PA	Joyce Knefley	(814) 435-2115	skidentn@penn.com
Ski Plattekill Mountain Resort	NY	Laszlo Vajtay	(607) 326-3500	laszlo@plattekill.net
Ski Plattekill Mountain Resort	NY	Ed Dalski	(607) 326-3500	
Ski Roundtop	PA	Gayle Kosyk	(717) 432-9631	gkosyk@skiroundtop.com
Ski Roundtop	PA	Lonny Whitcomb	(717) 432-9631	lwhitcomb@skiliberty.com
Ski Snowstar Winter Sports Park	IL	Ed Meyer	(309) 798-2666	snowstar@qconline.com
Ski Wenworth	NS	Leslie Wilson	(902) 895-9281	ljwilson@kerrcontrols.ca
Sleepy Hollow Sports Park, Inc.	IA	Rick Flatt	(515) 262-4100	
Smugglers' Notch Resort	VT	Mark Delaney	(802) 644-8851	mdelaney@smuggs.com
Smugglers' Notch Resort	VT	Tom McGrail	(802) 644-8851	tmcgrail@smuggs.com
Snow Creek Ski Area	MO	David Grenier	(816) 640-2200	dgrenier@skisnowcreek.com
Snow Summit Mountain Resort	CA	Richard Kun	(909) 866-5766 x120	rck@snowsummit.com
Snowbasin, A Sun Valley Resort	UT	Michael Jenkins	(801) 620-1000	mjenkins@snowbasin.com
Snowbasin, A Sun Valley Resort	UT	Denzel Rowland	(801) 620-1000	drowland@snowbird.com
Snowbird Ski & Summer Resort	UT	Jim Baker	(801) 933-2222	jbaker@snowbird.com
Snowmass Ski Area	CO	Auden Schendler	(970) 925-1220	aschendler@aspensnowmass.com
Snowshoe Mountain Inc.	WV	Bruce Pittet	(304) 572-1000	bpittet@snowshoemtn.com
Snowshoe Mountain Inc.	WV	Ruth Bachman	(304) 572-1000	rbachman@snowshoemtn.com
Soda Springs Ski Area	CA	John Booth	(530) 426-3901	castle@thegrid.net
Solitude Mountain Resort	UT	David L. DeSeelhorst	(801) 534-1400	dave@skisolitude.com
SoVista Golf and Ski Ranch	CO	Marise Cipriani	(970) 887-3384	mcipriani@solvista.com
Spirit Mtn. Recreational Area	MN	Rick Certano	(218) 628-2891	rcertano@spiritmt.com
Squaw Valley Ski Corporation	CA	Katja Dahl	(530) 583-6985	kdahl@squaw.com

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
Steamboat Ski & Resort Corp.	CO	Lyn Halliday	(970) 879-6111	lhalliday@steamboat.com
Stevens Pass	WA	Chester Marler	(206) 812-4510 x244	cmarler@stevenspass.com
Stowe Mountain Resort	VT	Robert Apple	(802) 253-3000	rapple@stowe.com
Stratton Mountain	VT	Sky Foulkes	(802) 297-2200	sfoulkes@intrawest.com
Sugar Bowl Ski Resort	CA	Chris Parker	(530) 426-6705	cparker@sugarbowl.com
Sugar Bowl Ski Resort	CA	Janel Adams	(530) 426-9000	
Sugarbush Resort	VT	Margo Mears	(802) 583-6300	mmears@sugarbush.com
Sugarbush Resort	VT	Bob Ackland	(802) 583-6300	backland@sugarbush.com
Sugarloaf USA	ME	Kimberly Truskowski	(207) 237-2000	ktruskowski@sugarloaf.com
Sunburst Ski Area	WI	James Engel	(262) 626-8404	jim@skisunburst.com
Sundance	UT	Mary Morrison	(801) 225-4107	mmorrison@sundance-utah.com
Sundance	UT	Chrissy Merrick	(801) 225-4107	cmerrick@sundance-utah.com
Sunday River Ski Resort	ME	Marvin Collins	(207) 824-3000	mcollins@sundayriver.com
Sunlight Mountain Resort	CO	Thomas Jankovsky	(970) 945-7491	tomj@sunlightmtn.com
Swain Ski & Snowboard Center	NY	Jon Gorton	(607) 545-6511	swain@infoblvd.net
Taos Ski Valley, Inc.	NM	Gordon Briner	(505) 776-2291 x1222	gbb@newmex.com
Telluride Ski & Golf Company	CO	Deanna Belch	(970) 728-6900	DBelch@tellurideskiresort.com
Tenney Mountain	NH	Dan Egan	(603) 536-4125 x306	dan@tenneymtn.com
The Canyons	UT	F. Scott Pierpont	(435) 649-5400	spierpont@thecanyons.com
The Canyons	UT	Fran Amendola	(435) 649-5400	famendola@thecanyons.com
The Homestead	MI	Adriene Kokowicz	(231) 334-5000	akokowicz@thehomesteadresort.com
The Summit At Snoqualmie	WA	Trevor Kostanich	(425) 434-7669	tkostanich.sl@boothcreek.com
The Summit At Snoqualmie	WA	Dan Brewster	(425) 434-7669	dbrewster.sl@boothcreek.com
The Temple Mountain Ski Area	NH	Thomas Dill	(603) 924-6949	templemntnskiarea@monad.net
Timberline Four Seasons Resort	WV	Tom Blanzzy	(304) 866-4801	tomblanzzy@yahoo.net
Timberline Lodge & Ski Area	OR	Jon Tullis	(503) 622-7979	jtullis@timberlinelodge.com
Timberline Lodge & Ski Area	OR	Eric Merritt	(503) 622-7979	emerritt@timberlinelodge.com
Tremblant Resort	PQ	Michel Aubin	(819) 681-2000	maubin@intrawest.com
Tremblant Resort	PQ	Christine Tremblay	(819) 681-2000	ctrembla@intrawest.com
Triple M-Mystical Mountain	NM	Chris Sparling	(505) 682-2205	racs@hauns.com
Vail Mountain	CO	Luke Cartin	(970) 845-2500	lcartin@vailresorts.com
Wachusett Mountain Ski Area	MA	Tim McGuire	(978) 464-2300	tim@wachusett.com
Waterville Valley Resort	NH	Rob Batchelder	(603) 236-8311	rbatchelder.wv@boothcreek.com
Welch Village Ski Area, Inc.	MN	Leigh Nelson	(651) 222-7079 x21	welchvillage@usinternet.com

Endorsing Resort	State	Charter Contact Person	Contact Phone	Contact Email
Whistler & Blackcomb Mountains	BC	Allana Hamm	(604) 932-3141	ahamm@intrawest.com
Whistler & Blackcomb Mountains	BC	Arthur DeJong	(604) 932-3141	adejong@intrawest.com
White Pass Ski Area	WA	Kevin McCarthy	(509) 672-3101	kevin@skiwhitepass.com
Whiteface Mountain Ski Center	NY	Jay Rand	(518) 946-2223 x201	jrand@whiteface.com
Whitetail Mountain Resort	PA	Mike Schuman	(717) 328-9400 x3558	mschuman@skiwhitetail.com
Wildcat Mountain Ski Area	NH	Tom Caughey	(603) 466-3326 x211	tomc@skiwildcat.com
Willamette Pass Ski Corp.	OR	Tim Wiper	(541) 345-7669	cw3@willamettepass.com
Williams Ski Area	AZ	Laird Moody	(928) 635-9330	
Windham Mountain Resort	NY	Daniel Frank	(518) 734-4300	dfrank@skiwindham.com
Winter Park Resort	CO	Gary DeFrange	(970) 726-5514	gdefrange@skiwinterpark.com
Winter Park Resort	CO	Doug Laraby	(970) 726-5514	doug_laraby@skiwinterpark.com
Wintergreen Resort	VA	Bob Ashton	(434) 325-2200	bobashton@wintergreenresort.com
Wintergreen Resort	VA	Frankee Love	(434) 325-2200	flove@wintergreenresort.com
Wolf Creek Ski Area	CO	Davey Pitcher	(970) 264-5639	

APPENDIX B
ENVIRONMENTAL CODE OF THE SLOPES



The environmental charter for ski areas

WHAT YOU CAN DO

6 Steps To Sustainable Slopes

1. PACK IT IN — PACK IT OUT

Leave nature how you found it.

2. RESPECT WILDLIFE

by observing trail closures and ski area boundaries.

3. SHARE A RIDE

so we can breathe fresh air and see the views.

4. BE CONSIDERATE

of others' experiences and let nature's sounds prevail.

5. GET INVOLVED

in your local resort or community's environmental programs.

6. SPREAD THE WORD

to your liftmates, friends and family.

www.nsaa.org

Get online at www.nsaa.org for participating resorts and events that promote Sustainable Slopes.

APPENDIX C
CLIMATE CHANGE/"KEEP WINTER COOL" MATERIALS



CLIMATE CHANGE POLICY

Ski areas across the country adopted an Environmental Charter in 2000 to address the environmental concerns of our industry. The Charter, commonly referred to as “Sustainable Slopes,” identifies climate change as a potential threat to the environment and our business. Although we are not a major source of greenhouse gas (GHG) emissions, many resorts across the country already are taking steps to reduce their own, limited GHG emissions.

To collectively address the long-term challenges presented by climate change and continue our commitment to stewardship under the Sustainable Slopes program, we hereby adopt this climate change policy. Through this policy, we aim to raise awareness of the potential impacts of climate change on our weather-dependent business and the winter recreation experience; reduce our own greenhouse gas emissions; and encourage others to take action as well. We are committed to working toward solutions that will keep both the environment and economy healthy and preserve quality of life. To this end, we will take the following actions:

- Educate the public and resort guests about the dependence of winter sports on natural ecosystems and the potential impacts of climate change on the winter recreation experience; educate guests on how they can help reduce GHG emissions.
- Raise policy maker awareness of the dependence of winter sports on natural ecosystems and the potential impacts of climate change on the winter recreation experience.
- Advocate the national reduction of GHG emissions through legislative, regulatory or voluntary measures.
- Support sound, science-based solutions to climate change, including the use of renewable energy technologies.
- Partner with appropriate organizations and agencies to assess opportunities to reduce resort emissions and increase energy efficiency; invest in new, more efficient products, practices and technologies; and measure our emission reductions.





Keep Winter Cool

SUSTAINABLE SLOPES

Help Stop Climate Change

- **SHARE A RIDE** carpool, drive an efficient car or take shuttles to help reduce greenhouse gas (GHG) emissions.
- **BE AN EFFICIENT CONSUMER** buy energy-efficient household appliances and replace normal lightbulbs with compact fluorescent bulbs.
- **TURN OFF LIGHTS AND HEAT** when you leave a room at our resort or your home.
- **BUY CLEAN ENERGY FOR YOUR HOME** contact your local utility to see if "green electricity" is available to power your home through renewable energy sources like wind power.
- **CONTACT YOUR ELECTED REPRESENTATIVES** and ask them to do more to reduce CO₂ emissions and help winter fuel for skiing and snowboarding.
- **SPREAD THE WORD** to your skiers, family and friends.

www.nsaa.org

Go online at www.nsaa.org for more information on Sustainable Slopes and climate change.