



California Ski Industry Association

2016 Sustainability Report

California and Nevada Ski Resorts: Environmental Stewards for the Future

**“THE ENVIRONMENT IS
EVERYTHING THAT ISN’T
ME.”**

- **ALBERT EINSTEIN**

The natural environment is the heart of the ski industry. Without it, the recreation that millions of skiers and snowboarders enjoy would not exist; we rely upon a sustainable, sensibly maintained natural environment in order to deliver exceptional outdoor recreation opportunities. As our environment changes, the ski industry must remain proactive, vigilant, and committed to how we impact, manage, and care for the environment in which we operate.

The California Ski Industry Association (CSIA) is a 501(c)(6) non-profit trade association representing 28 ski resorts in California and Nevada. CSIA develops and maintains strong relationships with government officials, tourism groups, media, and ski industry leaders to advocate key industry related initiatives, including environmental stewardship and mountain safety. CSIA monitors existing and proposed legislation to ensure that national and state legislators hear and consider the industry perspective on issues affecting mountain communities and businesses. CSIA member resorts account for over seven million annual skier visits, have a direct annual economic impact of nearly \$1.5 billion, directly generate over \$100 million per year in state and local taxes, and employ more than 16,000 people per year. CSIA and its member resorts seek to preserve the mountain sports business and the natural environment in which it exists.

Like any other business serving millions of people, the ski industry requires use of water, power, and other resources. In response to these necessities, CSIA member resorts are taking significant steps to ensure the protection of the natural environment while allowing winter – and even summer – enthusiasts to enjoy the mountain environment. As this report details, CSIA member resorts have been making environmental stewardship a core component of their business practices for years. Sustainable practices are a priority in decision-making, and when resorts look to progress or expand, they do so with an eye toward mitigating impacts and/or improving the natural environment, while offering a better experience for guests.

Ski resorts in California and Nevada prioritize environmental stewardship, and we are an industry that believes in sharing our practices and accomplishments as one. We are a small industry with big influence, and through education and advocacy, we seek to empower our guests, government, and the media to spread a message and practices that will reach industries beyond outdoor recreation. The industry pursues collective action to protect, improve, and sustain the natural environment that makes snow sports exceptional. Accordingly, this report will not focus on individual accomplishments, but rather what we have achieved as an industry.



Sustainable Practices

How do CSIA member resorts protect the environment?

The business community can help protect the environment in many ways. Running a business in the mountains provides even greater opportunities, and CSIA member resorts are setting an example for the rest of the country. California has been a leader in developing and enacting progressive environmental policies, typically well ahead of the rest of the United States.

The ski industry has embraced that progressive approach with its own commitment to the environment and it has supported many statewide policies, including the groundbreaking AB 32, the California Global Warming Solutions Act of 2006 (as well as the recently signed SB 32). The Act requires reduction of greenhouse gas (GHG) emissions in California to 1990 levels by 2020, which is now just around the corner. AB 32 was the first program in the country to take a comprehensive, long-term approach to addressing human effects on our climate. Given our early-adoption and leadership for environmental advocacy in California, the ski industry will continue to be a leader for the rest of the nation to embrace the fact that our climate is not a state issue, but a global one.

This report details the many efforts of CSIA member resorts to improve, change, and challenge company-wide internal practices to protect the environment. Oftentimes these efforts require a significant initial capital investment, but becoming more sustainable has become a key component of how resorts measure operational success.

There are many facets to sustainability. CSIA member resorts have made recognized efforts to evaluate, measure and implement environmentally-minded solutions in the areas of (1) Carbon Footprint Reduction, (2) Water Management and Snowmaking, (3) Protecting the Land, (4) Transportation and Vehicles, (5) Facilities, (6) Recycling, and (7) Environmental Partnerships.¹ Reducing the industry's carbon footprint flows from environmental improvement projects each of the areas and reflect the industry's overall commitment to reducing its carbon footprint through all levels of operation. Large or small, every step ski resorts make to improve operational efficiency is an investment in the future of snow sports.

Carbon Footprint Reduction

Broadly speaking, CSIA member resorts are committed to reducing their carbon footprint. This is a widely used phrase, so it is important to understand what it means. Carbon Dioxide (CO₂) traps the heat from the sun within the earth's atmosphere. When businesses burn fuel (gas, coal, diesel, natural gas, propane, etc.) and use electricity (most is generated by burning fossil fuels), or when guests drive to our resorts, they contribute to the emission of carbon dioxide into the atmosphere. Therefore, it is important to understand our CO₂ footprint, to consider what we are emitting into the air, and to do what we can to reduce CO₂ emissions.

¹ Environmental stewardship in mountainous areas is not a one size fits all approach. What works for some resorts may not work for others. While this report details "Environmental Practices" and "Environmental Results" for actions taken by one or more CSIA member resorts, it is important to note that not every resort creates or implements the same actions (for a variety of reasons). Resorts do, however, share information and discuss what has and has not been successful. Methods for protecting our environment develop through practice and time, and each resort has to evaluate its environment, business model, and culture to determine how it can best reduce its carbon footprint and fulfill its commitment to being an environmental steward.

CSIA member resorts conduct internal audits to gauge carbon emissions from operations and identify areas where they can reduce emissions. Resorts improve emissions by investing in public transit, high-efficiency heating and ventilation systems, retirement of timeworn equipment, automated and efficient snowmaking systems, and other internal practices designed to foster a culture of environmental protection and awareness.

As an industry, we also pay close attention to where our energy comes from, and in what form. One of CSIA's larger member resorts learned that, after installing electric car charging stations, the source of the electricity was from a coal-burning plant. That resort took a very bold step by reaching out to its energy provider and asking it to change its ways. That energy provider is now in the process of transitioning its source from coal to solar.

Water Management and Snowmaking

Efficient water management is essential. CSIA member resorts have focused on water management through modernizing snowmaking systems and water storage, and operational practices aimed at conserving water. Adjustments like upgrading resort restrooms with low flow motion sensor toilets and sinks or waterless toilets save significant amounts of water.

Resorts research and invest in modern snowmaking technology to reduce their energy usage and the amount of water used for snowmaking. Installing water-cooling systems in snowmaking ponds, for example, creates a system that is more efficient while still producing the same amount of snow. Resorts are investing in automated systems and high efficiency fan guns that make the maximum amount of snow with the least amount of water and energy use. They closely monitor temperature to determine optimal snowmaking opportunities, which decreases the resources used. One resort even began using 100 percent recycled water for snowmaking, with 100 percent of the energy used for the system offset through the purchase of renewable energy credits, an effort that resulted in a SKI Magazine Golden Eagle Award for Environmental Excellence in 2016.

Additionally, snowmaking is a minimally consumptive use of water. Most of the water resorts use for snowmaking returns to the surface and groundwater. The Truckee River Operating Agreement, developed by officials from the United States, California, Nevada, cities in both states, and public utility districts, estimates that approximately 84 percent of the water used for snowmaking returns to the watershed. Of the remainder, vegetation absorbs about half, and about half evaporates, returning to the ecosystem. Snowmaking is an effective system for water storage; snow melts and returns to surface and groundwater flows in the warmer and drier months of the year when natural flows can be limited and the need for water is greater.

Snowmaking offers tremendous economic benefits to rural communities by enhancing the reliability of snow conditions, thus stabilizing the local economy and labor force. Without snowmaking, resorts, employees, and communities would lack the necessary year over year certainty that is necessary to sustain a healthy local economy.

Snowmaking storage reservoirs also play a critical role during the summer months in supporting fire protection. Snowmaking reservoirs provide helicopters easy access to water in remote areas during fire suppression operations. In addition, water pipe systems at ski areas can transport water to remote areas during firefighting activities.



Environmental Practice	Environmental Results
Member resort developed first of its kind recycled water system using recycled water for snowmaking	Use of 100% recycled water, mitigating 2 million gallons of potable water and recycling 5 million gallons of water
Installed automated, temperature controlled snowmaking systems	Enables centralized operation of system to significantly reduce inefficiencies
Installed water cooling systems in snowmaking ponds	Improve efficiency of water to snow conversion and savings in water and electricity, reducing over 20 tons of CO ₂ and saving millions of gallons of water
Installed high-efficiency fan guns at multiple resorts	Reduce hundreds of tons of CO ₂ by reducing the use of compressed air
Replaced air compressors in snowmaking guns with single high-powered compressors	Reduce energy usage by 10%
Use dirt, instead of snow, to build terrain features in terrain parks and halfpipes	Reduce water and energy usage
Upgraded restrooms with low flow motion sensor toilets or waterless toilets	Reduce use of millions of gallons of water (1.5 gallons per flush)

Protecting the Land

To preserve the beauty Mother Nature has bestowed upon us, resorts aim to protect not only the land on which the public recreates, but also surrounding areas. Resorts preserve existing vegetation and plant new vegetation on ski runs to protect the integrity of the mountain and the surrounding water quality through skillful erosion control, trail maintenance, and sediment reduction. In many instances, resorts follow careful steps to ensure protection of the environmental landscape by working with federal, state, and local agencies, as well as private contractors with the necessary experience.

The ski industry takes initiative not only with the land it occupies, but also with the communities that surround its resorts. Investing in the sustainability efforts of the local community helps both the resorts and community thrive. Many resorts provide monetary and volunteer support to various community programs, support local businesses through partnerships and sponsorships, and promote environmental awareness by encouraging the community to protect lands neighboring ski resorts. The ski industry understands that its business is dependent upon the ability to protect natural resources, including the mountains, streams, forests, and lakes the spread across entire communities.

California and Nevada are also subject to significant fire risk, especially with the recent drought contributing to several devastating fires. CSIA member resorts direct considerable resources to fire protection, including fuel reduction and fire break zones (ski trails and snowmaking systems). Several resorts act as staging areas in the event of wildland fire events, providing their resources to firefighters to help prevent the serious environmental damage that can result from catastrophic fires in mountain communities. Resorts have installed lookout cameras on peaks, acted as first responders to fires, and allowed helicopters to use snowmaking ponds to fill water buckets for fire suppression.



Environmental Practice	Environmental Results
Planted over 1000 sugar pine seedlings in the area of the Angora Fire	Forest restoration
Restored 1.2 miles of the Tahoe Mountain Trail system	Erosion control and promotion of outdoor recreation
Donated over \$100,000 to the Tahoe Fund	Improve water quality and access to outdoor recreation
Installed storm water filtration and management systems at lodges and in parking lots	Save water and protect lakes and streams
Use recycled pine needles for soil cover and water bars and silt boxes to intercept sediment	Prevent erosion and sediment run-off, and protect plant growth by increasing soil moisture
Employee and community volunteer days and resort programs	Build new trails, restore public lands, improve stream systems, remove trash, and foster a culture of environmental awareness and protection
Founding member of the California Alpine Resorts Environmental Cooperative (CAREC), an organization made up of several ski resorts and the State of California Water Resources Control Board	Develop, test, and share information on erosion control, revegetation, and water quality protection

Transportation and Vehicles



People travel from all over the world to visit ski resorts in California and Nevada. The 16,000 people employed annually by ski resorts must get to work. Using vehicles both on and off the hill is a necessity. Without grooming machines, ski resorts could not offer the beautiful corduroy they create each morning. The environmental impacts from vehicles are well known. Recognizing these impacts, resorts have made significant efforts to decrease vehicle traffic and use more environmentally friendly fuels. Many resorts reduce carbon dioxide emissions by providing complimentary transportation to both guests and employees. Some even offer incentives for employees who carpool.

Environmental Practice	Environmental Results
Offer free public transportation to ski resorts in mountain towns for both guests and employees, many with buses using compressed natural gas	Reduce traffic congestion and carbon footprint (millions of vehicles off the road)
Adopt carpooling services and coordinate with bus companies for guests and employees	Reduce traffic congestion and carbon footprint
Installed electric car charging stations	Promote emission-free driving
Offer bike and electric car rental on-site	Reduce traffic congestion and carbon footprint
Developed "no idle" policies for company and guest vehicles	Reduce greenhouse gas emissions
Use biodiesel (B100) to operate high-speed detachable chairlift	Reduce greenhouse gas emissions

Facilities

Environmental stewardship does not exist only outdoors. Resorts provide food and beverage, retail, and lodging services, and operate buildings they must keep warm for guests. The ski industry has made significant efforts to increase the efficiency of their facilities by reducing energy costs, and in turn, their carbon footprint. Sometimes it is as simple as changing a light bulb ... or 10,000 of them.



Environmental Practice	Environmental Results
Received multiple LEED® building certifications	Reduce carbon footprint
Installed higher efficiency and automated heating/ventilation systems	Reduce carbon footprint by limiting CO ₂ output
Installed airlock doors	Reduce heating energy use
Replaced single-pane windows with efficient double-pane glass windows	Reduce CO ₂ by tens of thousands of pounds
Replaced thousands of incandescent and T12 light bulbs with CFL, LED and T8 bulbs	Reduce CO ₂ by over 200 tons each year
Replaced carpet with partially recycled carpet with 100% recycled backing	Reduce waste
Member resort is a founding member of the Sierra Green Building Association	Promote effective environmental design
Progressive use of 100% green energy to power resorts	Reduce carbon footprint
Purchase energy credits through renewable sources to offset 100% of grid supplied electricity	Reduce carbon footprint

Recycling and Waste Reduction

Recycling is a commitment and requires continued improvement, innovation, and awareness. Ski resorts have instituted a multitude of recycling programs and use them to create an environmentally conscious culture with both guests and employees. They are also committed to ensuring resort grounds are clean. Keeping the mountain as clean and natural for guests as possible is part of resorts' everyday policies and actions.

Environmental Practice	Environmental Results
Implemented a wide range of recycling programs both indoors and outside	Recycle tons of glass, plastic, paper, and aluminum, and increase recycling awareness
Discontinued sale of single-use water bottles, instead offering reusable water bottles and refilling stations	Save over 28,000 bottles from going into landfills each year
Adopted programs to recycle "boneyard" materials, collections of items no longer used	Recycle scrap metal and other materials
Replaced one-time use food and beverage materials with washable dishes and silverware	Reduce waste production
Haul organic waste to recycling facilities	Reduce waste in landfills
Partnered with product manufacturer to recycle plastic bottle tops	Recycle 560 gallons (mass) of plastic bottle tops
Recycled resort materials to build roof-top deck	Reduce waste
Purchase 100% recycled content or compostable food service products	Promote environmental protection and awareness
Sponsored e-waste programs	Recycle thousands of pounds of electronic waste
Instituted paperless systems	Reduce paper use by thousands of pieces per month
Use recycled material to create terrain park features	Promote environmental protection and awareness
Installed recycled, composite plastic decks that require no trees or chemical waterproofing	Save trees and protect the environment
Employ end of day waste removal programs	Protect the environment and promote employee awareness

Partnerships and Advocacy

Sustainability is a group effort. It extends beyond California and Nevada. The ski industry has made a concerted effort to focus on environmental protection and awareness. To support that mission, CSIA member resorts routinely partner and collaborate with organizations that make the environment their mission. They purchase products from companies and suppliers that not only prioritize environmentally friendly products, but also those that increased the environmental efficiency of their own operations and practices. For example, one resort opted to purchase new company vehicles from a dealership because it had installed over \$1.2m in efficient and solar energy upgrades. Most importantly, CSIA and its member resorts join with their national partner in skiing to ensure the environment is a constant priority.

CSIA member resorts participate in the **National Ski Areas Association (NSAA)** [Sustainable Slopes Grant](#) and [Climate Challenge](#) programs. NSAA, through its [Environmental Charter](#), helps the ski industry lead the way among outdoor recreation providers with a vision to manage business in a way that demonstrates a commitment to environmental protection and stewardship while meeting public expectations. Launched in 2009, the Sustainable Slopes Grant Program provides cash and in-kind funding to support sustainability projects at NSAA member ski resorts. Grant recipients have obtained significant benefits, including more efficient snowmaking equipment, habitat protection, watershed protection, lighting retrofits, waste reduction, on-site renewable energy generation, energy consulting, ROI consulting, climate adaptation consulting, and thousands of dollars in energy savings. California and Nevada resorts will continue to strongly support and participate in NSAA environmental programs.



Some resorts have also teamed up with [Protect Our Winters \(POW\)](#), an organization founded and supported by industry athletes to engage and mobilize the snow sports community to lead the fight in support of climate advocacy. POW focuses on educational initiatives, advocacy, and community-based activism. CSIA supports the POW mission to ensure the long-term viability of snow sports around the world. One member resort has teamed with POW to offer “POW Parking,” which provides free premium parking to vehicles that arrive with four or more passengers.

CSIA and its member resorts will continue to engage in future partnership opportunities that support sustainability efforts and address our changing climate. Further, we will continue to support and join our industry partners to advocate for legislation and policies that effectively address climate change. It is not enough to change lightbulbs and purchase new equipment. The mission for the protection of our environment is a global one that requires the ski industry’s voice, support, and influence. As an industry, we are committed to working with colleagues, legislators, communities, and leaders to energize a positive impact on our environment.

Awards and Programs

The efforts discussed in this report, and countless other contributions made by employees and local communities, result in well-deserved accolades. These many awards reflect the extraordinary efforts to make California and Nevada two of the top states in the country when it comes to environmental activism.



Award/Certification	Entity
Golden Eagle - Overall Environmental Excellence (1994, 1996, 2013, 2016)	National Ski Areas Association
Silver Eagle - Excellence in Environmental Education (1995, 2006, 2007, 2010)	National Ski Areas Association
Silver Eagle - Excellence in Water Conservation (2010)	National Ski Areas Association

Silver Eagle - Excellence in Energy Conservation/Clean Energy (2005)	National Ski Areas Association
Silver Eagle - Excellence in Waste Reduction and Recycling (2003, 2005)	National Ski Areas Association
Silver Eagle - Excellence in Community Outreach (1996)	National Ski Areas Association
Silver Eagle - Excellence in Fish and Wildlife Habitat Protection (1995, 2009)	National Ski Areas Association
Silver Eagle - Excellence in Stakeholder Relations (2004, 2005, 2008)	National Ski Areas Association
Silver Eagle - Excellence in Visual Impact (2002)	National Ski Areas Association
LEED® Building Certifications (2009, 2010)	Leadership in Energy and Environmental Design (LEED)
WRAP Award (2003-2015)	State of California Waste Reduction Awards Program
Sustainable Slopes Snowmaking Grant (2015)	National Ski Areas Association
Individual Hero of Sustainability (2016)	National Ski Areas Association

Looking to the Future

CSIA and its member resorts are committed to preserving our winters and alpine environment for current and future generations. Future-focused, multi-generational thinking is what fuels sustainability at CSIA member resorts, and they are intent on adhering to that pledge. In the years to come, member resorts will continue to reduce their overall environmental footprint by concentrating on reducing emissions and water consumption, researching and investing in energy-saving technologies, reducing waste, and increasing awareness of their efforts to their peers and the public.

Environmental stewardship is as much about culture as it is about results. CSIA member resorts have sought to create sustainability as a core value of all operations through “green teams,” volunteerism, training, and employment positions that focus solely on environmental protection and improvement. They also engage their guests and create public awareness of environmental issues. Awareness creates informed action by the public. When a resort stops using plastic water bottles, that effort trickles down to the person refilling a reusable container. A public well informed of the need for sustainable practices will insist that others follow. Without fostering this type of culture, resort could not have dedicated the necessary resources, strategies, and prioritization to the many environmental initiatives discussed throughout this report. The ski industry strongly encourages members of the public to be aware of environmental concerns, follow the policies adopted by resorts, and make their own commitment to protecting the environment.

The ski industry recognizes that it is about more than recreation. It is a steward of the land upon which millions of people venture each year to enjoy the beautiful mountain landscape. We are an institution built on preservation, conservation, and protection. The efforts made to date are impressive, but there is no doubt that California and Nevada resorts will continue to strive to set the standard for other industries to follow.

CSIA would like to offer sincere thanks to Kierra Keller, a student in the ski area management program at Sierra Nevada College in Incline Village, Nevada, for her assistance researching, analyzing, and drafting this report.

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