Since NSAA launched its Sustainable Slopes program well over a decade ago, the practice of sustainability in ski area operations has become widespread across the industry. In fact, from an independent third party assessment by Brendle Group—a Colorado-based consulting firm that’s supported ski industry sustainability for more than a decade—more than 75 percent of resorts now have some kind of sustainability effort under their belt. And from NSAA’s Climate Challenge to its annual Golden Eagle Awards, it’s evident that many areas continue to push into new frontiers of sustainability in their operations.

There’s plenty of evidence that individual capital projects are reaping financial benefits for ski areas, from lighting retrofits to efficiencies in lift operations and snowmaking. But what are the aggregated benefits of comprehensive sustainability programs to the financial balance sheet of ski areas—and what are the takeaway lessons for the industry as a whole?

Until recently, nobody has asked these questions, but in 2013 two long-time consultants to the ski industry teamed up to uncover the answers. Their findings? There’s a positive correlation between sustainability and profit, and a message of lost opportunity for the shrinking pool of ski areas without sustainability programs.

**THE ROI OF SUSTAINABILITY**

Outside the ski industry there is longstanding research and data pointing to the beneficial impacts of sustainability on company financial performance, and business leaders have taken notice. In 2008, the UK-based organization Business in the Community’s report *The Value of Corporate Governance*, which presents five years of research, found that the Dow Jones Sustainability Index—a family of indexes evaluating the sustainability performance of the largest 2,500 companies listed on the Index—financially outperformed traditional Dow Jones companies by an average of 36.1 percent. The report also found that sustainability strategies had significant beneficial impacts on the cost of external financing, return on invested capital, sales growth, and the fade-rate of a firm’s competitive advantage.

The global business management consulting firm AT Kearney’s 2009 report *Green Winners* reflected similar results. In 16 of 18 industry sectors examined for the report, companies recognized as sustainability focused outperformed their industry peers over a six-month period during the 2008 economic crisis and were more protected from value erosion. What’s more, stock prices of 99 sustainability-oriented companies outperformed industry averages by 15 percent over the six-month period. The study showed that sustainability improves business performance in good times and in bad.

A 2010 survey of CEOs by management consulting firm Accenture—the most extensive corporate survey ever conducted on the topic of sustainability—found that corporate leaders are taking such findings to heart. More
than 93 percent of CEOs surveyed see sustainability as crucial to business success, while 91 percent said they would employ new technologies and practices to help meet their sustainability goals over the next five years.

SUSTAINABILITY AND THE SKI INDUSTRY
Ski areas have been practicing aspects of sustainability in their operations for many years, with NSAA serving in a leadership role by providing grants, technical resources, and recognition to advance these efforts. From energy efficiency projects to waste reduction, and from snowmaking to fleet efficiency, there’s little doubt that ski areas have benefitted from such projects in terms of cutting their bottom-line costs.

While some of the sustainability projects that ski areas report to NSAA through Sustainable Slopes, the Climate Challenge, and the Golden Eagle Awards program include data on the costs and benefits of implementation of such projects, there has been no systematic aggregation of this information and analysis on the overall economic impacts of sustainability. Research from other industries, however, is shedding light on how the ski industry might credibly measure the impacts of sustainability on financial performance.

That’s where two of the ski industry’s longtime supporters—the sustainability consulting firm Brendle Group and market research firm RRC Associates—saw the opportunity to collaborate with NSAA and fill this gap. Brendle Group has been working with NSAA and individual ski areas on sustainability projects and strategy for more than a decade, offering a wealth of information on the outcomes of sustainability projects and programs. RRC’s many years of experience assessing the industry’s financial performance through annual surveys provides rich data at the income statement level.

In combination, these data sets and perspectives could be matched up to examine the intersection of sustainability and financial performance.

“When I started to dig into how studies outside the ski industry were conducted, it dawned on me that between Brendle Group’s sustainability data and RRC’s economic data, we could quantify whether ski areas have as much to gain financially from sustainability as other sectors studied,” said Brendle Group President Judy Dorsey, who worked with RRC’s Director of Consulting Services Dave Belin to develop the study. Both recognized the potential benefits to the industry of identifying the types of sustainability projects that make the most financial sense—and then examining how those benefits propagate from the project level through to the financial performance of an entire ski area.

“NSAA has been collecting and measuring ski industry financial performance and sustainability performance for many years,” said NSAA President Michael Berry. “This was the perfect opportunity to put these two together for the benefit of all of our members.”

SUSTAINABILITY AND THE BOTTOM LINE
One of the team’s first tasks was to organize the wide range of sustainability projects and practices being reported by ski areas into the departments and program areas that RRC uses in its annual economic analysis. From here, RRC included a question in this year’s Economic Analysis Survey to gather data on how many ski areas have implemented sustainability projects in these different program areas. In total, 115 ski areas responded to the question.

While RRC was collecting this data, Brendle Group went to work compiling first costs and annual cost savings from actual representative projects implemented across ski resorts. Projects were then aggregated into program areas to show financial impacts to various aspects of ski area operations. Aggregation also allowed the team to bundle together smaller projects such as lighting upgrades—a very common practice across the ski industry—that in isolation would not register on company financials.

The team organized dozens of different sustainability project types into 11 ski area operational program areas (figure 1). The top six of these 11 program areas for both cost-effectiveness and implementation rate by ski resorts

Figure 1. Major Ski Area Sustainability Program Types

- Renewable Energy Generation
- Energy Efficiency in Existing Buildings
- New Construction—Green Building
- Snowmaking Efficiency
- Utility Energy Management
- Fleets and Grooming
- Food and Beverage: Green Purchasing, Waste Reduction, and Recycling
- Lift Operations
- Greenhouse Gas Reporting and Triple Bottom Line Accounting
- Sustainability Marketing and Communications
- Human Resources
are shown in figure 2. While calculating the costs and savings for direct sustainability projects such as energy or water-saving measures is generally understood and accepted, factoring in indirect costs and benefits—from sustainability-oriented marketing and messaging or human resources, for example—required a different approach. The team therefore made some key assumptions, projecting that if a ski resort implemented comprehensive sustainability programs across a majority of the 11 program areas, it could legitimately build an authentic sustainability marketing campaign to increase revenues. Increased total ski area revenues were conservatively estimated at 1 percent improvement (compared to 10 percent measured for other industries) with a cost estimate of 5 percent of incremental marketing dollars directed to sustainability in order to achieve these top-line gains. For human resources, the team evaluated the impacts of sustainability on reducing employee attrition and increasing productivity, estimating annual savings of approximately $57,000 with no up-front implementation costs.

### ASSESSING THE BUSINESS POTENTIAL

With a look at project-level financials completed, the team then began to look at sustainability performance impacts at the scale of a whole ski area and its income statement.
The Sustainability Advantage, a book written by business sustainability thought leader Bob Willard, served as a cross-reference for the team’s research. Willard’s book—reflecting his deep dive into the financials of companies as well as his own 34-year career as a senior executive with IBM—shows that if a typical company were to implement best practice sustainability approaches already being used by many leading-edge companies, it could improve its profit by 51 to 81 percent over three to five years while avoiding a potential 16 to 36 percent erosion of profits.

Willard’s methodology includes a model he developed to calculate the savings a business could realize from its sustainability initiatives over a five-year period with a focus on seven key factors—from reduced expenses due to energy efficiency to reduced hiring and attrition expenses from greater employee retention (see figure 3). By entering company financial data, the model can produce estimated savings to both a company’s bottom-line costs and top-line revenue from implementing sustainability practices.

The team adjusted Willard’s model to more accurately reflect the ski industry, both removing variables with little relevance to the industry and lowering default values for expected savings to estimated savings built bottom-up from the data compiled across the program areas included in figure 2. The model was then loaded with financial performance data reported in RRC’s 2011-12 Economic Analysis of U.S. Ski Areas, which also allowed for the team to segment and evaluate data by region and by ski area size.

The team also examined the sustainability programs and activities of all 115 ski areas participating in the Economic Analysis and created a sustainability “performance index score” to rate the sustainability performance of each area (figure 4). The team scoured available information from NSAA and web research—from energy programs and projects to fleets, food and beverage, marketing, and human resources—to document the performance of more than 215 ski areas that together represent more than 70 percent of annual skier visits in the U.S.

“The sustainability performance index score was then matched to the 115 ski areas that participated in RRC’s annual Economic Analysis survey. “Because of the level of participation in the survey, we have a robust data set that can be sliced and diced on a variety of criteria—in this case, the sustainability index score,” said RRC’s Dave Belin.

Ski areas were grouped into three performance levels based on their sustainability index score. Those with little to no active sustainability program were assigned “green circles,” those with some activity “blue squares,” and the highest performers “black diamonds” (figure 5). From here, RRC was able to analyze financial performance at the company income statement level.

### Figure 3. Willard’s Seven Sustainability Advantage Factors

- Increase revenue
- Reduce energy expenses
- Reduce waste expenses
- Reduce materials and water expenses
- Increase employee productivity
- Reduce hiring and attrition expenses
- Reduce strategic and operational risks

### About the Performance Index

Each ski area was given a score of 0 to 3.5 based on its performance across eight criteria:

- Endorsement of Sustainable Slopes
- Consistent year-to-year reporting of performance to NSAA
- Participation in the Climate Challenge or public reporting of greenhouse gas emissions
- Advocacy for sustainability policy at state or federal levels
- Sustainability in marketing/communications
- General sustainability project implementation
- Implementation of an on-site renewable energy project
- Recipient of a Gold and/or Silver Eagle Award

### Figure 5. Performance Levels

<table>
<thead>
<tr>
<th>Grouping</th>
<th>Sustainability Index Score</th>
<th>Number of Ski Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Circle</td>
<td>0–0.5</td>
<td>43</td>
</tr>
<tr>
<td>Blue Square</td>
<td>1–1.5</td>
<td>42</td>
</tr>
<tr>
<td>Black Diamond</td>
<td>2–3.5</td>
<td>30</td>
</tr>
</tbody>
</table>

### Figure 6. Projected Profit Increase from Sustainability

<table>
<thead>
<tr>
<th>Year</th>
<th>% Profit Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Overall Ski Industry</td>
</tr>
<tr>
<td>1</td>
<td>2%</td>
</tr>
<tr>
<td>2</td>
<td>4%</td>
</tr>
<tr>
<td>3</td>
<td>6%</td>
</tr>
<tr>
<td>4</td>
<td>7%</td>
</tr>
<tr>
<td>5</td>
<td>8%</td>
</tr>
</tbody>
</table>
In 2013 Brendle Group worked with Utah’s Alta Ski Area to document the combined costs and benefits of sustainability projects implemented and recommended since the launch of the Alta Environmental Center in 2008.

This included a new LEED-Silver Skier Services and Lift Maintenance Building; a host of energy efficiency, renewable energy, and other operational improvements; organizational development projects—such as sustainability training, and increased internal coordination among staff and department heads—and improved external communications via web materials and a published sustainability report. The aggregated first costs and cost savings were then propagated through the typical balance sheet for ski areas comparable in size to Alta in the Rocky Mountain Region.

Results show that sustainability improvements documented at Alta would translate to the following improvements in financial performance for similar sized resorts in the Rocky Mountain Region:

- 0.9% increase in operating profit margin (over 20.4% on average across ski areas of similar size in the region)
- 0.5% improvement in profit before tax on equity (over 4.8% on average across ski areas of similar size in the region)
- $0.56 reduction in total expenses per skier visit (from $50.95 on average across ski areas of similar size in the same region)
- $0.48 increase in profit per skier visit (from $3.36 on average across ski areas of similar size in the same region)

To err conservatively, Brendle Group included the cost of its consulting services in Alta’s financial analysis and only counted direct savings. Increased revenue from an improved brand position and cost savings from employee retention and productivity were not included.

“What we’ve found is that all of the little things add up—making a dent not only in our carbon footprint but also benefiting us financially,” said Onno Wieringa, Alta’s general manager.

THE RESULTS
Willard’s sustainability advantage model—adjusted to fit the ski industry, tempered with conservative estimates of potential benefits, and loaded with industry economic performance data from 2011 to 2012—showed that ski areas could realize at least a 2 percent increase in profit in the first year after initiating a comprehensive sustainability program, with increasing profits in years two through five as the result of the accumulation of sustainability benefits (figure 6). Based on ski area financial data broken out by region, some regions could see greater profit increases than that.

“Even erring on the side of being conservative, the model clearly shows that sustainability can pay off right away and keep accumulating benefits to ski areas,” said Brendle Group’s Dorsey. “Every year of delay for non-participating ski areas is a year more of competitive advantage for those with comprehensive sustainability programs.”

When comparing the 2011-12 financial performance data to the sustainability performance index of ski areas (green circles, blue squares, black diamonds), the findings are somewhat mixed likely due to a range of other financial factors, as well as ski area size and geography. One trend, however, did emerge: Overall, those ski areas rated as “blue squares” in the sustainability performance index—or those with active sustainability but not leading-edge sustainability programs—had the highest operating profit at 25.6 percent, followed by “black diamond” at 21.8 percent. The areas rated as “green circles” realized the lowest operating profit at 19 percent, compared to an overall average across all three levels of 23.1 percent (figure 7).

Why did the “black diamond” sustainability performers not exceed the “blue squares” in financial performance? There may be several factors at play, noted Brendle Group’s Dorsey and RRC’s Belin. First, because the study only included one year of financial data, it’s possible that the highest performers are taking on more ambitious projects that won’t result in near-term outcomes but could have long-term benefits. Second, leading-edge sustainability performers are likely more inclined to look past short-term financial returns when
picking high-profile, legacy sustain-
ability projects. Third, the black dia-
mond group comprises much larger 
ski areas with an average of $38.6 
million in revenue and $8.4 million 
in operating profit, affording them a 
greater financial base from which to 
invest in sustainability projects.

To explore these longer term 
effects and to cross-check the Wil-
lard findings, RRC took Brendle 
Group’s economic results from 
figure 2 and ran them against the 
balance sheet for the average overall 
ski area surveyed (figure 7 “Over-
all” column) to compare pre- and 
post-sustainability financial per-
formance. The results corroborate 
Willard’s top-down estimates with 
bottom-up industry data showing 
that the ROI for sustainability when 
aggregating across several program 
areas is large enough to register at 
the income statement level, showing 
a 1.8 percent per year improvement 
in operating profit after projects are 
capitalized in year one. The exact 
investment profile from year to year 
would vary based on the mix of 
sustainability projects identified and 
their linkages to capital improve-
ment plans and budget cycles.

Beyond the financial results, 
what’s also telling overall about the 
results is that more than 75 percent 
of all ski areas have some form of 
sustainability program in place—a 
statistic that Dorsey said doesn’t bode 
well for the fewer than 25 percent of 
ski areas that are sustainability lag-
gards. “These ski areas are really miss-
ing out on some simple and effective 
changes that could lead to significant 
financial, risk reduction, brand image, 
and other rewards” said Dorsey.

LESSONS FOR THE FUTURE
While the team’s study still leaves 
many questions to answer, its results 
show significant promise on cor-
relating sustainability and improved 
financial performance across the 
industry, and helping ski areas benefit 
from both. What’s needed next to 
Further prove out the preliminary 
findings is to examine additional 
years of data to uncover how sustain-
ability benefits accrue into future 
years—as well as to dig deeper into 
the expense side of the equation, 
including energy and snowmaking 
cost differences.

Dorsey and Belin will discuss the 
results and potential next steps in a 
workshop-style session at this year’s 
Winter Trade Shows (January 21–23 
at Steamboat, Colorado, and Febru-
ary 3–4 at Mount Snow, Vermont). 
Look forward to further research on 
the topic. And, as Dorsey noted, 
ski areas should consider the bigger 
financial picture when interpreting 
results, particularly with the uncer-
tainty that a changing climate poses 
to the industry.

“Ski areas should also consider 
that it’s not just about improved 
financial performance,” Dorsey said. 
“It’s also about building the resiliency 
to absorb shocks, manage risk, and 
avoid revenue erosion in a rapidly 
changing world.”

<table>
<thead>
<tr>
<th>Figure 7. Summary of Income Statements and Operating Profit by Ski Area Sustainability Performance Category (Units: $1,000)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall (Green, Blue, Black Combined)</strong></td>
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<tr>
<td>Gross Fixed Assets</td>
</tr>
<tr>
<td>Total Gross Revenue</td>
</tr>
<tr>
<td>Operating Expenses</td>
</tr>
<tr>
<td>Operating Profit (Loss)</td>
</tr>
<tr>
<td>Depreciation</td>
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<tr>
<td>Amortization</td>
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<tr>
<td>Operating Leases</td>
</tr>
<tr>
<td>Interest</td>
</tr>
<tr>
<td>Profit (Loss) Before Tax</td>
</tr>
<tr>
<td><strong>Number of Ski Areas</strong></td>
</tr>
<tr>
<td><strong>Operating Profit as a % of Total Gross Revenue</strong></td>
</tr>
<tr>
<td><strong>Profit Before Taxes as a % of Total Gross Revenue</strong></td>
</tr>
</tbody>
</table>