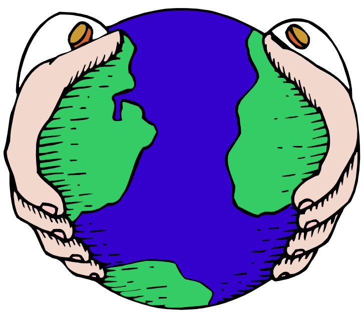
CHAPTER 3
ENVIRONMENTAL PERFORMANCE MEASUREMENT AND REPORTING



Numerous federal, state, and local environmental agencies direct programs that require some type of environmental reporting. Traditionally, such reports were narrowly defined to meet the subject of a particular environmental regulation; for example, toxics release reporting or hazardous waste generation. Many of the proactive environmental programs described in Chapter 2 (for example, CERES and the Colorado Environmental Leadership Program) have holistic environmental reporting components. In addition, in recent years, public demand for corporate communication about complex environmental impacts coupled with increasingly widespread awareness of EMS concepts has given rise to independent, voluntary standards for businesses to report on environmental performance and sustainability efforts.

This chapter discusses:

- ✓ the importance of quantifying an environmental performance baseline
- ✓ basic environmental performance metrics for ski areas (energy and water consumption and solid and hazardous waste generation)
- ✓ an external, independent reporting standard known as the Global Reporting Initiative
- ✓ environmental performances assessment using the Sustainable Slopes assessment tool

3.1 MEASURING A SKI AREA'S ENVIRONMENTAL BASELINE

The environmental impacts, or "footprint," made by any individual, facility, corporation, or industry reaches far beyond the amount of trash it sends to the landfill. For example, electricity use requires that land be mined or drilled for power plant fuel, flooded to create hydroelectric dams, or used for ash or nuclear waste disposal. Air pollution emissions from coal-fired power plants and cars not only affect air quality and surface water quality (via acid rain), but are also significant greenhouse gases. Similarly, there are ripples of environmental impacts from the use of hard goods (everything from paper to snowcats) and associated manufacturing wastes and resource consumption.

> About 45 hours were needed to create the energy and water baselines at A-Basin, but in subsequent years the baseline is expected to take less than 8 hours to update.

Determining all aspects of an environmental footprint for a ski area, or any business, is a daunting task that must be considered in practical terms. Evaluating a ski area's energy and water consumption and solid and hazardous waste is a challenging but feasible approach to establishing an initial baseline of environmental impacts and costs. Developing a baseline and an ongoing measurement system is important and necessary in order to demonstrate the success of proactive environmental management practices. Furthermore, creating a baseline/measurement system and subsequent environmental reporting are important elements of any comprehensive corporate environmental program. One of the most important tangible benefits is related to actions that occur when managers finally have accurate knowledge of "high-waste" operations and associated costs. Finally, ski areas participating in NSAA's Sustainable Slopes Program can use environmental performance data to credibly demonstrate the positive impact of the Environmental Charter (see Sections 2.2 and 3.7).

The amount of time required to create a baseline depends on several factors such as the following:

- ✓ Ski area size
- ✓ Billing information organization (centralized versus decentralized record keeping, paper versus electronic records, and so on)
- ✓ Institutional knowledge (for example, knowing who to contact for particular information or to resolve areas of confusion)
- ✓ Number of waste haulers and recyclers
- ✓ Number of electrical meters
- ✓ Complexity of billing rate structures

Considering the inherent variability of these and other factors, determining the baseline in each "media" (energy, solid waste, hazardous waste, and water use) can take anywhere from 20 hours for small, simple, organized data to over 100 hours for large, complex, disorganized data. However, after baseline information is gathered, charted, and analyzed, predicting future resource consumption, and waste management, determining payback times for equipment or operational changes, calculating savings, and providing environmental impact statements are relatively simple.

Although there are unique aspects and considerations in creating baselines for any particular media, the basic steps are the same. Each step is briefly described below:

Step 1. Determine Focus Areas. Determine areas of resource consumption or waste generation to baseline; for example:

- Electricity use (heating, lift operation, snowmaking)
- Fuel use (heating, lift operation, snowmaking, and vehicle and equipment operation)
- Chemical use (housekeeping, maintenance, etc.)
- Water use (buildings and snowmaking)
- Solid waste generation
- Hazardous waste generation

Step 2: Collect Information. Determine a reporting year and gather bills for the most recent year. For ease of reporting, select a year that is most closely aligned with how data are currently organized, or that coincides with other internal or external reporting deadlines. Be consistent in the year chosen so that changes from year to year can be compared. Examples include reporting using a calendar year, fiscal year, or ski season year. Ski areas that endorse Sustainable Slopes, should consider selecting a reporting year that corresponds to the annual reporting to NSAA (see Section 3.7).

This step will also include meeting with individuals aware of billing and operations to fully understand how resources are consumed or wastes are generated. For example, it is necessary to correlate particular electric meters with particular operations. Commonly, multiple energy uses are consolidated on one meter; therefore, discussions with individuals at the local utility and within ski area departments are usually necessary to "unscramble" electrical use by key operations.

Step 3: Create Data Management Spreadsheets. Data collected in Step 2 should be entered in software capable of manipulating and charting the data such as Microsoft Excel. Within the program, keep data as separate as possible and use summary tables to consolidate information. For example, fuel consumption can be organized by type of use (snowmaking, buildings, vehicles, and equipment, etc.). Assumptions made during "data crunching" (for example, unit costs or estimates for missing data) should be carefully documented in the spreadsheets. Ideally, a system should be created such that vendors provide the necessary information with the monthly invoice and the spreadsheet manager habitually enters the data. An example of a "roll-up" summary page for selected environmental baseline metrics is shown in the table below.

Summary of Cost, Amount, and eCO_2 for Aspen Skiing Company (ASC) for the 1999 Baseline

Media	Cost	Unit Number	Unit Type	eCO2(tons)	Ave cost/unit
Electricity	$1,869,253	26,231,512	kWh	26,100	0.071
Fuel	$325,748	368,480	gallons	4,009	0.884
Natural Gas	$472,790	984,979	therms	5,811	0.480
Propane	$3,457	3,842	gallons	24	0.900
Water	$281,295	227,240,405	gallons	78	0.001
Solid Waste	$265,763	4,367	tons	9,502	60.857
TOTAL	**$3,218,306**			**45,526**	

Step 4: Normalize and Convert Data. Normalizing data allows environmental and department managers to interpret the baseline numbers relative to an appropriate "production" metric; for example, skier visits. Dividing by the selected production metric normalizes baseline data. In this way, energy use (and other data) in a busy year can be compared to energy use in a slow year. Furthermore, normalized data allow ski areas to benchmark their environmental performance (or resource use efficiency) to other ski areas.

Evaluating and communicating environmental baseline data that have different units can often be simplified by converting the data to the same unit. A common unit for "apples to apples" comparisons of various environmental baseline data is equivalent carbon dioxide (eCO_2) emissions. Carbon dioxide is a common greenhouse gas created during the combustion of carbon fuels (petroleum, coal, and natural gas). eCO_2 represents the estimated amount of CO_2 generated by the use of a particular resource. The conversion factors, or emission coefficients, are based on assumptions associated with known CO_2 emissions from different power sources. Air emission coefficients for different regions in the U.S. vary according to the source of energy. For electricity, the coefficients depend on the mix of energy sources of the particular utility company and are lower if the proportion of hydroelectric, wind power, or nuclear energy is greater than the national average. Emission coefficients for other pollutants, such as sulfur dioxide (SO_2) and nitrogen oxides (NOx) are also available and depend on type of coal burned and on the effectiveness of emissions control devices. Ski areas interested in estimating the emissions associated with its power use should contact the local utility for the coefficients for the energy that the resort uses, or use the national averages provided below:

Pounds of	per therm of fuel	per kWh of electricity
CO_2	11.81	1.344
SO_2	0.011	0.0079
NO_x	0.013	0.0041

Nationally, fuel use is dominated by natural gas. If the fuel being used for the ski area is all natural gas, the carbon emissions would be about 2 percent less than calculated using the above coefficients. If the fuel being used is all coal, the carbon emissions would be about 74 percent greater than calculated using the above coefficients. If the fuel being used is all distillate fuel oil, the carbon emissions would be about 37 percent greater than calculated using the above coefficients.

Converting all baseline information to eCO2 facilitates comparisons of one environmental impact (greenhouse gas emission) associated with different resources used by a ski area. Some conversions are shown in the table on the following page.

Example Energy Data Conversion and Normalization from ASC

Category	Media	Cost	Cost per Category	Units	Units per Category	Unit Type	Conversion	eCO2(tons)
Vehicles	Fuel-SM	128,317		149,635	111505	gal diesel	.0113 tons CO2/gal	1,260
					38130	gal gas	.00988 tons CO2/gal	377
	Fuel-AH	41,165		45,603	37486	gal diesel	.0113 tons CO2/gal	424
					8117	gal gas	.00988 tons CO2/gal	80
	Fuel-AM	75,688		88,881	76802	gal diesel	.0113 tons CO2/gal	868
					12079	gal gas	.00988 tons CO2/gal	119
	Fuel-BM	80,577		84,361	33941	gal diesel	.0113 tons CO2/gal	384
					50,420	gal gas	.00988 tons CO2/gal	498
Sub-Total			**$325,748**		**368,480**	**gallons**		**4,009**
Snowmaking	Electric-ASC	559,683	559,683	6,909,663	**6,909,663**	**kWh**	1.99 lbs CO2/kWh	6,875
	Water-AM	96,201		49,845,000			.0000006308 tons CO2/ga	31
	Water-AH	7,500		15,000,000				0
	Water-BM	0		28,981,500				0
	Water-SM	29,745	$133,445	59,489,000	**153,315,500**	**gallons**		0
Sub-Total			**$693,128**					**6,907**
Buildings	Electric-ASC	197,185		2,816,924				
	Electric-AM&AI	72,283		1,204,724				
	Electric-SMC	150,526		2,150,370				
	Electric-TLN	197,927	$617,921	2,827,522	**8,999,541**	**kWh**	1.99 lbs CO2/kWh	8,955
	Water-ASC	42,430		21,214,780				
	Water-TLN	41,359		20,679,555				
	Water-SMC	47,023		23,511,390				
	Water-AM&AI	17,038	$147,850	8,519,180	**73,924,905**	**Gallons**	.0000006308 tons CO2/ga	47
	Nat. Gas-SMC	3,064		6383.25				
	Nat. Gas-ASC	136,680		284,749				
	Nat. Gas-TLN	61,889		128,936				
	Nat. Gas-Other	271,158	$472,790	564,912	**984,979**	**Therms**	1mill.BTU/.059tonsCO2	5,811
	Propane	3,457	$3,457	3,842	**3,842**	**Gallons**	.00637 tons CO2/gallon	24
	Solid Waste	265,763	$265,763		**4367**	**tons**	2.1759 tonCO2/ton waste	9,502
Sub-Total			**$1,507,781**					**24,339**
Lifts	Electric-ASC	690,371	**$690,371**	10,304,038	**10,304,038**	**kWh**	1.99 lbs CO2/kWh	**10,253**
Misc	Electric-ASC	1,279	**$1,279**	18,270	**18,270**	**kWh**	1.99 lbs CO2/kWh	**18**
TOTAL		**$3,218,306**						**45,525.84**
# of Skiers	**1,205,266**	**$2.67**	**per skier**				**Tons eCO2 per Skier**	**0.038**

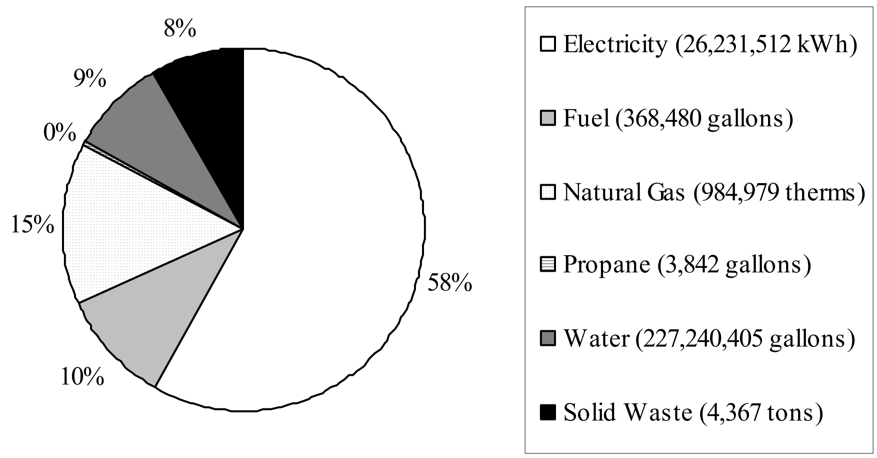
Step 5: Chart Data and "Ground Truth" Results. Create bar and pie charts to summarize and analyze environmental baseline data. Graphic data displays facilitate trend identification, emphasize areas of resource consumption or waste generation, and help ski area managers identify any glaring errors in calculation. Charts and tables should be shared with individuals that contributed to data collection (Step 2) to fill in any data gaps and review data for accuracy.

Example charts and graphs summarizing the results of environmental baselines at Aspen Skiing Company (ASC) and Arapahoe Basin (A-Basin) are shown in Figures 3.1 through 3.4. Figure 3.1 shows the relative environmental impact (eCO2) of each resource type investigated as a percentage of the total eCO2. Figure 3.2 shows total resource consumption and waste generation by media for ASC and A-Basin. Figures 3.3 and 3.4 show normalized resource use and waste generation at ASC and A-Basin. Note that A-Basin obtains its water directly from a local stream, treats it on site, and releases it back to the original water source.

Step 6: Continue Data Collection, Recordkeeping, Review, and Reporting: Establish a measurement system that transforms the process of determining a baseline (described in Steps 1 through 5 above) into a continual process that allows the ski area to monitor environmental improvements against the baseline. In addition, opportunities for improving data accuracy and ease of collection should be pursued. Finally, the ski area staff responsible for environmental management and the measurement system should consider new "metrics" and associated data that reflect environmental performance; for example, a component that tracks "green purchasing" (see Chapter 6) could be added to the measurement system

FIGURE 3.1 RELATIVE eCO_2 AT ASC AND A-BASIN IN 1999

ASC



A-BASIN

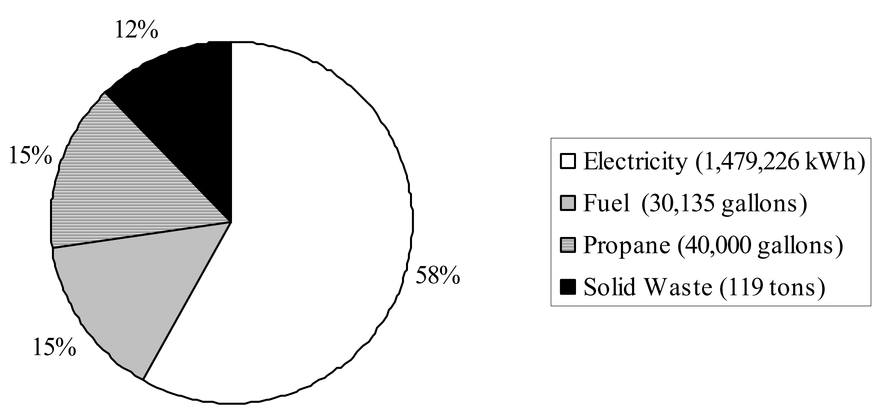


FIGURE 3.2 RESOURCE CONSUMPTION AND WASTE GENERATION AT ASC AND A-BASIN IN 1999

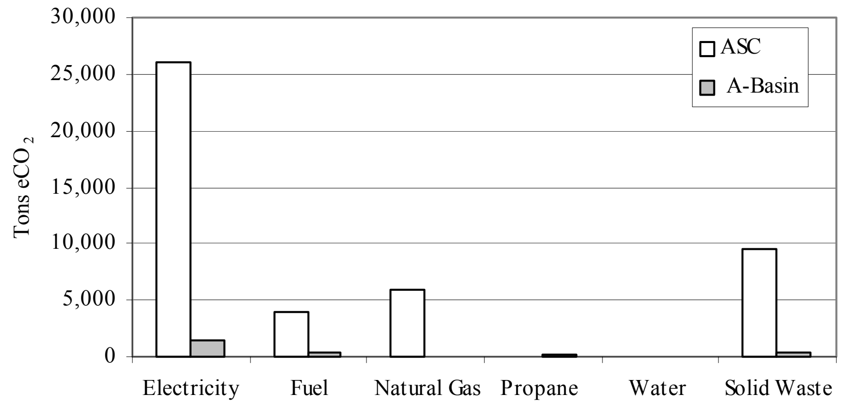


FIGURE 3.3 NORMALIZED ELECTRICITY GENERATION AT ASC AND A- BASIN IN 1999

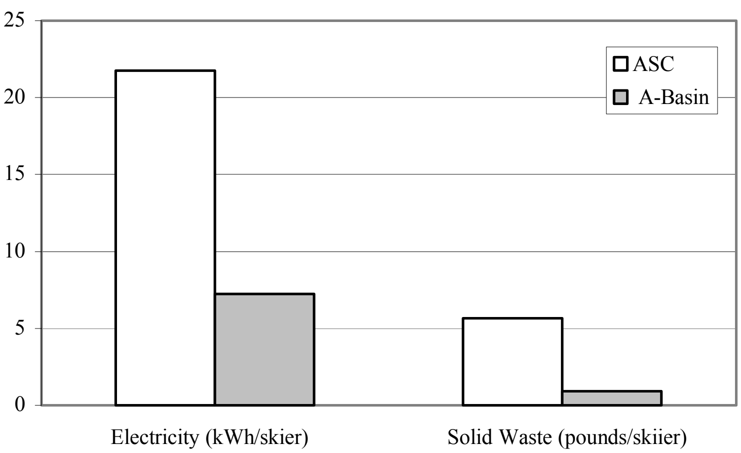
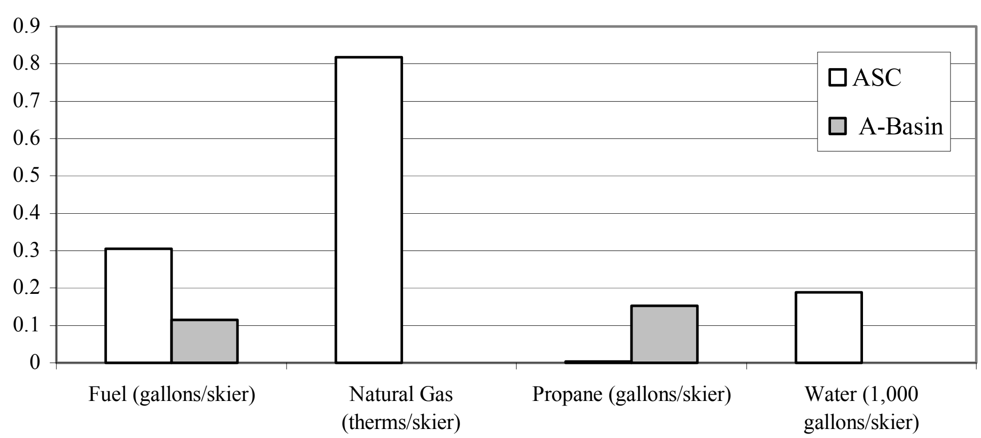


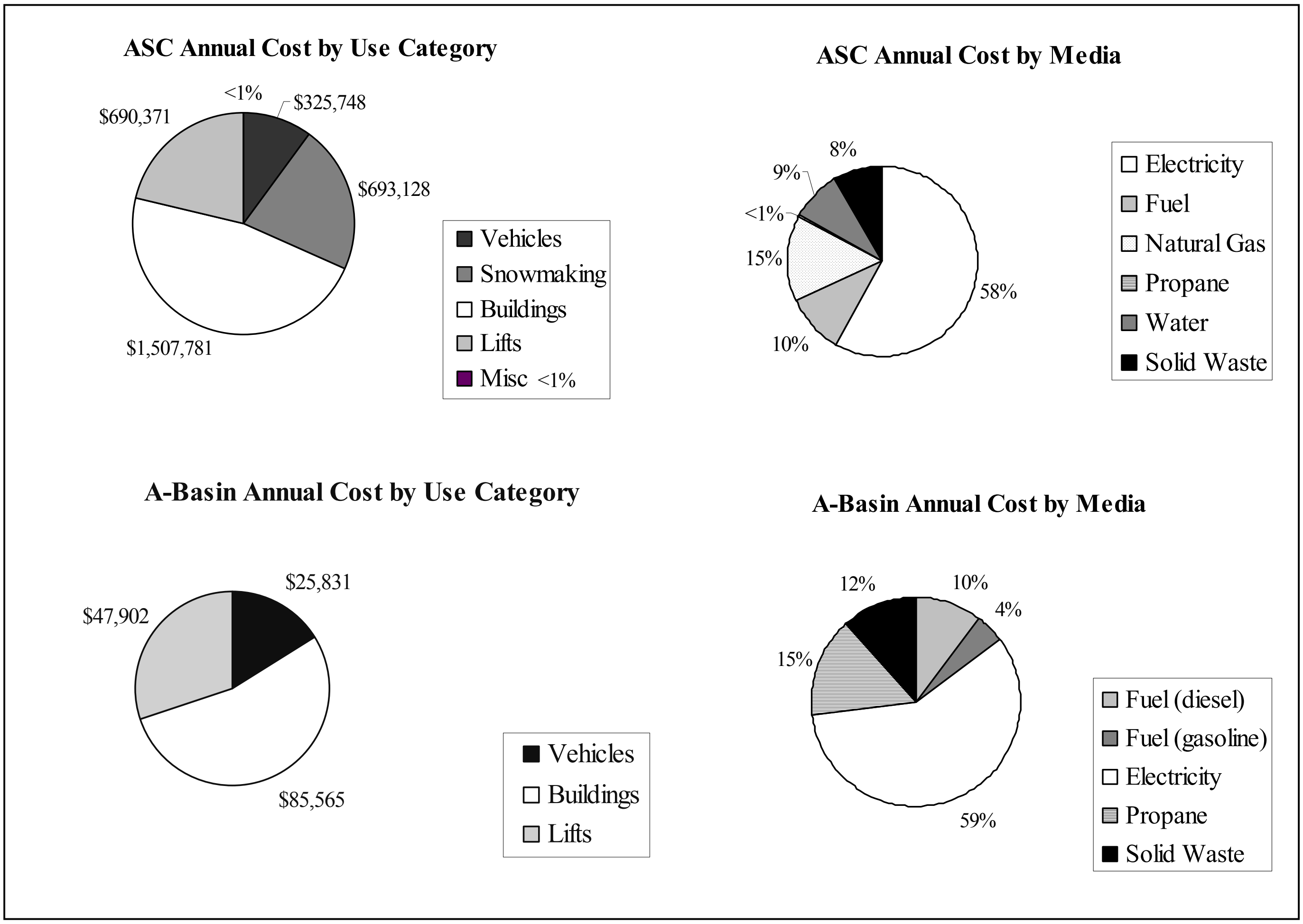
FIGURE 3.4 NORMALIZED RESOURCE USE AND WASTE GENERATION AT ASC AND A-BASIN IN 1999



3.2 ENERGY CONSUMPTION

Ski areas consume large amounts of energy – to run lifts, pump snowmaking water, and operate buildings, and fuel vehicles. Most energy used by ski areas is electrical; however, propane, natural gas, unleaded gas, and diesel fuel are also consumed. Energy costs, use, and demand (rate of use) should all be tracked. Example energy baseline summary charts for ASC and A-Basin are shown in Figure 3.5. Water and solid waste cost are included in the annual cost charts for comparison purposes.

FIGURE 3.5 ENERGY USE BY CATEGORY AND MEDIA FOR ASC AND A-BASIN IN 1999



CASE STUDY: A-BASIN FINDS COST SAVINGS OPPORTUNITY FROM ENERGY BASELINING EFFORT

Based on an analysis of Public Service electric bills dating November 1998 through October 1999, A-Basin paid about $100,000 per year in electric costs to operate lifts, buildings (lodge, ski patrol, and rental shop), a wastewater treatment plant, and experimental snowmaking. The energy baseline analysis included the actual energy use (kWh), maximum rate of use in a month (kW demand), load factor, and ratio of kWh costs to kW demand costs for each of its seven meters by month during the analysis period.

As a result of the analysis, A-Basin realized that when it ran a lift in the off-season (for maintenance or to assure and demonstrate reliability), it set the peak demand for that month, even though it actually only ran the lift for a short period of time. In these months, the lift load factor was about 0.05. Load factor is the ratio of average demand for the month compared to maximum demand for the month. If the load factor were 1, this would imply uniform levels of energy. The lower the load factor, the more the maximum demand exceeds the typical usage, which can contribute to high demand charges. Load factors for typical industrial and commercial applications may fall in the 0.3 to 0.7 range.

A-Basin spends about $4,500 (of the $100,000 total yearly electric bill) to run the lifts from July through October, but the average energy costs with demand are $0.36/kWh during that time compared to an annual average cost of $0.07/kWh. If A-Basin ran its lifts on the backup diesel fuel generators instead of electricity in the summer months, it could reduce its summer lift operating costs. The lifts require about 7.5 gallons per hour to operate on diesel fuel and run a total of about 350 hours per summer (about 3 hours per lift per week). At $1.38 per gallon for diesel fuel, A-Basin would spend about $3,600 to operate the lifts in the summer, saving $900 per year, with no significant implementation costs. Back-up diesels are typically exempt from air permit requirements if they are only operated when electrical power is not available or for maintenance and they only run a limited amount of time each year. If a ski area wanted to run back-up diesels for routine operation to reduce electrical demand or peak charges, a close examination of air quality regulations should be conducted to ensure compliance.

3.3 SOLID WASTE GENERATION

Quantifying solid waste generation and the percent diverted for recycling is a challenging task due to data quality and, at many ski areas, the presence of multiple waste haulers collecting solid waste from numerous locations. Data quality issues arise from fixed collection schedules wherein a waste hauler will empty a dumpster regardless of how full it is and invoice based on number of visits rather than volume or mass of garbage. Consequently, solid waste quanitity must be estimated from the dumpster capacity and number of hauls. Irregular solid waste generation (such as construction/demolition waste and special event waste) also complicates efforts to create an accurate and comprehenive solid waste baseline.

The basic steps associated with creating a solid waste baseline are summarized below:

1. Identify all solid waste collection locations (dumpsters, etc.), the associated waste hauler, collection frequency, and average volume.
2. If necessary, estimate information listed in Step 1 and document assumptions.
3. Review past invoices from waste haulers to understand what useable information is present on the invoice (in some instances, a landfill tipping fee may be listed on the invoice that can be correlated to solid waste mass or volume).
4. Contact waste haulers to (1) obtain historical data and (2) modify contracts to require the waste hauler to supply the most accurate information possible about waste volumes collected on the monthly invoices.

5. Convert all data to a "common denominator." To calculate the approximate weight of solid waste in dumpsters, the following web site provides conversion factors for estimating typical solid waste weight per cubic meter based on the commodity and type of institution (i.e. municipal vs. residential solid waste):

    - EPA Standard Volume-to-Weight Conversion Factors
      http://www.epa.gov/epaoswer/non-hw/recycle/recmeas/docs/guide_b.pdf

    Similar conversion factors can also be found in industry magazines (such as Resource Recycling) and can often be obtained from the local waste or recycling hauler. If possible, it is best to use conversion rates provided by local waste and recycling vendors, as their data are region-specific.

6. Establish a system, wherein designated individuals are responsible for routinely recording solid waste generation data from invoices, preferably in an electronic spreadsheet.

WasteWise

WasteWise is a free, voluntary, EPA program that helps organizations eliminate municipal solid waste. WasteWise is a flexible program that allows partners to design a solid waste reduction plan tailored to the individual business. WasteWise partners can save thousands of dollars by reducing, reusing, and recycling solid waste.

For more information about WasteWise, call 800-EPA-WISE or visit www.epa.gov/wastewise.

CASE STUDY: ESTABLISHING A SOLID WASTE BASELINE AT ASC

In winter 2000, ASC initiated efforts to establish a solid waste baseline and develop a system to better track its solid waste generation. The initial task proved difficult, as data had to be captured from four major waste haulers and two recyclers, representing over 25 service locations. The ASC team worked closely with each vendor to review billing records and determine how to best estimate the weight of ASC's solid waste. In many cases, vendors were able to provide region-specific estimates according to volume; in instances where conversion rates were not readily available, ASC used conversion factors from industry publications.

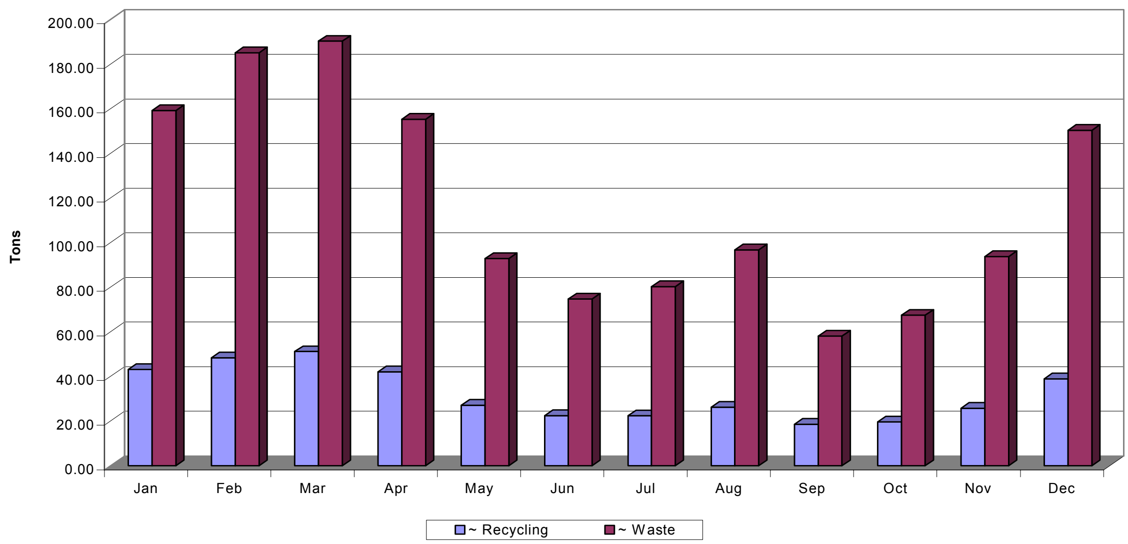
ASC compiled the data into a spreadsheet organized by hauler, allowing them to easily share the information with each vendor. Despite a fee-based recycling service, ASC realized a $35.74 per ton savings for diverting waste from the landfill. The following table summarizes ASC's solid waste and recycling data for 1999.

1999 ASC SOLID WASTE GENERATION AND RECYCLING

Solid Waste Destination	Tons	Cost	Average Cost Per Ton
Landfill	1,405	$110,400	$94.50
Recycled	300	$ 17,600	$58.77
Estimated diversion rate = 17.61% Cost savings per ton from recycling $35.74 Total diversion savings in 1999 = $10,730			

As represented in Figure 3.6, ASC developed a systematic approach to tracking solid waste and recycling data each month. Having accomplished this initial task, ASC laid the foundation to use this information to calculate other valuable metrics, such as waste generated per skier and waste diversion rate by season.[1] This work has also opened communication between ASC and their waste and recycling haulers, initiating a cooperative relationship to better collect and manage solid waste data in the future.

FIGURE 3.6 1999 ASC SOLID WASTE BASELINE



CASE STUDY: SOLID WASTE TRACKING AT VAIL RESORTS

Vail Resorts created a solid waste tracking system in 1998 to quantify the impact of recycling efforts at its four ski areas (Vail, Beaver Creek, Breckenridge, and Keystone) and better understand what actions improve the quantity of solid waste diverted to recycling. Features of Vail Resorts' solid waste collection and management system are summarized below:

1. Before initiating the measurement system effort, Vail Resorts verified and, to the extent possible, standardized the solid waste collection and recycling infrastructure. For example, all co-mingled cans and bottles destined for recycling are hauled in 2-wheeled "toters" from food outlets to a central on-mountain location, and eventually to the base area where they are emptied into a 30 cubic yard container.
2. The volume or weight of waste and recyclables are measured at each base area collection center.
3. Volumes are converted into weights for any items that can not be weighed using the following conversion factors: cardboard = 58 pounds [lbs] per cubic yard [yd^3]; commingled cans and bottles = 253 lbs/yd^3; office paper = 400 lbs/yd^3; newspaper = 500 lbs/yd^3; magazines = 600 lbs/yd^3.
4. The environmental coordinator tracks progress on recycling, total solid waste, and chemical waste disposal through manual data entry into spreadsheets, and reports the results quarterly to corporate operating groups. Vail Resorts is investigating software that streamlines environmental measurements by gathering data (cubic yards waste, kWh electricity, etc.) electronically from invoices and posts the data for management reference on the company's computer network.

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[1] Due to data constraints, Figure 3-6 shows a constant diversion rate per month. By working with the recycling haulers, ASC can obtain accurate monthly recycling totals to better calculate waste diversion rates by month.

5. With reliable numbers at hand, Vail Resorts communicates solid waste recycling results to its community, employees, and guests. In particular, exemplary recycling efforts are noted through "Green Soldier" awards.

3.4 HAZARDOUS WASTE GENERATION

Compared to energy and solid waste tracking, measuring hazardous waste generation is relatively easy because less is generated and regulations require that amounts be recorded on transportation and disposal manifests. A simple spreadsheet can be created to monitor the type and source of each hazardous waste stream. In this way, ski areas can verify their hazardous waste generator status (see Chapter 4, Section 4.1) and target hazardous waste elimination and reduction efforts. Figures 3.7 and 3.8 are example hazardous waste tracking charts created by ASC.

FIGURE 3.7 HAZARDOUS WASTE GENERATION AT ASC

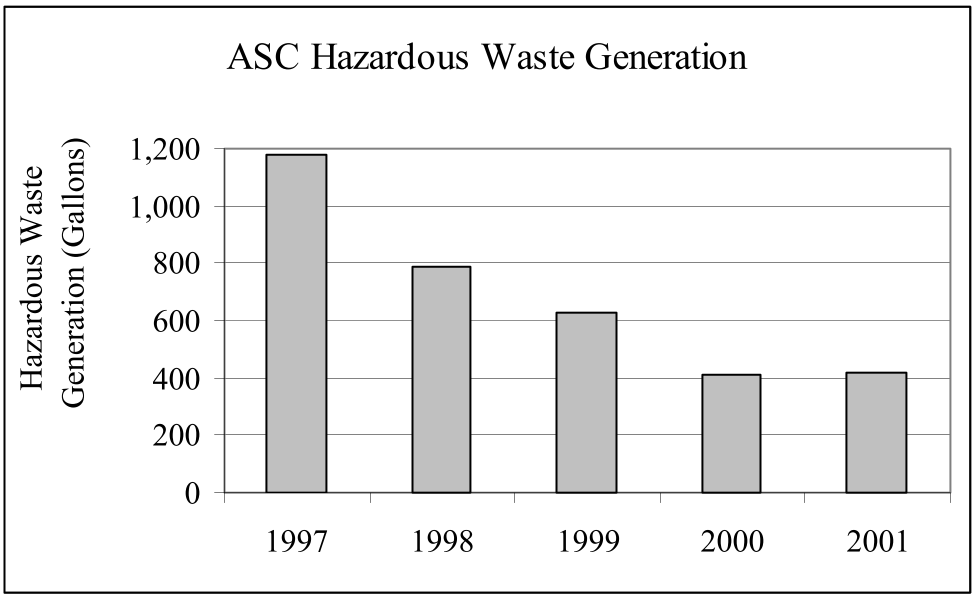
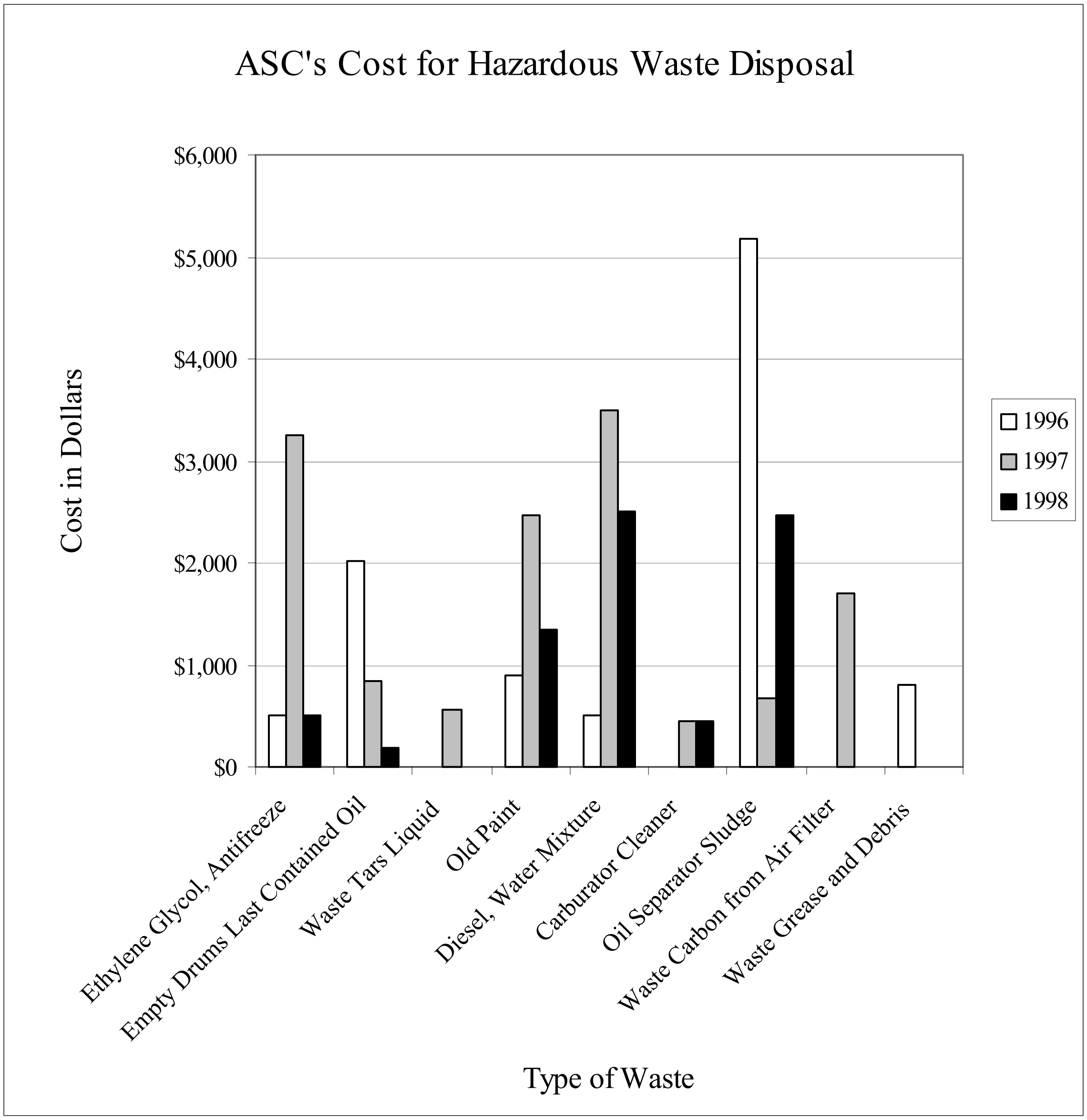


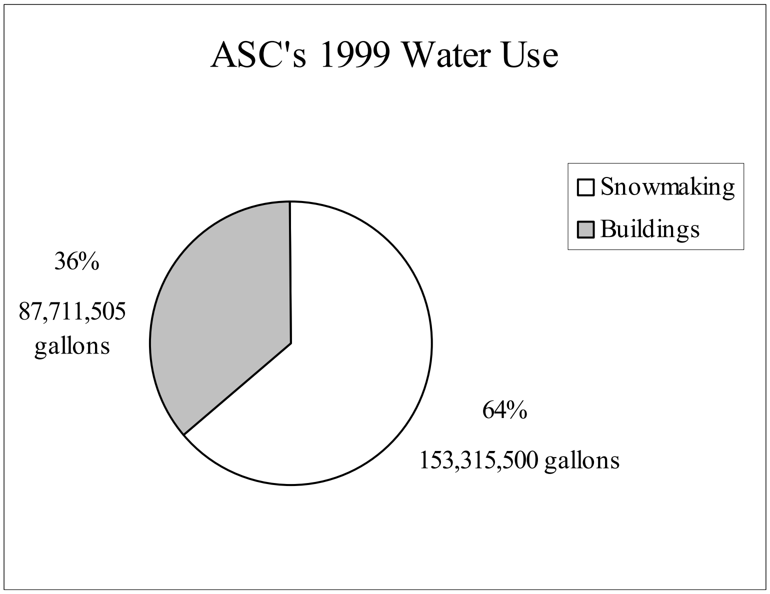
FIGURE 3.8 HAZARDOUS WASTE GENERATION BY CATEGORY AT ASC



3.5 WATER CONSUMPTION

Ski areas use water in buildings (offices, restaurants, and lodging) and for snowmaking. Establishing a water consumption baseline is a relatively easy task because volumes are present on or easily calculated from water bills. Ski areas that treat their own water should be able to determine water use from the on-site water treatment facility manager. Ideally, the monthly volume of water used by primary ski area operations should be tracked and charted. At ASC, because of the complexity of water metering and billing, annual use was calculated – an example chart is shown in Figure 3.9.

FIGURE 3.9 WATER USE AT ASC



3.6 CORPORATE ENVIRONMENTAL REPORTING

You have created a baseline of environmental performance for basic indicators of resource use and waste generation, now what? Of course, you should continually seek opportunities to reduce waste, track data, and demonstrate environmental improvement; beyond these actions is communication. Rising expectations for environmental management accountability from employees, customers, and "watchdog" organizations, plus advances in information technology have led numerous corporations to voluntarily publish environmental reports. ASC broke new ground in environmental reporting for ski areas with its first annual corporate Sustainability Report published for the 1999/2000 ski season. The introduction to this report reflects emerging trends in corporate environmental reporting:

> "We have been inspired by environmental reporting at other businesses and are convinced the best way to improve our environmental performance is to establish a credible baseline. The report has two components: an analysis of our natural resource usage….and how we've reduced pollution resulting from that resource use…"

ASC released a second Sustainability Report for the 2000/2001 season. For a copy of the ASC Sustainability Report, contact the Department of Environmental Affairs at (970) 923-8628.

Many external environmental programs, such as those described in Chapter 2, require some type of environmental report. However, in contrast to financial reporting, the absence of a generally accepted reporting framework—including principles and protocols—resulted in reports that often lack consistency, comparability, and credibility. As a result, reporters and report users are unable to achieve maximum value from reporting efforts. Recognizing that a generally accepted framework would benefit both reporters and report users, CERES (see Chapter 2 and www.ceres.org), in partnership with the United Nations Environment Programme (UNEP) founded the Global Reporting Initiative (GRI).

Global Reporting Initiative™

GRI's mission is to make sustainability reporting as routine and credible as financial reporting in terms of comparability, rigor, and verifiability. GRI will be established as a permanent, independent organization responsible for maintaining, enhancing, and disseminating the GRI Sustainability Reporting Guidelines, which were drafted in March 1999 and updated in June 2000. More than 100 major companies have tested or used the Guidelines to create their corporate environmental reports. Information about GRI, including the Guidelines can be obtained from www.globalreporting.org.

The Guidelines present a sustainability report structure with six key parts, listed below.

1. CEO Statement
2. Profile of Reporting Organization
3. Executive Summary and Key Indicators
4. Vision and Strategy
5. Policies, Organization, and Management Systems
6. Performance

3.7 SUSTAINABLE SLOPES ASSESSMENT TOOL

The GRI described in Section 3.6 should provide ski areas with ideas for content and structure of environmental reports that will be consistent with other businesses and trends in environmental reporting. In addition, NSAA created a Sustainable Slopes Assessment Tool that should be used by participating ski areas to ensure standardize reporting in the ski industry.

The Environmental Charter for Ski Areas, commonly known as Sustainable Slopes, is described in Chapter 2 (also, refer to www.nsaa.org). NSAA prepares an Annual Report for Sustainable Slopes that documents environmental protection efforts of participating ski areas. To this end, NSAA developed an Assessment Tool to (1) obtain information from individual ski areas about progress associated with the Charter and (2) aggregate individual ski area results into industry-wide trends. The tool is useful to ski areas on an individual basis by helping identify successes and opportunities for improvement, setting priorities for the future, and in benchmarking progress against other ski areas.

Demonstrating Environmental Performance (through Reporting) is Integral to the Sustainable Slopes Vision:

To be leaders among outdoor recreation providers through managing our businesses in a way that demonstrates our commitment to environmental protection and stewardship while meeting the expectations of the public.

The Assessment Tool is comprised of a series of forms that correspond to the 21 principles of the Environmental Charter (see Section 2.1, Table 2.1 in this handbook). Each form describes a particular Charter principle and contains four sections for the ski area to complete:

1. A Checklist of "Options for Getting There"
2. Overall Implementation Status (on a scale of 1-5)
3. Priorities for Improvement
4. "Principles in Action" or steps taken to implement the Principles

Although these forms are qualitative in nature, they are very comprehensive; for example, the "Options for Getting There" section contains 177 environmental best practices across all 21 principles. Furthermore, based on individual resort responses, the Assessment Tool recommends future priorities.

For Charter principles that a ski area self-scores a 3 or lower for implementation status, indicating limited progress toward implementing the principle, the Assessment Tool asks reporting ski areas to rate the potential benefits if best practices associated with the principle were aggressively implemented. Specifically, ski areas are asked to rate each of the following potential benefits as low, medium, or high:

- Increased monetary savings
- Reduced environmental impact
- Reduced regulatory liability

In addition to the qualitative reporting of progress towards the Charter principles, the Assessment Tool includes quantitative tracking for three environmental indicators to characterize the environmental performance of the industry: 1) water conservation and use; 2) electric energy conservation and use; and 3) waste reduction, recycling, and disposal. In 2002, water use for snow making will be separated from consumptive water uses and NSAA will add a fourth indicator – avoided vehicle miles traveled through transportation demand reduction initiatives.

The Environmental Charter recommends that resorts gather data to measure, document, and report progress. At the same time, NSAA recognizes that detailed measurement of resource consumption and waste generation takes time and money that may not be available at all resorts. To help resorts with quantitative tracking, the Sustainable Slopes Assessment Tool includes guidance on possible methods for quantifying the environmental indicator data requested.