

# Trouble in Paradise: The Rough Road to Sustainability in Aspen

How Failure can be the Next Great Tool in Sustainable Business

**Auden Schendler**

The literature of corporate sustainability is almost exclusively a catalog of successes. But failure is often more instructive to practitioners, and case studies of missteps would help others avoid pitfalls and simplify often complex projects. What businesses need is a catalog of mistakes. Drawing on first-hand experience with projects gone awry at Aspen Skiing Company and elsewhere in Colorado and in the ski industry, this article explores the obstacles to implementing sustainable practices and ways those obstacles can be overcome. © 2001

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Imagine this: you are the environmental director at a world-famous resort. After much political wrangling, you manage to incorporate energy-efficient lighting into a high-end hotel restaurant. The restaurant opens, and the manager is put off by the sight of com-

compact fluorescent bulbs, even though light quality is excellent. He removes the bulbs, throws them out, and replaces them with halogens. Here's what your sustainability efforts have brought you: a wasted design and installation fee; inefficient lighting; a loss of faith in green technology by the manager; hundreds of expensive compact fluorescent bulbs that, instead of being reused (at the very least,) are now leeching mercury into the local unlined landfill; and unanticipated costs for new bulbs and installation. Welcome to the sustainability revolution.

If you're familiar with the field of sustainable development, the above story, which happened here at Aspen Skiing Company (ASC), is probably a shock, because the literature has long been a collection of Panglossian success stories. The discourse has been formulaic: *innovative leader overcomes polluting obstacle at a profit* — CEO was thinking

*outside the box!* The best books in the field — *The Ecology of Commerce*, *Natural Capitalism*, *Lean and Clean Management*, have become bibles for green business folk (for good reason), but rarely address failure, or even the difficulties associated with implementing sustainable practices.

The problem is the psychology of the sustainability movement — which has always been the kid brother fighting for credibility. To admit failure or mis-steps — let alone document them — would present unacceptable cracks in the evolving doctrine. But now that the movement has some genuine credibility and a host of true successes, it's time for a new era in corporate sustainability, one that documents mistakes as a guide for others. To complement our roadmap to sustainability, we need a book of wrong turns. Failure, after all, is how we learn.

### Trench Warfare

Sustainability guru Amory Lovins has called some efficiency projects not just a free lunch, but “a lunch you are paid to eat”.<sup>1</sup> He's right — if corporate politics isn't an issue. But those of us on the front lines know that victories, while increasingly well documented, are never as easy as they sound. They're almost always messy, hard-fought battles fraught with complications and often on the edge of failure. Scratch a “success story”, and you frequently find something that more resembles trench warfare than a finely tuned operation. As Randy Udall of Aspen's Community Office for Resource Efficiency says “If sustainability were easy, we'd be doing it by now. It's not easy; it's damn hard. Often, you are trying to substitute intelligence for energy, and right now the former is more precious than the latter”.<sup>2</sup> Partly because of these difficulties, as Oystein Dahle, a former executive Vice-President for Exxon points out,<sup>3</sup> far from gliding towards utopia, we are further from sustainability today than when the term was coined fifteen years ago.

To turn this around, we need to be honest. Sometimes, “success stories” could be bet-

ter described as failures, but are creatively spun as triumphs. The Interface carpet Evergreen Service Agreement<sup>4</sup> — perhaps the flagship of the “next industrial revolution”<sup>5</sup> — is the most prominent global example. It's a brilliant idea — sell the service of carpeting, not the carpet itself, in the form of leasable tiles, which can be replaced individually as needed, then recycled when the service is no longer required. In practice, however, it hasn't been particularly successful, for a variety of reasons. (Initially, when I tried to use the product at Aspen Skiing Company, it was cheaper to buy the tiles than lease them, and the product was prohibitively expensive. Salespeople, meanwhile, didn't have clear incentives to pitch the lease over other options.) But the Evergreen lease is only a failure if we fail to learn from it.

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Fortunately, Peter Senge, a professor at MIT's Sloan School of Management, has been examining the lease program as part of the Society for Organizational Learning's “Sustainability Consortium” — a group of researchers, corporate leaders and consultants — to determine why it didn't take off as hoped, what the obstacles were, and how they might be overcome.

As a result of this study, Interface's carpet tile may indeed be the first triumph in the next industrial revolution, but for reasons other than initially intended. This would be par for the course as industrial revolutions go: good ideas often fail for logistical, not technological, reasons. Consider Barthelemy Thimonnie, a player in the same industry during the first revolution. In 1830, the Frenchman who invented one of the first sewing machines was almost killed by enraged tailors who, fearing unemployment,

burned down his sewing machine factory.<sup>6</sup> Thimonnie's technology was sound, but his political skills were soft.

### Hotel Lights and Political Fights

Back in Aspen, the problem with the lighting retrofit was not the quality of light (it was designed by one of the best lighting firms in the country) but the *perception* of fluorescent bulbs as appropriate for prisons and supermarkets, not high-end restaurants. Never mind that substantial cost savings from reduced labor and energy could go straight to Persian rugs, new tablecloths, or the bottom line.

How can we get beyond this? In some cases, you can't. It may be difficult to impossible to install efficient lighting in extremely high-end buildings. At ASC's five star Little Nell hotel, for example, I suggested that the manager install efficient bulbs in guest rooms, offering up the standard menu of benefits — financial savings and reduced labor costs. The suggestion was rejected because the obstacles are numerous, and real: slow startup, colder light, high up-front cost, guest perception of "cheapness" (though nothing could be further from the case), and one wild card: concern that Mobil and AAA ratings will be hurt by perceived low-quality. (This concern, real or imagined, has also stymied efforts to allow guests to reuse towels and sheets in high-end hotel rooms.)

Sustainability gurus say that all these obstacles can be overcome — new bulbs start fast and don't flicker; they provide warmer light than they used to; they can be hidden; the five-star rating systems don't overtly deduct for bulbs. But the gurus haven't had lunch with a hotel manager whose job and reputation depends on a product of absolutely uncompromised "quality" as defined by guests. You don't put Cool-Whip on an éclair. You don't mess around with five-star ratings. (Some discount hotel chains that *have* retrofitted room fixtures found that guests are *stealing* the bulbs. The hotels were forced to

buy locking fixtures, which hurt the return on investment. Who says the average American is oblivious to efficiency?)

At the Little Nell, we did something you'll rarely hear about in the sustainability movement: we admitted defeat, at least in the rooms. But we continued the war. Since the rooms were too high a target, we set our sights lower: 110 inefficient metal halide lamps lighted the hotel's two-story underground garage. The fixtures were recessed behind beams, so light quality was terrible. Worse, the lights were on all the time, creating a huge electricity bill. This seemed to be an opportunity no one could resist. We retrofitted the lamps with a simple fluorescent fixture. Light quality improved radically, increasing visibility for valets (we haven't measured if there are fewer dings to Land Rovers and Porches...) and energy savings were outrageous. The retrofit cost \$19k and pays back at \$11,500 annually, from a combination of energy savings and labor reduction,<sup>7</sup> (since the new bulbs last longer) yielding a sixty percent return on investment. Best of all, the Nell will keep 300,000 lbs. of CO<sub>2</sub> out of the atmosphere annually, forever. The skeptical hotel manager, when asked what he thought of the new retrofit, said the new lights were "Grand!" Now that we have a successful internal case study, other projects that might have been rejected out of hand now seem more appealing. We might yet get at those bedside lamps...

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### All the Pretty Obstacles

Still, even the road to the garage retrofit was a study in barriers. The project was first proposed in 1996, and only executed in 2000. It was killed probably a dozen times, even with its incredible payback. How could

this be? Aren't business people supposed to jump at a 60% return on investment?

When I presented the retrofit idea to senior management, the first obstacle wasn't pay-back, but the "opportunity cost of capital": if a hotel has \$20k to spend, is it better to spend it on efficiency, or on new Italian furniture, beds, or curtains, which might bring in more revenue? The barrier was mindset: executives are used to making money by doing, not by saving. The next obstacle was disbelief. "Prove it to me", management said. So I brought them a wattmeter, hooked it to two bulbs, and showed them how slowly the fluorescent option used energy. I put the Company Operating Officer on a bike and senior management watched him sweat in high gear to power four incandescents, but pedal effortless to light the fluorescents. I brought case studies of Fortune 500 companies that proved retrofits aren't a fringe activity. The response was the same: "I want to see the bills go down". That, unfortunately, is very difficult at the Nell where multiple electricity bills are bundled.

The lesson: to assume an efficiency project with a better than 60% return on investment is a "no-brainer" (as I did) is a mistake. Managers should be prepared for all arguments. Even projects like the Nell garage retrofit — "cream-skimming" by any standard — can be difficult for businesses not used to making money through savings. Given these substantial obstacles, it's a miracle the retrofit actually occurred. Our key to success? Pure doggedness, not the inherent value of the idea, and a \$5,000 grant from a local nonprofit interested in encouraging efficiency projects. Sustainability is cool and avant garde, but it won't happen without two stodgy and staid partners: cash incentives (if available) and grit.

### Dirty Green Buildings

We now turn to difficulties businesses may encounter with that darling of sustainable development, green construction. A Colora-

do builder (who will remain anonymous) was asked by her client, a small homeowner, to eliminate the use of ozone depleting chloro-fluorocarbon-based insulation as part of a prescriptive program for green building. The request came late in the design process. The architect substituted a less efficient CFC-free foam, but didn't increase its thickness, because that would require redoing the entire set of plans. As a result, the roof was less efficient than it should have been, and escaping heat caused snowmelt. When the snowmelt hit the eave, it froze, creating a terrible ice-damming problem. The "solution" was electric heat tape, an inelegant technique akin to using a blowdryer to melt your driveway.

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In this case, the fear of environmental bogeymen — like CFCs — and a checklist approach rather than whole-systems design caused owner and architect to miss the forest for the trees. The checklist — often called the "twenty dumb things" approach — is the antithesis of holistic design and can be a flaw in the US Green Building Council's Leadership in Energy and Environmental Design (LEED) program, an otherwise admirable cookbook for green development.<sup>8</sup> (Which we used with great success on our Sundeck Restaurant, one of the first LEED-certified buildings.) Sometimes an environmentally "bad" material needs to be used to make buildings truly green. A strawbale house that collapses in ten years doesn't contribute to a greener planet. But a concrete building that lasts for 200 years is "green" despite the energy-intensity of cement manufacturing.

Aspen Skiing Company is now in the process of designing new time-share condominiums at the Snowmass Club. It turns out that in

the current market, luxury condos must be air-conditioned in order to sell. Any green architect worth his salt would balk: “A/C at 8,000 feet in the Rockies? That’s absurd”. True, properly designed units should be comfortable without A/C, even in July. But we are victims of market constraints. Faced with what would be a less environmentally responsible building than what existed previously, we decided to get creative. The condos will sit on a golf course, next to a large “trout pond”. (Or so the guests think. It’s actually a tertiary sewage treatment pool for the town of Snowmass.) Why not tap the pond to heat and cool the condos, using it as a heat sink in the summer and source in the winter? It turned out the proposal to use ground (or in this case lake) -source heat pumps would cost no more than a conventional gas-fired heating and cooling system, and would offer significant annual savings. In addition, the system would eliminate the need for an ugly cooling tower, and allow for simultaneous heating and cooling. We decided to do it.

On a whim, I ran the numbers to see what kind of reduction in greenhouse gas emissions we’d garner from this “super green” project, one of the most innovative in the state. The result: the new system, elegant in its use of the landscape and radically more “efficient” from an engineering standpoint, would produce *slightly more greenhouse emissions than a gas fired boiler!* How could a cutting-edge system that is several times more efficient than a conventional one emit more greenhouse gases?<sup>9</sup>

It turns out that natural gas, the conventional alternative, is particularly low in greenhouse emissions, and heat pumps use electric compressors, which run on dirty, coal-fired electricity. We decided to go forward with the project anyway. While CO<sub>2</sub> emissions are one important metric, they are not the end-all of green design. We are victims of a 19<sup>th</sup> century electricity grid, powered by centralized coal plants. Ultimately, the heat pumps at the

Snowmass Club are quintessential green design. The system is adapting and conforming to the environment, taking advantage of on-site resources without damaging them. (Pond temperatures will fluctuate only one degree Fahrenheit.) It is simple, elegant construction that saves money. And there still exists the possibility to power the system with wind electricity, making the condos virtually carbon-free!

The condos, by the way, are being built on the site of a previously existing structure. Aspen Skiing Company deconstructed the old building to salvage useable materials (later sold at a gigantic yard sale) and then composted the remaining wood and sheetrock. As a result, 84% of the structure stayed out of the landfill. However, the project cost ASC more than pure demolition would have, while the contractor *saved money* since composting reduces truck trips and dump fees. Because we couldn’t guarantee savings to the contractor from the outset (this was a pioneering project) we could not negotiate lower cost. But on the next project...

### **Snowcat Culture**

Green buildings, lighting retrofits — these are the bread and butter of corporate sustainability efforts. But Aspen is, after all, a ski resort — it would be a shame not to hit the slopes in this discussion.

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At a ski area known for its environmental responsibility (not ASC, in this case), vehicle shop managers became concerned about a particularly ugly environmental problem. Diesel fuel pumps had been fitted with automatic shutoff mechanisms (like you find at gas stations) so that snowcat operators could

stay warm inside the cab while refueling on cold, snowy nights. But it was just in these kinds of conditions that the shut-off mechanism tended to stick, often flooding the ground with gallons of fuel. The solution was easier on the environment, but hard on the driver: management removed the shut-off mechanism, so the cat operators had to hold the handle. This, in theory, would entirely eliminate spills.

But reality intervened. When it's minus-forty out, few employees are willing to stand outside for ten minutes gripping a metal handle. So they would stick a block of wood or a tennis ball under the trigger, wedging it into the "on" position. The result: without even the chance of an automatic shutoff, spills got even worse. The solution: reinstall the automatic shutoff, and try to get employees to improve their vigilance. Or, more simply, go back to square one.

In this case, there is no technological fix — it's all training, and employee buy-in. But how do you create buy-in? This is where publicity plays a role. Some environmentally responsible organizations are reluctant to tout their achievements because they fear being labeled "greenwashers." But at Aspen Skiing Company, we toot our horn after every victory with press releases, magazine articles, and public presentations. This serves two purposes, beyond the obvious PR benefits of community goodwill and an increasingly green reputation. First, we want to help change the industry, so we need to get the word out. Second, we want to create a corporate culture of environmental responsibility, which will help solve problems by tapping employee brainpower and action. Recently, a colleague at a party for ASC summer staff witnesses this scene:

One employee tossed a beer can into the trash. Immediately, someone said: "You can't do that! Recycle it! You work for Aspen Skiing Company!" Cultural change happens.

Snowcats also offered us a parable of solving problems at their source, rather than offering Band-Aid (or "end of pipe") solutions. All snowcats are powered by hydrostatic drives, a kind of propulsion system that uses hydraulic oil to move the wheels. Occasionally, a hose will break, emptying the oil reservoir onto the slope. Not only are blown lines an environmental problem, but they hurt business. Between the repairs, cleanup, wasted time, and ungroomed slopes which lead to customer complaints, ASC was not just hemorrhaging oil, but cash.

On three ASC mountains — Aspen, Buttermilk and Highlands — there were five blown lines in the winter of 1998. Such spills are so common that most ski areas consider them a fact of life. While spills below 25 gallons aren't regulated, and even though hydraulic oil tends to be very clean, they're clearly damaging to the watershed, local vegetation, and wildlife. Most of us had dealt with the problem by shoveling contaminated snow into trash bags, then melting out the oil onto selectively absorbent rags — an ugly and labor-intensive "solution" that was in fact just another problem. Concerned about what seemed to be an industry-wide "Exxon Valdez", I asked around for answers from other ski resorts. One claimed to have the solution. "We load up three fifty five gallon drums on the back of a snowcat, and shovel the snow into the drums, then drain them at the shop...." Another end-of-piper.

We turned to our shop mechanic, Don Mushet, a burly Californian partial to tank tops and Levis, who grew up fixing anything with a motor and has an uncommon practicality to his thinking. A committed environmentalist, he too was unhappy about the spills, (as well as February early-morning phone calls to repair cats). He decided to inspect all hydraulic lines during the summer, replacing worn parts, hoses and gaskets. The following winter, there was only one blown line.

## The Thrill of Defeat

In sustainability circles, pollution, or waste, is often called “a resource out of place”. Today, pioneers are mining the waste stream, “closing the loop”, finding new uses for what was once trash — plastic bottles become fleece jackets, spent brewery grains are converted to agricultural feed, junked cars become rebar. And yet we, the practitioners of sustainability, discard our intellectual waste — the mistakes we make, by keeping our failures secret. Let’s take a lesson from ourselves, and recycle this most valuable asset. Like compost made from the old Snowmass Club that now brings up flowers in Aspen gardens, widespread sharing of this information will help speed the growth of sustainable business.

the higher the number, the more efficient the system. Heat pumps in this application have a COP of almost five, while a conventional system has a COP of less than 1.

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## Endnotes

1. Arnold Fickett, Clark Gellings, and Amory Lovins, “Efficient Use of Electricity,” *Scientific American*, September 1990.
2. Personal communication, 8/6/01.
3. Oystein Dahle, State of the World Conference, July 20, 2001, Aspen Institute, Aspen, CO.
4. Details on this program can be found in the Interface Sustainability Report or through [www.interfaceinc.com](http://www.interfaceinc.com).
5. Interface, Inc. CEO Ray Anderson’s term for the movement toward sustainable business.
6. The Editors of Time Life, *Libraries of Curious and Unusual Facts, Inventive Genius*, Time Life Books, Alexandria, 1991.
7. From analysis done by Chris Myers at Rising Sun Enterprises for Aspen Skiing Company on 10/4/00. Rising Sun Enterprises, 0040 Sunset Drive #1, Basalt, CO 81621, (970) 927-8051.
8. Information on LEED can be found at [www.usgbc.org](http://www.usgbc.org).
9. Heat pumps are much more efficient than conventional systems based on their “coefficient of performance” (COP) an engineering term. COP is the ratio of heat delivered by the heat pump (or other system) to the electricity supplied to the compressor. Thus,