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Supplemental

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"Helping Entrepreneurs Reach the Next Level of Success..."

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Letter From the Publisher

Thank you for choosing NxLevel®! We know there are a various off-the-shelf entrepreneurial training programs from which to choose, and we appreciate your selection of NxLevel®. Our goal is to help entrepreneurs like you reach the next level of success, because we understand that a strong small business sector builds strong communities and a strong nation.

More than 125,000 people have taken NxLevel® courses in communities located in over 48 states, as well as in Puerto Rico, American Samoa, Canada, Latin America, Europe, and Asia. This supplemental text on assessing and implementing green business practices incorporates feedback and suggestions received from NxLevel® participants and instructors over the past two years.

While no single text can answer every question or solve every problem, we believe you will find this supplemental to be an invaluable aid in setting and achieving your entrepreneurial goals.

NxLevel® is thankful for its initial support from the US WEST Foundation. The original 14-state network (comprising US WEST Communications' corporate territory) of organizations and their staff were extremely helpful in providing feedback, identifying writers, and providing sites to test our training materials. Their willingness to share information was invaluable. Without the support of US WEST, other local contributors, and the agencies implementing NxLevel® on a statewide basis, NxLevel® would not be the quality program that it is today.

Founded at the University of Colorado in 1994, NxLevel® moved to Utah in 2002, and is now run by the NxLevel® Education Association, but our commitment and mission remains the same. Like any customer-oriented business, we need to know what you like about us, and what we need to improve. Please contact us with your suggestions at www.nxlevel.org, so that we can continue to improve our books and courses in ways that will benefit you and your fellow entrepreneurs.

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Letter From the Editor

Welcome to the NxLevel® family! By choosing to use this supplemental guide, you have joined thousands of entrepreneurs all over the world who are continuing to improve their business skills.

Our flagship courses, *NxLevel® Guide for Start Ups*, *NxLevel® Guide for Entrepreneurs*, and *Business Plan Basics: NxLevel® Guide for Micro-Entrepreneurs* are entrepreneurial “boot camps” that help students to prepare a comprehensive business plan, and provide myriad practical lessons on running a successful business.

Over time, we came to the conclusion that additional materials would be helpful to the budding entrepreneur. Thus, our supplemental classes were born. These materials are accessories to our flagship courses, providing a more intensive look at subjects that are introduced in those courses.

By taking these classes, you can continue to build on and improve your NxLevel® entrepreneurial education. At the same time, the supplemental courses serve as stand-alone classes for students who want to achieve basic competence in a given subject, while introducing the teaching methods and materials that have made NxLevel® classes so effective worldwide.

Whether you take a supplemental class first, or one of the core classes, you’ll find that the combination of the two will provide you with the motivation and skills it takes to succeed as an entrepreneur in the 21st century.

Entrepreneurship is about freedom. But with this freedom comes responsibility. Entrepreneurs do not answer to bosses, but we do have responsibilities to lenders, investors, and family; and we’re bound by the laws of profitability. Above all, we have responsibilities to ourselves. We must be true to our vision, and design our businesses to reflect the best of what we have to offer.

Many people have contributed to the NxLevel® materials and I know I speak for all of us when I say that the spirit of entrepreneurship has enriched our lives. It is this pioneering spirit that we wish to pass along to you. We wish you the best of luck in your entrepreneurial adventures!

David Wold
Mill Valley, California



“

When we tug at a single thing in nature, we find it attached to the rest of the world.

—John Muir

”

Introduction

As energy, fuel, and water prices continue to fluctuate, and regulatory pressures in the United States and abroad continue to intensify, there is no business that can't benefit from adopting at least a few green business practices.

However, many small business owners are overwhelmed or confused by this relatively new way of doing business, and lack a solid basis for measuring the value of specific green strategies.

Accordingly, this class will help you to take a realistic look at the costs and benefits of your green business opportunities, so that you can decide whether they're **appropriate, affordable, and attainable.**

Along the way, you'll learn how to save money and earn rewards by reducing waste, inefficiency, pollution, and government regulation; and how to communicate

your company's good citizenship and environmental ethics to customers in the United States and abroad.

Last, and most important, you'll learn to create NxLevel® Feasibility Studies, as well as a NxLevel® Green Action Plan that makes sense for your business, your goals, and your market, and use them to guide your way to a greener, more profitable business.

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Why Go Green?

Businesses pursue green policies for different reasons. Some want to save on energy costs or avoid burdensome regulations. Some want to win new customers or keep up with competitors. Some want to ensure compliance with local, federal, and state laws. For others, the decision is more philosophical, and might involve a desire to reduce pollution, achieve some measure of energy independence, and be a good steward of natural resources.

What are your reasons for going green?

What are your reasons for going green? Are you hoping to make the world a better place, improve your bottom line, or a little of both?

It's important to think carefully about this question before you make any changes to your business, because different goals require different tactics and different approaches to risk. For instance, if your orientation is primarily ecological, you might consider using 100-percent renewable energy to run your business. But if your goal is to start saving right now on your monthly energy bill, you probably won't have the time, capital, or inclination to pursue this goal.

No matter what your goal is, though, you won't achieve it unless it's feasible. One of the main virtues of green business practices is that they encourage you to consider the *real* costs of doing business... not just for you, but also for your customers, your community, your country, and your planet.

That same commitment to realism, and attention to detail, must guide your efforts to green your business. Good intentions aren't enough to bring you success; your green ideas need to be appropriate, af-

fordable, and attainable. That's why it's necessary to weigh the costs and benefits of each of your goals, and then plan and budget to achieve the ones that make good sense for you and your business.

You also need to know how your customers feel. While everyone agrees that green business is booming, motivations for green consumerism vary considerably. Some people are trying to reduce their exposure to chemicals for health reasons, while others are more concerned with the health of the environment. Some people are committed to buying green products as a political statement, while others are simply following the latest trend. Still others are simply curious, and willing to try something new. Each of these customers will be responsive to a different marketing approach, so before greening your company, you need to learn all you can about your customers' motivations.

Defining Our Terms

Terms like "green" and "sustainable" are often used interchangeably, but in practice there are important differences between the two. So before we go any further, let's define our terms.

Green is a catch-all term that typically refers to businesses that attempt to address or prevent environmental problems, either by reducing or eliminating pollutants and waste. Because this term is vague, people have sought more specific ways to describe "greenness."

- **Light greens** are concerned about the environment, and willing to make certain lifestyle choices to protect it, but it's not their primary motivation.

- **Dark greens** see the infinite demands of capitalism and consumerism as basically incompatible with the health of a finite planet. They tend to oppose materialism — often, but not always, from a spiritual perspective — and to see unregulated growth as a sort of global cancer that threatens all living systems on earth. While they believe a sustainable society is possible, they usually see it coming after a massive rejection or collapse of the existing system, rather than from gradual improvements in technology, design, or buying habits. While the majority of dark greens are law-abiding, radical groups and individuals who hold these views have been known to commit acts of vandalism or arson in support of their beliefs. The anti-capitalist rhetoric of some dark greens has sometimes led the business press to refer to them as “Red Greens.” However, dark greens do not necessarily have a communist or socialist outlook.
- **Bright greens** are also worried about the effects of business as usual, but they believe that these problems can and must be solved through new technologies, paradigms, and partnerships. Unlike light greens, they don’t believe that buying organic dish soap will solve society’s problems. And unlike dark greens, they don’t believe that our current society must collapse before a greener society can arise. Instead, they believe that

we can improve our standard of living and enjoy some measure of economic growth, while reducing or reversing our environmental impact.

These categories aren’t carved in stone, of course; many people who call themselves environmentalists (and many who don’t) would probably qualify as a mixture of two or more of these groups. The important thing to consider is where you, your product, and your customers fit on this spectrum, and how to come up with a marketing plan that fits all three.

Sustainable refers to businesses that seek to meet present needs without reducing the ability of future generations to meet their own needs. As such, it’s tied to the notion of **intergenerational equity**, which states that we have certain moral obligations to the generations that will come after us.

To understand the difference between a business that’s green and one that’s sustainable, consider a business that builds green housing developments using environmentally friendly materials and energy from renewable sources. Most people would consider this to be a green business. But from a sustainability standpoint, larger questions arise: Housing developments consume land, water, and other resources over time, and the value of these lost resources must be taken into account.

A common way of doing this, in economic terms, is through the valuation of **ecosystem services**; these are the things plants and animals do that benefit us (e.g., crop pollination by bees, or water filtration by wetlands). Bats that eat crop pests



“The nation behaves well if it treats natural resources as assets which it must turn over to the next generation increased, and not impaired, in value.”

-Theodore Roosevelt

are a fairly straightforward example: if a healthy population of bats reduces the need for pesticides on a given farm, then the value of this ecosystem service is equal to the money saved on pesticides (which includes the cost of storage and use). This provides a useful starting point for weighing the economic effect of decisions that might harm the bat population.

This is a somewhat controversial approach in environmental circles, and even its advocates acknowledge that it can be difficult to value certain ecosystem services (those that actually make human life *possible*, for instance). Still, it does provide a preliminary basis for assessing the economic value of natural processes, and debating how to preserve that value from one generation to the next.

Clean technology (or **cleantech**) is pretty much what it sounds like. Its goal is to create cleaner, safer, more efficient products and processes, based on an understanding of biology and ecology, in order to reduce or reverse human impacts on the environment. Familiar examples include solar, wind, and tidal power, as well as alternative fuels and biodegradable packaging.

Will It Last?

Some business owners wonder if green business is simply a fad that will eventually fade and die. Why spend the money and time to go green, they wonder, if the current excitement won't last?

It's true that nothing's certain in business, but there are some good reasons to believe that green business is here to stay.

The most obvious reason is that it can increase profits, and offer innovative

solutions to common business problems. Businesses large and small are finding that saving energy, reducing waste, and increasing efficiency are improving their bottom line. Putting aside the larger philosophical debate over environmentalism and sustainability, there's no doubt that focusing on pollution prevention and energy efficiency offers enormous benefits, and will continue to do so as long as the laws of physics hold sway. We may not know what lies ahead, but we can be fairly certain that we're *not* going back to a pre-green business model.

Instead, it's likely that many of the practices we now see as controversial or daring will become industry standards, and advances in green chemistry, renewable energy, biomimesis, green logistics, and responsible design will create new benchmarks for green business.

Setting Priorities

There are many options for making your business greener. Some are easy and cost little or nothing, like turning off lights and office equipment when they're not in use, or recycling paper. Others involve a bit more capital and effort up front, but will pay for themselves in a comparatively short time, like installing a solar water heater. Then there are projects that represent a serious commitment to green principles, like getting your business off the electrical grid, achieving zero emissions, or being certified by an eco-labeling organization. Steps like these require a considerable amount of capital, coordination, and planning.

When writing your NxLevel® Green Action Plan, it's important to prioritize

"The human mind, once stretched by a new idea, never goes back to its original dimensions."

-Oliver Wendell Holmes

your goals in terms of their expense and difficulty, as well as the timeframe needed to complete them. Obviously, you should start with the things that anyone can do, like setting your air conditioner a little higher in hot weather, and build towards more ambitious goals. This will help you to avoid squandering resources on goals you're not ready to achieve. It will also help you to shift your company's culture naturally towards a green outlook, instead of disrupting operations and employee morale with an overwhelming array of new demands and expectations.

Once you've prioritized your goals, you can consider taking actions that will help you achieve them. Any actions that are appropriate, affordable, and attainable should be added to your NxLevel® Green Action Plan. As noted above, some ideas are simple, and obviously worth pursuing. Others may require plenty of detailed, careful research.

• • •

I was pretty much the last guy on earth you'd think of as an environmentalist. It wasn't that I didn't care, exactly...I just didn't think about it. It had nothing to do with me or my business, so it didn't exist for me.

Which was crazy, when you think about it. Because if one of my people sent a brochure to the printer with a serious typo in it, that made me angry. Or if someone was chatting on the phone when he should have been working, I saw that as a waste of my money. And it bothered me.

But meanwhile, I was wasting thousands of dollars a year and feeling fine about it. I just didn't know any better.

Ray Williams runs a small business called Swimming Hole Pools and Spas in Stockton, California. He's a good businessman, and he's always watched his cash flow carefully. He didn't worry much about energy costs, though. They tended to be roughly the same from year to year. He didn't enjoy writing checks to the utility companies, but he understood that it was a necessary cost of doing business.

That all changed during California's energy crisis, when he got an electric bill for \$1,700.

You could've heard me yelling about five counties away. I'm still mad about it today, in fact. But on the bright side, it forced me to do something I'd never done before. I looked at our energy usage very carefully, from month to month and year to year. I'd always treated it as a fixed cost, but suddenly I realized that it was under my control, and I'd been ignoring it.

My first thought was just revenge: I'm not gonna give these guys a dime more than I have to, from here on out. I called them to tell them as much, and they asked if I wanted an energy audit. I figured they might as well do a little work for their money, so I said okay.

• • •

"One of the illusions of life is that the present hour is not the critical, decisive one."

-Ralph Waldo Emerson

Is It Feasible?

Entrepreneurs are optimists. When faced with an opportunity, they tend to focus on its positive aspects. Add to this the idealism that inspires many entrepreneurs to go green, and you can see how easy it is to take success for granted.

That's why it's so important to conduct a **feasibility study** before you make any risky decisions. A feasibility study enables you to take a realistic look at the benefits *and* costs of your green opportunity, so that you can decide whether it's appropriate, affordable, and attainable.

What is a feasibility study? It's a preliminary look at a particular idea, in order to determine its viability. The results help decide whether this is a go or no-go idea.

In order to complete your NxLevel® Green Action Plan, you may have to perform feasibility studies for many different ideas. The more business risk and capital cost a given idea entails, the more important it is to do a feasibility study.

There are many ways of calculating costs, of course. A bad business decision might be costly because it loses money directly (e.g., by causing a business to spend more than it needs to on a production input), or indirectly (e.g., by irritating consumers who then take their business elsewhere).

There are two other types of costs that are very important when considering green business decisions.

External costs are the costs of doing business that society inadvertently pays on your behalf. For instance, if your product comes in a Styrofoam container that consumers throw away, then whatever

costs are associated with the clean-up and disposal of these containers are external to your business, because you've passed the responsibility for dealing with this waste onto your community.

Many people feel that problems like these need to be addressed by the manufacturer, rather than the community. This is the logic behind takeback programs for batteries and toner cartridges, as well as the **extended producer responsibility** laws that are an increasingly popular way for municipalities to deal with electronic and packaging waste.

Of course, there are also **external benefits**. These are decisions you make that benefit society, like installing permeable paving in your parking area, or using recycled paper in your copy machines.

The other type of cost to be considered is **opportunity cost**. This is the cost of the things you decide *not* to do. As a rather simplistic example, let's suppose that you save 10 cents per unit by keeping your traditional Styrofoam packaging, instead of switching to biodegradable packaging. If you sell 100,000 units per year, that means that keeping your packaging saves your business \$10,000 per year.

But what if by getting rid of your packaging, you could compete in the European Union and sell an additional 25,000 units per year? If your profit margin on each unit is three dollars, then the opportunity cost of keeping your old packaging is \$65,000 per year (i.e., \$75,000 in profit that you forfeit, minus the \$10,000 that you save by keeping your old packaging).

As you can see, the savings here are much smaller than the opportunity cost.

The more risk a business idea entails, the more important it is to do a feasibility study

In the real world, few business calculations are this simple. But external and opportunity costs are very real economic factors, and they can also affect how your business is perceived by your customers. For that reason, you should do your best to keep them in mind while assessing the feasibility of your options.

A business idea that's worth pursuing will satisfy all applicable feasibility tests:

- **SWOT analysis.** When choosing a course of action, you need to take an honest look at your **strengths, weaknesses, opportunities, and threats**. When strengths and opportunities outweigh weaknesses and threats, there's a good chance that your idea is feasible.
- **Financial feasibility.** If you can't afford to implement a business idea, it's obviously not feasible. Generating all your own energy and selling the excess to the electric company may sound like a great idea, but that might cost a lot of money up front, and it could take years to break even. It's natural for entrepreneurs to be idealistic...but to reach your financial goals, you also have to be a realist. You must also determine the costs associated with borrowing money to accomplish your goals. If these funds will come out of normal operating profits, you must weigh this against borrowing, or utilizing the profits for other ideas.
- **Feasibility of sales volume.** Any idea can seem financially feasible if you assume a high enough sales

volume. Again, green business is about realism: Ask yourself if you really can achieve the sales volume you need to make your idea work. This is an area where many entrepreneurs falter, usually by being too optimistic. Granted, sales forecasting is not easy, but extra diligence in this area is well worth the effort.

- **Marketing feasibility.** If your opportunity passes the sales-volume test, you must develop a marketing plan that will outline how your business will reach the projected sales volume. How will your green ideas help you to win new customers? A lot of businesses are claiming to be green, sustainable, socially responsible, and so forth. Some are telling the truth, and some aren't. How will you convince customers that you're for real?
- **Feasibility of personnel.** The best idea in the world won't succeed if you don't have or can't hire-- the staff to make it succeed. This is especially true of green business: it's vital to have employees and contract workers who have the skills you need, and believe in the company's new direction.
- **Logistical feasibility.** Common considerations include the ability to find suppliers, manufacture the product, and provide customer support and service.

The best idea in the world won't succeed if you don't have- or can't hire - the staff to make it succeed

**The Triple Bottom Line:
People, Planet, Profit**

Businesses that are very serious about sustainability do their best to look at what they call the **triple bottom line**. Often expressed as “people, planet, profit,” this is a measure of business success that looks at environmental and social profits and losses, as well as financial ones.

Such a business might add two more components to a feasibility study:

- **Environmental feasibility.** If your goal is to be a green business, then certain courses of action may not be feasible for you. These will vary depending on your target market and your level of conviction. Typically, a business that considers the triple bottom line will do its best to reduce or offset the environmental harm it does, by managing its products from cradle to grave (i.e., from manufacture to disposal).
- **Social feasibility.** A decision that’s socially feasible will benefit society in some way (or at least, it won’t obviously harm it). Harm and benefit are open to interpretation, of course, and not everyone will see a given green business practice as beneficial. Still, a typical green business might avoid using products made in sweatshops.

...

Alice Shaw was an energy auditor for the local utility district. The first thing she saw when she pulled up to Ray’s building was that his sign was lit with floodlights, in the middle of a bright summer day.

She felt a breeze as she walked through the open door; the air conditioner was running at full blast.

As she and Ray went through the building, it seemed like she never stopped scribbling on her clipboard. There were two refrigerators running, and one was almost empty. There was a broken window in the warehouse. Some doors didn’t have weatherstripping. The water heater didn’t have an insulating blanket. Most of the appliances were old and inefficient. A light was on in a storage closet.

It was all little stuff. A few cents here, a couple of bucks there. But she didn’t have to tell me how it added up over time. I could see that I was throwing away a little money when rates were down, and a lot when they were up. And lately, they’d been up a lot.

The next day, right after lunch, I called a meeting. I laid it out for everyone. No more waste, everyone starts paying attention to lights, doors, air conditioning, and the rest of it. At the end I asked if anyone had any questions, and this one guy, Ian, said, “Did you know your desk lamp has been on all morning?” And it was true. I’d gone in there first thing, turned it on, and hadn’t been back in there since.

So we laughed about that, and I said, “OK, I’ll remind you, and you remind me.”

...

How to Do a Feasibility Study

This section explains how to fill out the **Feasibility Study Worksheets**, which will help you gather the information you’ll need in order to judge the viability of your business idea.

Step 1: Scope. Define your green business opportunity. Are you introducing new products, or improving existing ones? Or are you changing some other area, like energy use or production methods?

Please note that we use the term “product” to refer to products *and* services, except in cases where it’s necessary to make a clear distinction between the two.

Step 2: SWOT analysis. Strengths and weaknesses relate to internal areas like marketing, personnel, management, and finance. Opportunities and threats relate to external factors like competition, technology, economic and political conditions, and social trends. Note that external threats often result from internal weaknesses, and external opportunities from internal strengths.

Ask yourself:

- Why does the opportunity exist? Will it exist long enough to become profitable?
- How many competitors do I have? What’s their marketing strategy?
- What is my competitive advantage? How will I withstand new competition when it comes?
- Is there room for growth?

Step 3: Financial feasibility. This is a four-step process.

- a. Determine the costs associated with your opportunity, and how much financing you need. Start-up costs include professional fees, remodeling, licenses and permits, inventory, equipment, vehicles, and other fixed assets.

- b. Budget your annual operating costs, and determine which are fixed and which are variable. Annual operating costs should be calculated on a cash basis, and include servicing any debt you need.
- c. Test financial feasibility by performing a **break-even analysis**. For example, if a new solar panel system costs \$15,000, and your current power bill is \$300 per month, how long will it take the system to pay for itself?
- d. Determine if you will finance out of regular profits, or borrow to accomplish your goals.

Step 4: Feasibility of sales volume.

Perform a market assessment to determine whether your break-even sales volume is realistic. Ask yourself: Is there a real need for the product? Enough to support a profitable business? Who are my customers? How can I reach them? Why will they buy? When will they buy? How much will they buy?

Completing **cash flow projections** will help to ensure that your green ideas are financially sound, and prepare you to manage cash shortages and surpluses.

To do so, you must examine all the expenses associated with your new idea and prepare monthly sales forecasts for a three-year period.

The process of projecting cash flows is beyond the scope of this supplemental text, but learning how to do it is essential if you want to keep your business from becoming delinquent on its debts and protect its credit rating.



Step 5: Is the idea feasible? Now, it's time to make a simple yes-or-no decision. At this stage, you may want to return to Step 1 and revise your responses to the first four steps. This gives you a chance to fine-tune your idea.

If the results of the initial feasibility study are positive, you can proceed to the remaining feasibility tests.

Step 6: Marketing feasibility. Having looked at your industry and competition, you believe you can achieve the sales volume you need. Now, you must decide how to achieve it. This means looking at all of the normal marketing components: product, price, promotion, placement, and so forth.

Ask yourself:

- What promises does my business make? Why are these promises credible, and how will I keep them?
- What price are my customers willing to pay, and how will this affect my profitability and sales volume?
- How will I deliver my product or service? Will the method I've chosen meet my customers' needs and expectations?

Step 7: Feasibility of personnel. Now it's time to assess the ability of your personnel to take advantage of the business opportunity. To implement a successful policy, you need every one of your employees and contract workers to buy into it, to understand what you expect, and to have the available time, skills, and resources to make it happen.

"Good fortune is what happens when opportunity meets with planning."

-Thomas Edison

First, look at the capabilities of your outside advisors, managers, and employees. List the key tasks at your business, and determine who will perform them. (Your workbook has a worksheet that will help you do this.)

Depending on how serious you are, you might also consider appointing a "chief environmental officer" to oversee and coordinate green policies and purchases, and help other departments to meet your firm's environmental objectives. Among other duties, this employee should help the business to focus on areas where it can make the greatest impact.

Step 8: Logistical feasibility. Next, you need to look at everything involved in sourcing, manufacturing, storing, selling, shipping, tracking, and servicing your product.

- **Materials and equipment.** What materials, parts, and equipment do you need to deliver a product or service? Where will you get them? Do you have the space you need to manufacture your product? Will product substitutes perform as expected and meet the required specifications? Will existing equipment be able to meet increased sales, or will you need to expand? If your product is manufactured elsewhere, will that facility be able to meet your needs if you grow?
- **Suppliers and partners.** Who are your suppliers and partners? What services do they provide? Can they meet your needs if you expand or change your business?

Can they help you meet your green goals, or do you need to look for firms that specialize in these areas? (Remember: You're only as green as your supply chain!)

- **Transportation.** How will you ship your items? Do they require special handling, documentation, or licenses? Do discount rates apply (e.g., bulk mail)? Can your transportation system handle an increase in volume if sales take off? If you offer services, how, when, and where will your personnel deliver them to clients?
- **Business location.** Do you need an additional or new retail outlet, warehouse, factory, or distribution hub? How much parking do you need for customers, employees, and company vehicles? What are your zoning requirements? Should you be in a retail or industrial district? Do you need to be near other facilities (e.g., an airport, train station, or shopping mall)?
- **Other technology.** Do you need telephone networking or teleconferencing systems? Inventory management, customer management, or accounting software? Cash registers, checkout scanners, credit card and check processing? Devices to accommodate the disabled (e.g., automatic doors)? Alarm or camera systems?

Step 9: Legal feasibility. Some green ideas or products may be regulated in your

city. For instance, greywater systems that recycle water from washing machines and sinks are illegal in some cities, and require a permit in others. Research all local, state, and federal laws that you will need to take into account when developing, producing and delivering your product.

You should also consider intellectual property issues (i.e., patents, copyrights, trademarks, nondisclosure and licensing agreements).

Step 10: Environmental feasibility.

Try to assess the environmental impact of your idea through every stage of its life: resource extraction, manufacturing, storage, selling, shipping, consumer use, and disposal. Identify the external costs and benefits for each of these stages, and look for ways to reduce costs and increase benefits by changing ingredients, suppliers, sales and shipping methods, use, or disposal. Can you use materials or packaging that will add value (e.g., that are reusable, or unique in some other way)?

Step 11: Social feasibility. Most of us are familiar with the controversy over clothing that's made in sweatshops, often by child laborers. Bad workplace conditions like these have caused tremendous PR headaches for a number of prestigious companies. With this in mind, you should take a look at who makes the raw materials for your products, and how it affects their quality of life and their community (e.g., sweatshop workers, child laborers, indigenous tribes and rural villagers who are displaced by deforestation or mining, and so forth). Can you buy "fair trade" products and ingredients, or contribute to the social capital or quality of life in your community or state? If so, will these

Research all local, state, and federal laws that apply to developing, producing and delivering your product

measures really help, or will they cause additional, unforeseen problems? These are the sort of questions you need to look at if you want to assess social feasibility.

Capital Budgeting

Some green business decisions involve long-term investments—like installing solar panels, buying new equipment, expanding or constructing a new building, or launching a new product line—that will ideally benefit your company over multiple years. In such cases, your feasibility study should include **capital budgeting**, which analyzes the financial impact of these investments over time.

One of the most common capital budgeting tools is **net present value (NPV)**, which measures the value an investment brings to your firm by comparing the present value of future net cash flows to the initial outflow required by your investment. This can help you to select the best long-term investments.

NPV calculations depend on applying a **discount rate** to net cash flows. In most cases, this will be the cost of the capital your project requires (i.e., the interest rate on a loan). However, it's also common to use the rate of return that you could realize from investing the same amount of money elsewhere. (This is effectively a calculation of the opportunity cost of pursuing your business idea.)

Suppose you want to buy a new piece of energy-efficient equipment. We'll assume that your start-up cost is \$10,000. If cash outflows for years 1 through 5 are \$500 per year (for operating expenses), and cash inflows are \$3,500 per year (from sales and energy savings), your annual

net cash flow is \$3,000.

With this in mind, you can use the following formula to calculate NPV:

$$\frac{R_t}{(1 + i)^t}$$

In this formula, R is net cash flow (inflow minus outflow), and t is the time at which the cash flow occurs. R_t , therefore, is net cash flow at a given time: R_0 is net cash flow at start-up, R_1 is net cash flow in Year 1, and so forth.

The i represents the discount rate. If the discount rate were 0.1, then the discount rate for Year 1 would be 1.1. In Year 2, it would be 1.21.

Now, let's calculate the NPV of our new equipment. Remember: the initial investment is \$10,000, with annual outflows of \$500 and inflows of \$3,500.

Year	Cash Flow	Present Value
$t=0$	$\frac{-10,000}{(1+.1)^0}$	-10,000
$t=1$	$\frac{3,500-500}{(1+.1)^1}$	2,727
$t=2$	$\frac{3,500-500}{(1+.1)^2}$	2,479
$t=3$	$\frac{3,500-500}{(1+.1)^3}$	2,254
$t=4$	$\frac{3,500-500}{(1+.1)^4}$	2,055
$t=5$	$\frac{3,500-500}{(1+.1)^5}$	1,863
Net present value = 1,378		

An NPV greater than 0 is positive, and therefore adds value. An NPV that's less than 0 is negative, and should normally (though not always) be avoided. An NPV that's equal to zero adds no monetary value, but may still be worth pursuing because it benefits your company in some

"Life is trying things to see if they work."

-Ray Bradbury



other way (e.g., it builds your brand). Your final decision might depend on the amount of risk you're comfortable with, your degree of commitment to green principles, and your competitive landscape.

NPV calculations are easy to do in programs like Microsoft Excel. The workbook includes an NPV exercise that will help you to understand this powerful tool.

Other Capital Budgeting Tools

Although it's beyond the scope of this book, there are three other techniques that may be useful in capital budgeting. They can be found in any textbook on finance, or on the Internet.

- **Internal rate of return (IRR)** determines the interest rate (yield) by comparing the present value of expected cash flows to the costs of the project. It is a good indicator of the efficiency or quality of an investment.
- **Payback** is the amount of time it takes to recover an initial investment. It's often used to evaluate energy efficiency.
- **Profitability index** examines the value created per unit of investment and is particularly good at ranking different investments. It is also referred to as the **profit investment ratio**.

Your accountant can help you choose the method that's right for you.

Weighing Advantages and Disadvantages

If you want to feel really confident about your decision, we suggest that you subject your ideas to one more test before you commit time and resources: write a list of advantages and disadvantages.

This may sound simple, but it's a very effective strategic planning technique that is frequently used in the corporate world.

What are the pros and cons of your idea? What leads you to think the project is worth doing? What risks and problems stand in the way of success?

Compiling and thinking carefully about the advantages and disadvantages of each idea will finalize your decision and solidify your team's commitment, and should give you a clear look at some of the obstacles you might face.

Note that you may end up having to do a bit more study on issues that come up during this evaluation. We think that's a good thing. It's always better to be safe than sorry!

Next Steps

Once you've gone through this process, take a thorough look at your feasibility studies. Review the business opportunity in terms of personnel, finances, markets, and other factors. This is your final chance to refine your idea before implementation.

Whether a feasibility study was necessary or not, appropriate, affordable, and attainable ideas should be added to the NxLevel® Green Action Plan. You will fill out a page that details the next steps and the personnel, suppliers, and partners who are responsible for them. Include benchmarks and projected dates of completion, as well as capital requirements, and then prioritize them according to cost and timeframe.

Appropriate, affordable, and attainable ideas should be added to your NxLevel® Green Action Plan

Project Management

Project management is the art and science of defining, organizing, communicating and leading an organization towards a common goal. It can concern itself with products, services, distribution and logistics, plant and equipment, new product development, purchasing, training and many other things.

For our purposes, we are concentrating on managing progress towards the green goals you will develop in your NxLevel® Green Action Plan. The workbook exercises will help you to define, prioritize, fund, staff, track, complete, and assess each project you undertake.

Here are the essential tasks that project managers must complete:

- Prioritize feasible projects
- Define scope and outline major deliverables
- Organize the project plan
- Break project into specific tasks
- Develop timeframe from inception to completion

- Recruit and lead team
- Communicate goals and objectives
- Delegate responsibility for tasks, tied to specific timeframe
- Account for and document time and money
- Adjust to changing conditions
- Check, measure, and reward performance

The skills required to accomplish these tasks include organizing, communicating, accounting, team building, and motivating. Before proceeding, take a moment to honestly assess your own skills. Is there anything you need to learn or practice before undertaking a project?

Gantt Charts

Gantt charts are the most flexible and useful of all project management tools. You can easily construct them using MS Excel or a similar spreadsheet program.

Start by creating a timeline for the duration of the project (in the simple example

Tasks	1	2	3	4	5	6	7	8	9	10	11	12	Cost
Perform market analysis	■												\$ 400
Design product	■	■											250
Choose and test materials		■	■										300
Find suppliers				■	■	■							25
Develop marketing plan				■	■	■	■						1,800
Secure funding							■	■					200
Create prototype									■				750
Manufacture product										■	■		2,700
Advertise product										■	■	■	1,400
Introduce product												■	400

“We live in a society exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology.”

-Carl Sagan

above, we've broken a three-month period into twelve weeks). Then, add as many lines as necessary for the activities that must be completed over that timeframe. Note that the chart allows you to show where tasks overlap.

At the end of each line, you can show as many cost columns for the activity as you need. This will help you to track progress, costs, and variances for each project.

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After reviewing the previous year's electric bills, and interviewing Swimming Hole's staff on their energy usage and needs, Alice was able to give Ray a more in-depth picture of the firm's energy use, and suggested ways to reduce it.

She broke down the cost of each energy-saving measure, and compared it to the money the company would save. Best of all, she explained that Ray could get rebates for installing energy-saving equipment like LED "exit" signs, and occupancy sensors that would turn off lights when the warehouse was empty.

But she also made it clear that the larger problem was that Ray and his staff had developed energy-wasting habits. If Ray really wanted to lower his costs, that needed to change.

The going was hard at first. It's hard to break old habits. But we put up signs by the copier, and next to the light switches, and gradually if one person forgot to turn out a light, someone else would walk past and do it.

I guess it took about a month before we were really on top of it, to the point where it became second nature.

Ray soon found that his employees had their own ideas for saving energy. Some of them noticed problems in the process of doing their jobs, while others read articles with useful energy-saving tips. After getting one idea that saved the company \$25 a month, Ray decided to offer rewards for any innovation that reduced waste or improved efficiency.

One of the first ideas after I made the announcement came from Shelley, in sales. She wanted to donate our old computer monitors to a school a few miles away.

I planned to cram them into the dumpster, which basically didn't cost me anything. So I didn't see where this was helping the company, or saving me any money.

And she said, "The monitors are still good. It just seemed like a waste to get rid of them. And the school's low on money, so this will make their budget go farther."

So I took them down there, and the principal was very happy to get them. And I even talked to a teacher whose pool needed a new pump, so I got a little business out of my visit, and saved the school a few bucks too.

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Project Management Software

Popular programs include **Microsoft Project**, **Intellisys Project**, **Open Mind**, **Project Kickstart**, **Rational Plan Multi-Project**, and **Minuteman**.

Their prices range from \$50 to \$500. If you don't want to spend that kind of money, or simply prefer to experiment first, you can try free software like **GanttProject**, **iTeamWork**, **dot project**, and **Task Juggler**.

You can check **www.freewarefiles.com** for more free project management software.

"You can't solve a problem on the same level that it was created. You have to rise above it to the next level."

-Albert Einstein

Saving energy is fundamental to any well-run business

Saving Money By Saving Resources

No matter where you stand on green business practices, saving energy is fundamental to any well-run business. Fortunately, there are plenty of comparatively easy ways to get started.

Most business owners are energy savers out of necessity. They understand that when employees leave the lights on all night, it costs the business money. It may not be a lot of money, but it adds up over time. By the same token, they understand that if they have a drafty office, it takes more money to keep employees comfortable during winter.

It's possible to gain a better understanding — and bigger savings — by looking at your energy usage as carefully as possible. One of the easiest ways to do this is to request a free **energy audit** from your local utility, which will usually include tailored advice on reducing your energy use.

Alternatively, you can hire a green business consultant, who will look at everything from your office equipment to your supply chain and offer suggestions on saving energy and improving efficiency. (Be aware that this option isn't cheap. Even if you have the money to spare, you'll probably want to achieve as much as you can on your own before calling in a paid consultant.)

One important thing to keep in mind when taking steps to become more efficient is **Jevons' Paradox**, which explains how more efficient or greener technology can actually *increase* overall consumption. In other words, if you use low-energy lightbulbs or install a solar water heater,

your employees may leave lights burning longer, or waste hot water.

In environmental economics, this is usually referred to as the **Rebound Effect**, and it describes a situation where actual savings are lower than expected savings. For instance, if you buy a car that has 10 percent greater fuel efficiency, but you only realize a fuel savings of five percent, the Rebound Effect totals 50 percent.

As you can see, this makes educating your employees on conservation crucial. It's not enough to install the latest energy-saving gadget; behavior has to change along with technology.

Energy and Resource Calculators

- The US Department of Energy offers a variety of useful energy calculators at www.eere.energy.gov/consumer/calculators. These online tools can help you evaluate your energy use and determine whether energy efficient products or renewable energy are right for you and your business.
- The Ecological Footprint Quiz at www.myfootprint.org estimates the area of land and ocean required to support your consumption of food, goods, services, housing, and energy.

Electricity

Before you consider any other green ideas, how about turning off lights and appliances when they're not in use? IBM estimates that this simple action saved them \$17.8 million in a single year.

That said, it often takes more to turn off an appliance than hitting the power button. Many appliances continue to use significant amounts of energy even when they seem to be off.

There are a number of devices you can buy that, when plugged in, will alert you to these energy-wasting appliances. Alternatively, you can buy a “smart” power strip that senses when your appliances are turned off, and cuts their power; SmartStrip (www.bitsltd.net) is a popular brand.

A simpler solution is to plug your appliances into a single power strip, and turn it off when they’re not in use.

Here are some more suggestions:

- Look for products with Energy Star certification.
- Use large equipment during off-peak hours (7pm - 7am), if possible.
- Choose inkjet printers, which use less energy than laser printers.
- Choose laptop computers, which use up to 90% less energy than desktop models.
- Consider allowing employees to telecommute one day a week, or have them work four 10-hour days.
- Use timers to ensure that lights and electronic equipment automatically turn off when the office is unoccupied.
- Unplug chargers when not in use.

If your goal is not just to save money, but also to support renewable energy, note that many utilities offer 100%-renewable power for a small monthly surcharge.

Some businesses find that this is a relatively inexpensive way to earn positive PR and consumer goodwill. Contact your local utility for more information.

Lighting

According to the US Department of Energy, lighting accounts for roughly 29 percent of the average office’s energy use. Fortunately, it’s easy to reduce this expense.

Compact fluorescent bulbs

Ever wonder why incandescent lightbulbs get so hot? It’s because they convert less than five percent of the electricity they use into light; the rest is turned into heat.

Longer-lasting, energy-saving fluorescent bulbs have been used in offices, factories, and government offices for decades. However, the long, delicate tubes and bulky fixtures made them inconvenient for smaller offices and home businesses. Now, compact fluorescent bulbs (CFLs) have made it easier for small businesses to save money with fluorescent lighting.

It should be mentioned that all fluorescent bulbs contain a small amount of mercury, and CFLs are no exception. While CFLs contain much less mercury than the long fluorescent tubes with which we’re all familiar, broken and dead bulbs should still be disposed of properly.

Some people worry that breaking a CFL will involve hazardous materials response teams and high fees, but that’s an urban myth. Sweeping up the glass and wiping the area with a damp cloth is usually sufficient. It’s worth noting that Wal-Mart and Costco now have free collection bins for broken and dead CFLs.

“Waste is a tax on the whole people.”

-Albert W. Atwood

As a side note on mercury and fluorescent lighting, don't worry that you're trading one environmental problem for another by switching to CFLs. Since burning coal to generate electricity releases mercury into the atmosphere, the extra power traditional bulbs require actually generates more mercury pollution than CFLs over the life of the bulb.

LED lighting

LED stands for **light emitting diode**. These are small semiconductor devices that convert electricity into light. When many of them are grouped together into a "bulb," they can be used for lighting in residences and businesses. They don't get hot, unlike incandescents, and they don't flicker, unlike CFLs.

Although they're very vulnerable to heat, if properly used they can last about ten times longer than CFLs, and about 50 times longer than incandescents. They're also currently much more expensive than either...at least in terms of purchase price.

However, you also have to factor in the cost of powering them. According to sustainability engineer Pablo Paster, 50,000 hours' worth of incandescent lighting would cost roughly \$12.50 for the bulbs, and \$300 for electricity, resulting in a total cost of \$312.50.

If you used CFLs, the same number of hours would cost you \$34.50 for the bulbs, and \$75 for electricity, for a total cost of \$109.50.

A single LED bulb costing \$59.95 is good for 50,000 hours, and will use \$52.50 in electricity. That's a total cost of \$112.45.

As you can see, incandescent lights may have a low price, but they're no bargain.

Does that mean you should run out and replace all your lights with LEDs? Probably not. LED lighting is still in its infancy; at this stage, they won't provide enough light for an office or warehouse. However, LED lighting can be a very good choice for signage, display cases, and similar applications. You may need to do some research and shop around to find a brand of bulb that performs as expected.

Most experts expect the brightness and reliability of LED lighting to increase in the next few years, and the cost to go down. In fact, the US Department of Energy predicts that LEDs will replace incandescent bulbs and CFLs within the next decade.

Natural lighting

Depending on your location, you may have far simpler options for green lighting. Well-placed skylights can provide some or all of the light the average office needs, and studies have suggested that natural light may have the added benefit of improving your employees' mood.

Skylights tend to let heat in along with light, which can pose a problem in hot weather. **Solar tubes** avoid this problem by diffusing natural light through your office by means of lenses and reflective tubing. They can also deliver light to areas with no windows, like basements and storerooms. You can learn more at www.sunpipe.com.

Both skylights and solar tubes are generally affordable, though the installation cost depends on the type of building in which you do business.

"For a successful technology, reality must take precedence over public relations, for Nature cannot be fooled."

-Richard P. Feynman

A more expensive option is **fiberoptic solar lighting** (also known as hybrid solar lighting, or HSL). These systems use a rooftop collector to gather sunlight, and fiberoptic cables to direct the light into the building, usually after filtering its harmful ultraviolet and infrared components. As of this writing, the length of the cables is limited to about 15 feet. But like LED lighting, these systems are predicted to improve and become more affordable in the near future. If you wish to see one of these systems as currently configured, you can visit www.sunlight-direct.com.

Solar photovoltaics

Solar photovoltaic panels convert sunlight directly into electricity. Choices range from small, portable devices that can recharge your laptop or cellphone to fixed photovoltaic (PV) arrays that generate enough power for most small businesses. We'll focus on the larger systems here.

When weighing the costs and benefits of solar photovoltaics, it's essential to have your electric utility conduct an energy audit, so that you'll know how much electricity your business is actually using.

This will tell you how much solar power you'll require, but more important, it'll help you cut your usage. Since PV panels aren't cheap, cutting your power usage as much as possible *before* installing them is a very good idea. A good contractor will be able to help you with this, and if necessary, can switch some appliances to other energy sources in order to reduce the load on the PV system.

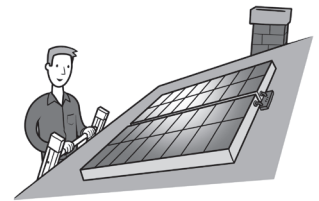
If you're considering a PV system, or would like to install one at some point in the future, pay close attention to the

latest discoveries and predictions, so that you can make an informed decision.

Naturally, this advice also applies to subsidies, tax breaks, and grants for PV systems (which we'll be discussing in more detail shortly), and legal and permitting issues. Regulations vary greatly from town to town and state to state, as do the fees associated with permitting. As solar power increases in popularity, the trend is towards simplifying permits and lowering fees, but some locations are far ahead of others in that regard.

If your town has burdensome restrictions on solar or other renewable systems, considering talking to your local representatives about it. Chances are, you'll find that they're willing to listen to what local business owners have to say on this subject.

One of the more exciting developments in solar photovoltaics is being pioneered by the state of California. A new law enacted in July 2008 allows cities and counties to make low-interest loans to homeowners and businesses who wish to install solar panels. The loans are paid back over 20 years, through a property tax assessment that's lower than typical monthly electric charges. If the property changes hands before the 20 years is up, the tax assessment is simply transferred to the new owner along with the PV panels, making this an attractive, low-risk option for consumers. If this scheme works as expected, it seems safe to say that other states will follow suit.





Energy Star @ Work

The US EPA's Energy Star program recently released a new site for businesses called Energy Star @ Work (accessible through www.energystar.gov). This cleverly designed interactive site offers tips on saving energy in the office, and helps you to locate Energy Star-qualified office equipment. You can also download Energy Star tip cards to encourage others to join you in saving energy and protecting the environment.

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Ray was reducing waste, saving resources, and trying to give something back to the community. These sound like things a green business would do. But Ray never thought of Swimming Hole that way.

I wasn't an environmentalist, by any means. That was a whole other lifestyle that, to be honest, just looked and sounded weird to me. That was not my style and Swimming Pool was not, in my opinion, a green business. I would've called it a smart business, maybe, or a realistic one or an efficient one.

But "green" conjured up all these other associations that I did not feel fit who we were as people, and that frankly weren't really appropriate for a business of our type. I don't know what I thought of when I thought of environmentalists, exactly, but it didn't involve buying or installing or servicing swimming pools.

At the same time, I wasn't not an environmentalist. Being outdoors means a lot to me. I have a cabin at South Lake Tahoe, and I don't know what I'd do if I couldn't get away into the mountains every now and then. In fact, that cabin's one of the main reasons I work as hard as I do.

But there's the outdoors, and then there's the city. And I was in the city. I guess that in some weird way, I felt like there was no

"environment" where I was. If I see litter up in the mountains, it makes me mad. If I see litter when I'm walking along the sidewalk, it doesn't really register in the same way. And the same thing applied to my own behavior. I'd never dream of dumping used oil in the lake. But if I was changing my oil at home...well, let's just say I wasn't too particular about where it ended up.

It was hard for me to take the attitude I had in the mountains and apply it to the place where my family and I actually spent most of our time...probably because it meant taking a little more personal responsibility than I was ready for, at that stage, given the other things I had on my mind.

Still, I had to approach change in a way that made sense to me and I had to do it according to my own schedule. And even now, I think of myself as a businessman first, and green second. I'd rather be known for being a good neighbor and a good citizen...someone who's responsible and conscientious and consistent. Those were good things to be long before anyone ever heard of green business, and I see the environmental side of my business as a natural outgrowth of the goals I already had.

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Water Conservation

Municipal water shortages have been common in recent years, and this trend is expected to continue. Many areas impose fines for wasting water, or offer rewards for conserving it. Here are some easy ways to reduce your water use.

- **Fix leaky faucets and dripping pipes!** Every leak you stop will save about 20 gallons of water per day.

"Do not wait for extraordinary circumstances to do good action; try to use ordinary situations."

-Jean Paul Richter

- **Choose native plants and grasses** that are adapted to your climate and require little or no watering. Your local nursery should be able to help you with this.
- **Don't leave the hose running while washing your vehicles.** Instead, use a bucket of water, and give the vehicle a quick spray when you're done.
- **Use a broom instead of a hose** to clean driveways and sidewalks.
- **Install low-flow, dual-flush toilets, if possible.** Otherwise, you can save water by putting a plastic bottle full of sand or water in your tank. Also, watch out for tanks that leak or don't shut off when full; they can waste up to 1,200 gallons per month.
- **Harvest tap water.** While waiting for tap water to get hot, catch the cold water in a pot and use it to water plants or make coffee.
- **Install a recirculating pump.** These devices recirculate water until it reaches a desired temperature, so that you no longer have to run the tap while waiting for the water to get hot. Different pumps have different efficiencies, operating costs, and drawbacks, and some may require permits, so be sure to do your homework before installing one of these systems. Depending on the design of your facility you may be better off with a gravity-driven **hot water re-**

circulating loop; you can talk to your contractor or plumber about the feasibility of this option.

- **Adjust sprinklers** so that water lands only on your plants, instead of soaking down a nearby driveway or a parking lot.
- **Reward employees** for meeting water conservation goals.
- **Create depressions around trees** and line them with rocks or mulch to retain moisture.
- **Harvest rainwater,** and use it for irrigation, cleaning, and so forth.

Reward employees for meeting water conservation goals

If you want to make a more dramatic statement, consider replacing waterproof asphalt or concrete areas with **permeable paving**, which prevents stormwater runoff and thus reduces pollution of the watershed by gas, oil, antifreeze, and heavy metals.

Permeable paving can be more expensive than conventional paving, but this cost may be offset by eliminating the need for conventional drainage solutions. A contractor can help you assess whether permeable paving would be appropriate and affordable at your site.

Hot Water

It takes a lot of energy to run a traditional water heater, which keeps water hot even when it's not being used. In fact, heating water accounts for more than 20% of residential energy use in the United States.

This has led to the development of “on-demand” heaters, which heat water as needed with a single, large burst of energy. These units have the benefit of providing unlimited hot water; unlike traditional water heaters, they never run cold. And they take up much less space than traditional heaters.

There’s a downside, of course. These heaters aren’t cheap; you can expect to pay \$1,000 or more for a household-sized unit. Also, there’s some debate as to their energy efficiency, which can vary by manufacturer, model, location, and time of year. Furthermore, Jevons’ Paradox suggests that having unlimited hot water may cause some people to use more water and energy than they would otherwise.

In short, on-demand water heaters are a perfect example of a “green” innovation that requires you to weigh costs and benefits with a skeptical eye.

Solar water heating systems may be a better option for many businesses. They’re extremely simple, and comparatively inexpensive. Water heating panels are cheaper to manufacture than PV panels, and they capture more of the sun’s energy.

This was once a very popular system in America. In 1941, roughly half of the houses in Florida had solar water heaters. Now, thanks to high energy costs, they’re becoming popular again. In fact, Hawaii has passed a law requiring all new homes to be equipped with solar water heaters!

There are two primary types of solar hot water systems:

- **Passive systems** are usually mounted on the roof. They comprise a solar collector to heat the

water, a tank to store it, and pipes to distribute it. They’re called “passive” because they have no moving parts; heat and gravity force water through the system.

- **Active systems** have a pump that forces water through the collector or—in the case of “closed loop” systems designed for colder weather—a non-freezing fluid that transfers heat to stored water. This makes them a bit more versatile than passive systems, and possibly cheaper, as they don’t have to be mounted on the roof.

There are different types of solar collectors, too. **Flat plate collectors** comprise a metal plate with built-in pipes; as the sun heats the metal, the water becomes hot.

Evacuated tube collectors are glass tubes with a dark coating that absorbs heat, and transfers it to the water. They’re a little more expensive than flat plate collectors, but they’re also much more efficient.

Both systems may need a seasonal backup, because prolonged, heavy cloud cover will reduce their output.

Whichever system you choose, you can expect to pay roughly \$5,000 for materials and labor for a system that will serve a small business, or a family of four. Is the cost worth the benefits? It depends on your situation. Variables include the amount of hot water you use in an average month, your local climate, and the local availability of grants and rebates for solar hot water systems.

Weigh costs and benefits with a skeptical eye

As a rule of thumb, you can figure that 20% of your current gas or electric bill goes to heat your water. So if your business has an electric water heater, and your monthly electric bill is \$300, heating water would cost you about \$60 per month.

If a solar thermal system costs \$5,000, minus a \$1,400 rebate, your out-of-pocket expense would be \$3,600. That means it would take about five years for the system to pay for itself, at which point you would have free hot water for the foreseeable future.

If you're adventurous and good with your hands, you can make your own solar water heater for very little money. See www.motherearthnews.com/Green-Homes/2007-10-01/Build-Your-Own-Solar-Water-Heater.aspx for more details. As always, be sure to check on permitting!

Air Conditioning and Heating

If you're going to use a traditional AC system, you should buy an energy-efficient model, and make sure it's the right size for the space you need to cool. If it's too big, it'll waste energy and money, and it may also fail to dehumidify your space.

Check the unit's **energy efficiency ratio (EER)**. A window unit should have an EER rating of at least 11. A central unit should have a rating of 13 or higher. Other good features to look for include variable-speed fans, a fan-only switch, two-speed compressors, a combination water heater/cooling system, a thermal expansion valve, and a filter check light.

Here are some tips on getting the most from your air conditioner:

- Install your unit in a shady area. This can reduce air conditioning costs by as much as two percent.
- Set your thermostat to 78 degrees, or as high as comfort permits. You can save 3 to 5 percent on electric costs for every degree you raise the thermostat.
- When the weather is mild, turn off the AC and open the windows.
- Close blinds and curtains during the hottest part of the day.
- Close or cover cooling vents in unused rooms and keep doors to unused rooms closed.
- Clean filters twice a month.
- Clean the outside condenser coil once a year.



You can save 3 to 5 percent on air conditioning for every degree you raise your thermostat

Dress for Success!

- If your business has a uniform or dress code, you might want to consider adapting it to the seasons. It can be very expensive to cool down people who are overdressed for hot summer weather. "Casual Fridays" aren't just a morale booster for your employees...they can also reduce your energy costs!
- If you decide to redesign your company's dress code or uniform in light of this consideration, you may want to look into organic cotton, which is comfortable, environmentally friendly, and makes a powerful statement about your commitment to sustainability.

Heating is traditionally one of the biggest energy expenses a business faces

GeoExchange Systems

GeoExchange systems (also known as geothermal heat pumps) are very efficient and environmentally friendly, and can save you up to 50 percent on your cooling and heating bills. Most systems can also be designed to provide free hot water.

These systems use the subsurface temperature of the earth to provide heat in the winter and cooling in the summer. When the air in the building is colder than the ground ten or fifteen feet below the surface, the subsurface heat is transferred to the inside of the building through pipes. In summer, the subsurface temperature is cooler than the air, and can be used to cool your facility. In a typical cooling system, water at subsurface temperature is pumped into a radiator. A fan blows hot air over the pipes, which cools and dehumidifies it.

The pump and fan are much quieter than traditional air conditioners, and can usually be powered with small solar panels. The US Department of Energy estimates that these systems can pay for themselves in 5 to 10 years.

If you decide to investigate this option, try to find a local dealer who is familiar with local ground conditions, as well as local permitting, codes, and fees. A good dealer should also be able to tell you about local, state, and federal incentives for GeoExchange systems, and provide you with the names of local businesses that have installed them.

For more information, visit www.eere.energy.gov/geothermal/heatpumps.html.

Heating

Heating is traditionally one of the biggest energy expenses a business faces, and it seems safe to say that the costs of natural gas and fuel oil won't be heading down anytime soon.

Sealing and weatherstripping your facility is the cheapest and easiest step you can take to save heat, and most utilities will either tell you how to do it, or do it for you, free of charge.

You should also consider various types of insulation. In larger, draftier buildings like warehouses, you can easily install a **radiant barrier** (also known as foil insulation) across the rafters in order to reduce heat loss.

Double-paned windows are a great way to keep heat in, but there are also cheaper options. Simply covering your existing windows with comparatively inexpensive storm windows can reduce heat loss by 25 to 50 percent.

Of course, you should also keep temperatures as low as possible; lowering the thermostat by just a couple of degrees can save ten percent on your heating bill! Also, clean your furnace air filters frequently.

If you're in a building that's heated by furnace vents, you may find that you're wasting energy to heat unused rooms. One solution is to seal them with inexpensive magnetic vent covers, which should be available at most larger hardware stores.

Once you've taken care of drafts, you still have the deal with the fact that hot air rises, which means that you're paying to warm the air above people's heads. Low-speed fans can reduce costs by making the warm air circulate.

If you're looking for a more permanent solution, consider **underfloor heating**, which uses either circulating hot water or electricity to warm the floor. The result is that rooms are cooler near the ceiling, and warmer underfoot. Also, the lack of forced air circulation may be helpful to people who suffer from allergies.

Underfloor systems vary by efficiency and cost; obviously, the source of the heat has a lot to do with both factors. Generally speaking, a hot-water system will be more expensive to install than a traditional radiator. But it can save 15 to 40% on energy costs, which may make it a better deal in the long run. The combination of underfloor heating with a GeoExchange system is particularly efficient.

Electric systems have much lower installation costs, and will generally require little or no maintenance. However, they're usually going to be less efficient overall, unless they're powered by renewable sources.

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Later that year, Ray went to a trade show and talked to some people who were selling alternative pool cleaning systems and purifiers. Ray was intrigued...until he saw the price tag. The systems cost a lot more than the ones he sold.

"Do people actually buy this stuff?" he asked.

The salesman explained that although the systems were more expensive, they had benefits that outweighed the costs.

First, he said that some people want fewer chemicals either because they have some skin or respiratory condition, or maybe an

allergy, or just because they prefer it. That made sense, because I know people who don't like chlorine in their hair or eyes. But how many people are there out there with those problems?

The salesman told Ray that the goal wasn't just to sell to people with sensitivities to chlorine, but to sell people on the benefits of not using chlorine, from health and safety to protecting the environment.

He asked me, "You have competitors, don't you?" I said sure, that was one thing I had plenty of. He asked if they were selling green pool supplies. They weren't, as far as I knew. And he pointed out that it sounded like I had a chance to get an edge on them.

That was kind of exciting, but I was still skeptical. What if the system doesn't work, I wondered. Or what if I buy a bunch, get everyone hooked on it, and then the company goes out of business?

What finally convinced me to give it a try was when he pointed out that switching over was going to get me out from under some hazmat and fire regulations that were a constant thorn in my side. All the other benefits sounded good...but if it worked out that I could stop worrying about the regs, that was definitely worth a gamble.

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Paper

According to the Environmental Protection Agency (EPA), the typical office worker generates 1.5 pounds of waste paper per day. It's no wonder that paper accounts for roughly 40% of all municipal solid waste in the United States!

The average office worker generates 1.5 pounds of waste paper per day



There are several ways to cut down on how much paper you use, including:

- Switch to electronic communications, and use paper only when clients request it, or the IRS demands it.
- View and edit documents on your computer.
- Send your faxes via computer, with programs like Microsoft Fax.
- Make sure all printers and copiers are set up to print on both sides of the paper.
- Opt for online banking, accounting, tax processing, purchasing, bill payment, and statements. Remember to back up your files frequently!
- Buy recycled paper with a high percentage of post-consumer recycled content. Recycled paper uses 90 percent less water and 50 percent less energy than paper made directly from trees!
- Use a rubber address stamp in place of return address labels. Also, try printing directly onto envelopes instead of using labels.
- Keep your mailing lists up to date, and remove people and businesses who don't need to be on it.
- Shorten and simplify your documents. If a promotional mailing runs to a page and a half, try to cut it down to one page. This will

save paper, printing costs and the reader's time. Alternatively, you can always send it as a PDF.

Just Say No To Junk Mail!

Junk mail wastes time, as well as energy and resources. Fortunately, there are steps you can take to reduce or even eliminate it.

- Remove your business from the **Dun and Bradstreet Mailing List Database**. Call D&B's customer service center at 1-800-333-0505, or send an e-mail to custserv@dnb.com.
- Fax a letter to **InfoUSA** at (402) 331-0176. This letter should be marked "Attention—Business Update Department," and must include your complete business name, address, and phone number; the name and title of the person requesting the deletion; and that person's signature.
- The **Direct Marketing Association** offers a consumer service called DMAchoice, which allows you to opt out of direct mailings for five years at a time. Visit www.dmachoice.org for more information.

"If civilization has risen from the Stone Age, it can rise again from the Wastepaper Age."

-Jacques Barzun

Building Materials

Recent years have seen an explosion in green and sustainable building supplies. As a general rule, they tend to be more expensive than their conventional counterparts. But in many cases, they provide greater value: they may be more effective, durable, or attractive, or less likely to trigger allergies and other respiratory complaints.

Here's a brief list of environmentally preferable building supplies:

- **Low VOC/No VOC coatings.** You can find a wide variety of paints, stains and finishes that contain few or no volatile organic compounds (VOCs). These durable, odor-free

coatings are much more pleasant to use than traditional paints, and much better for the environment. Some may also provide more coverage or a richer color than VOC paint. Manufacturers include AFM (www.afmsafecoat.com), BioShield (www.bioshieldpaint.com), and Yolo (www.yolocolorhouse.com). Larger manufacturers like Kelley-Moore and Sherwin-Williams also make eco-friendly paints.

- **Non-fiberglass insulation.** Options include cellulose, spray polyurethane foam (soy-based brands are available), and recycled denim. Prices are likely to be a bit higher than fiberglass, but they're generally safer to work with, and easier to dispose of if you need to remove them later.
- **Alternative countertops.** A number of companies make stylish and durable countertops from recycled glass, concrete, fly ash, old newspaper, and other materials. Most of these products don't come cheap, and there may be a waiting list. But if you were thinking of installing granite, you may find these counters to be an equally attractive and environmentally friendly alternative, as well as a great conversation piece for employees and customers. Popular brands include EnviroGLAS (www.enviroglasproducts.com), IceStone (www.icestone.biz), Vetrazzo (www.vetrazzo.com), and Paperstone (www.paperstoneproducts.com).

paperstoneproducts.com). Some of these companies make flooring and tiling, as well.

- **Bamboo flooring.** Bamboo is all the rage in green building circles, because it grows very quickly in a wide range of climates, and is sturdy, versatile and elegant. It's competitive in price with other types of flooring. Some experts would argue that bamboo is not yet truly sustainable, due to processing and growing methods, and the fuel required to transport it from Asia. As with most products listed here, it's best to have it installed by builders who have experience with it.
- **Wood flooring.** If you want wood floors, a simple green solution is to look for wood that's been certified by the Forest Stewardship Council (www.fscus.org), which requires producers to meet 57 environmental criteria. Generally, these woods are comparable in price to standard brands, so there's really no reason not to choose them. Another possibility is to use reclaimed wood, which can be a very attractive choice for certain types of business.
- **Other flooring options.** Cork flooring comes from tree bark that's harvested harmlessly every nine years. It's attractive, durable, and warm, but it's also soft and may be vulnerable to moisture. The price is comparable to mid-range hardwoods. If you prefer

"What is a weed? A plant whose virtues have not yet been discovered."

-Ralph Waldo Emerson



carpeting, a wide range of low-VOC and recycled brands are available from traditional and specialty manufacturers. Last but not least, natural, hypoallergenic, odor-free linoleums like Marmoleum are available in a wide variety of colors, at a competitive price.

“There’s a way to do it better—find it.”

-Thomas Edison

- **Formaldehyde-free plywood** is increasingly popular, and most larger building supply stores will either have it in stock, or be able to order it.
- **Outdoor wood substitutes.** Companies like Trex (www.trex.com) make decking, railing, and fencing from a mixture of reclaimed wood and recycled plastic. It’s slightly more expensive than wood, but it’s more durable and weather-resistant, doesn’t need protective coatings, and is not subject to insect damage. It’s also splinter-free.

All good contractors should be familiar with most of these products. Those who aren’t can learn more by talking to manufacturers, sellers, and other contractors.

If you’re in a larger city, you may be able to find green building supply stores that carry products like these. When asking for advice, be aware that while the salespeople at such stores will usually be knowledgeable about manufacturers’ specs for a given product, it’s always best to talk to people who have actually installed it for other customers. You can also contact the manufacturer directly for more details.

Transportation

Like oil and natural gas prices, gasoline prices are volatile. High fuel prices can be especially devastating for auto-related businesses like tow companies and taxicabs, but since we all rely on trucks and planes for food and other essentials, no business or consumer escapes unscathed from skyrocketing fuel costs.

Hybrid vehicles, which make gasoline go further by deriving some power from electricity, have been a popular solution to higher fuel costs. While certain models seem to deliver on their promise, this is another area in which it pays to do your homework.

It may be tempting to run out and convert your fleet to hybrids, but there are many other gas-saving ideas you may want to try first. The first and simplest is to drive less. Encourage employees to take public transportation or carpool when they can, and to do as many errands as possible during a single trip when they drive company vehicles. This may require you to be more organized, of course...but that can benefit your business in many other ways, particularly in increased productivity.

The second is to drive differently. Nowadays, many cars come with a useful meter that shows how dramatically gasoline consumption can change depending on how you drive. If you have one of these meters, keep an eye on it while you drive, and try to avoid actions that reduce your mileage; you’ll probably find that energy-efficient driving becomes second nature.

If your company vehicles aren’t equipped with these meters, it’s easy to buy and install them; ScanGauge (www.scangauge.com) is a popular model.

If you do use one of these gauges, you'll find that your vehicle has an optimal speed for fuel efficiency. Generally speaking, that speed is somewhere around 45mph; fuel efficiency decreases dramatically over 55mph. Be sure to call your drivers' attention to this.

Here are some other tips for maximizing your mileage:

- **Keep your vehicles tuned up, and the tires properly inflated.** These are two of the most important things you can do to save at the pumps. Under-inflated tires can lower fuel efficiency by approximately 1.4 percent for every 1 psi drop in tire pressure!
- **Don't carry things you don't need.** The heavier your vehicle is, the more energy it takes to move it!
- **Keep acceleration and braking to a minimum.** Pay close attention to what's happening ahead, so you can avoid stop and go driving and maximize coasting time.
- **Don't let your engine idle while sitting.** Idling for ten seconds uses more fuel than turning the engine off and on.
- **Utilize fleet management tools.** Many companies have fleet management tools that help them scrutinize fleet costs and maintenance, and configure routes for maximum fuel efficiency.

Looking for a Greener Fleet?

The **American Council for an Energy-Efficient Economy** maintains a green consumer guide to current car and truck models at www.greenercars.org. They calculate a Green Score for each car, minivan, pickup, and SUV on the market, based on official emissions, fuel-economy tests, and other specifications reported by auto manufacturers.

Here, you'll find lists of the greenest models in each vehicle class, as well as the cars and trucks that scored lowest on ACEEE's environmental tests.

The site also features analysis of market trends, and offers plenty of fuel-saving tips for drivers.

Videoconferencing

The high price of airline tickets, along with concern over greenhouse gas emissions, has led to an increase in videoconferencing and other alternatives to face-to-face meetings. In addition to saving energy and reducing carbon emissions, these tactics allow you to slash common business expenses like hotel accommodations, meals, and rental cars.

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Ray started out cautiously. The first thing he decided to do was test the system in his own pool. If it didn't work, there was no point in taking things any further.

He monitored the water over two months, checking pH, algae growth, and water quality frequently. He was pleased to find that the treatment seemed to work, and even more pleased to find that his family seemed less inclined to take long showers after swimming. That meant less hot water, less energy, less shampoo...it was amazing how connected everything turned out to be!

Keep your vehicles tuned up, and your tires properly inflated!





There was definitely a learning curve. This was an ozone-based system, and it had definite parameters you had to stick to in order to get good results.

My customers have different skill levels, to put it very politely. Some of them would have no problem with the new system. With others, you're going to be walking them through every step, which I worried would be a drain on our resources. Other than the system actually working as advertised, that's what worried me the most. Could we handle the increase in service requests, and still get everything else done?

I had all my key employees come over and take a dip in the pool, and I showed them how the system works. And what I learned was interesting. The sales people were very enthusiastic. They heard a lot of complaints from people about chlorine, especially from people who were looking for what they call salt water pools. To them, this was a no-brainer. They were ready to get out there and start selling.

But Joe, who's one of my technical guys, pointed out some things that I hadn't thought about. First, unless the pump is going, the water isn't getting purified. What does that do to your energy costs? Second, is your system going to be able to handle the increased circulation? How will the pumps and filters hold up? Sure, you're saving on chemicals, but what does it cost to achieve that savings?

I didn't know. But I knew I needed to find out.

• • •

"The only real voyage of discovery consists not in seeking new landscapes, but in having new eyes."

-Marcel Proust

Pollution Prevention

Federal, state, and local pollution regulations can affect many aspects of your business. Failure to follow these regulations can result in costly civil or criminal actions.

But following them can also be costly, and it may take up valuable time that could otherwise be used for managing and growing your business.

Luckily, there are plenty of resources out there for confused entrepreneurs. For instance, the EPA offers compliance assistance programs, and will waive penalties for certain types of environmental violations for companies who participate.

Still, think how much easier things would be if you had nothing to regulate! That's the concept behind **pollution prevention (P2)**, which the EPA defines as "elimination of or reduction in waste quantities or toxicities at the point of generation." In plain English, this means not making pollution in the first place.

Even the smallest businesses can benefit from a P2 program. By cutting wastes, you cut disposal costs, energy fees, and water fees; and you increase the efficiency of your business.

If you wish to begin a P2 program, here are some hints:

- **Collect data.** Determining the types and amount of waste your company generates helps you evaluate options, and establishes a baseline for measuring progress.

- **Set affordable, appropriate, and attainable goals.** For example, you may want to decrease your solid waste output by 25% in one year, or reduce your hazardous waste by 10% every year for five years.
- **Educate and involve all employees.** A safer working environment increases employee morale and productivity. And once employees understand the P2 concept, they will generate valuable new ideas.

The following P2 methods cost little or nothing to implement, but can result in considerable long-term savings.

- Install spigots and nozzles to dispense fluids from bulk containers, and use drip pans and splash guards to avoid spills.
- Check for leaks regularly. Even the smallest leaks can lead to waste problems and exposures if not remedied. Also, check closures to prevent spills and evaporation.
- Be sure to factor in waste management costs when buying materials. Remember: Materials that generate hazardous waste cost more than the purchase price.
- Order materials in smaller unit sizes to reduce inventory. A large inventory ties up money that could be invested elsewhere, and increases the potential for spills, pilfering, and spoilage.

- Broken packaging or expired materials may increase your waste load. Do not accept deliveries of materials that are damaged, or show signs of leakage. Also, make sure all materials have accurate and legible labels.
- Follow proper storage methods for perishable materials. Using stock on a FIFO (first in/first out) basis reduces the chance that materials will deteriorate in storage. If possible, arrange to return expired materials to your suppliers.
- Make certain that spills or leaks will not contaminate sewer or storm drains.
- Keep different wastes separated; mixing wastes can be dangerous, and may make reusing or recycling impossible. Also, mixing hazardous and nonhazardous wastes increases the volume of hazardous waste, which can increase your disposal costs.
- Store hazardous waste in a safe location out of major traffic areas.
- Consider the cost of waste management when purchasing new equipment, and try to find the best nonpolluting equipment within your price range.
- When possible, purchase or use recycled materials, and choose suppliers who take back packaging for reuse.

“Source reduction is to garbage what preventive medicine is to health.”

-William L. Rathje



- Reduce e-waste (computers, cell-phones, PDAs, etc.) by buying fewer and more durable electronic gadgets. When they stop working, keep them out of landfills by donating them to recycling centers. If you don't know where they are, try calling your local waste management authority. They can also tell you where to bring dead batteries, fluorescent tubes and bulbs, and unwanted chemicals and cleaning products.

The EPA offers technical assistance programs to help businesses implement P2 programs. For more info, visit www.epa.gov/p2/pubs/assist/index.html. You can also look in the Yellow Pages, or online, for qualified P2 consultants in your area.

Materials Substitution

Materials substitution decreases or eliminates the amount of toxic, hazardous or polluting materials used in your business. It can also save money and time by exempting you from hazmat regulations and shipping charges.

Look into substitutes carefully. Some will solve one problem but cause another (e.g., replacing Styrofoam pellets with biodegradable starch-based pellets can turn your shipping area into an all-you-can-eat buffet for rats). Others may not work for your particular need. Try to contact other users to learn how the substitute materials worked for them.

Above all, you should test the substitute product over time to make sure it performs as expected. Don't rely on manufacturer's specs or word of mouth; test the product for reliability under normal

and extraordinary conditions for as long as it takes to get the answers you need. Be sure you know exactly what the new material can and can't do *before* you make the switch.

Also, when considering a substitute chemical, remember to look at the Material Safety Data Sheets (MSDS). Less toxic substitutes may still have a low flash point, be regulated for their volatile organic compound (VOC) content, or pose disposal problems.

Green Procurement

Many companies are opting for products that facilitate recycling or disassembly, or are less problematic when disposed of in landfills. These buyers are leaning on their suppliers to help them find solutions, and taking a harder look at prospective suppliers' environmental, health, and safety performance along with normal considerations like price, quality, availability, and performance.

Some green products may be more expensive than conventional brands. However, they may last longer, or reduce expenses and risks associated with waste disposal. They may also reinforce your brand image as a green company.

You have two basic options. You can look for new suppliers who specialize in green products, or ask current suppliers to start offering them. What you choose to do will depend on the quality of your relationship with your existing suppliers, and your level of commitment to green business.

If you can find other small businesses that want green products or services, you may be able to join forces and gain leverage with your suppliers.

Be sure you know exactly what a new material can and can't do before you make a switch!

Even so, finding reliable suppliers and products may be difficult. And even when you *do* find them, the popularity of green products means that some companies may not be able to meet your level of demand. Manufacturers of newer green products, in particular, may not have been in business long enough to determine long-term usage patterns.

For this reason, and many others, it's best to avoid making any drastic, sudden changes to your existing supply chain.

Instead, place small initial orders, or get samples, and evaluate them carefully over a period of weeks or months.

If it turns out that they meet your needs, make sure that your supplier will be able to supply a sufficient amount (if applicable, include some room for growth in your calculations).

In some cases, you'll also want to overlap the old product with the new, so that if there's a problem with the new one, you'll have something to fall back on.

Most important, tell your customers and partners about the changes you're planning well in advance. Be prepared to address their questions and concerns, and, if applicable, to explain how the change will benefit both of you.

Green procurement resources

The EPA has several publications that can help you with green procurement. You can find them online by title.

- **Green Purchasing Guides** are full of free, detailed advice on evaluating and buying a wide variety of green products.

- **Environmentally Preferable Purchasing Guides** provide an in-depth look at the costs and benefits of copiers, carpets, and cleaning products. They also include a guide for greener meetings.
- **Lean and Green Supply Chain** provides innovative suggestions for green purchasing, materials handling, and storage.

Here are two more useful resources:

- **Responsible Purchasing Network** (www.newdream.org/work/rpn.php) is "a diverse network of stakeholders that promotes and practices responsible purchasing by identifying best practices, developing effective purchasing tools, educating the market and utilizing its collective purchasing power to maximize environmental stewardship, protect human health and support local and global sustainability." They offer a number of purchasing guides "for everything from paint to lights."
- **Buy Green** (www.buygreen.com) offers a wide variety of green products for small business and industry.

"You must be the change you wish to see in the world."

-Mahatma Gandhi

Product Redesign

Entrepreneurs who wish to improve their products and services would do well to look closely at their production inputs and packaging materials. Aside from the environmental benefits, getting rid of unnecessary inputs and production stages can significantly improve your bottom line.

Going green means taking a long, hard look at everything that goes into your product; assessing its economic and environmental impact at every stage of its life cycle (resource extraction, manufacturing, storage, selling, shipping, consumer use, and disposal); and finding better substitutes whenever it's feasible.

Redesign usually involves finding nontoxic or renewable inputs, reducing the amount of waste material (e.g., unnecessary packaging), extending product life, and reducing energy and material usage through the product's life cycle.

This can be a very beneficial process. We know of one business that was continually butting heads with its shipping company over confusing hazmat regulations. In the heat of battle, they lost sight of an important fact: they didn't *need* to ship the regulated item; the same function could be performed just as well by a product to which no regulations applied.

Once they realized this, they were able to look at their other products more critically, and to substitute unregulated ingredients where feasible. In some cases, the substitutes were cheaper. And in all cases, not having to meet hazmat shipping standards and fill out hazmat paperwork saved time and money. In the end, redesigning the product not only avoided red tape, but improved profitability!

"Every time I've done the right thing for the environment, I've made a profit."

-Yvon Chouinard

This is just one example of how the redesign process can encourage innovation by challenging assumptions, and offer opportunities to create attractive designs, novel branding strategies, and economies of scale. A patent for an innovative, environment-friendly form of packaging might end up being worth more than your original product.

Also, remanufacturing or refurbishing returned products may be less costly than building new ones, and may reduce production time.

Evolution Versus Revolution

A wind-up toothbrush that runs for the precise length of time dentists say people should brush. A laptop case with a built-in solar panel that powers the computer and charges cell phones. A shower head that turns off at its neck, so that you can set your ideal water temperature and leave the faucets on. Where do ideas like these come from?

It's pretty simple. The inventors of these products took something that already existed, and made it a little bit better for environmentally savvy consumers. As such, they're not revolutionary, but *evolutionary*; through clever adaptations, they change how certain people use or perceive the product, rather than setting a new industry standard overnight.

What evolutionary changes can *you* make? Investigate products that your competitors have introduced and abandoned. What were the products' strengths and weaknesses? What can you "borrow" from those ideas? Have you thought of any changes that would streamline the

manufacturing process or provide additional benefits for the customer?

Responsible Design

Suppose you believed your customers needed a better mousetrap, simply because you could build one. You might put huge amounts of time and money into designing a cruelty-free mahogany mousetrap complete with digital readout, a detachable tripod, and an MP3 player that works even in the shower.

It's safe to say that despite all your efforts, no one would buy the mousetrap. Why? Because existing mousetraps work just as well, if not better, and cost a lot less!

Businesses that sell what they produce, rather than catering to their customers' needs, are said to suffer from a **product orientation**. By contrast, most successful businesses have a **customer orientation**; they design their products, services, and marketing strategies around the needs of their customers.

Traditionally, small businesses with a product orientation have had an uphill struggle to gain market share. However, the rise of green business changes this equation somewhat. For instance, a product orientation may initially be necessary in order to change consumer behavior. For this reason, it may be more helpful to think in terms of **responsible design**, which balances the needs of the business *and* the consumer within their larger social context.

Here's an example. The last time you opened a can of soda, you probably didn't think about the design of the tab. Why would you? It's perfectly easy to understand and operate without thinking.

This design is relatively new, however. In the past, you opened soda cans by pulling off a metal tab attached to a ring. This design was just as easy to operate without thinking. Unfortunately, it was also easy to cut yourself on the sharp edges, and to throw the tab away without thinking... which meant that our beaches and parks were soon cluttered with tiny, sharp, dangerous pull tabs.

This problem was solved not by asking millions of consumers to stop littering, but by riveting the tab to the can. This makes littering more difficult, and less problematic when it occurs; it's much easier to gather and recycle discarded cans than discarded pull tabs. A few short years after the fixed tab was introduced, it had almost entirely replaced the pull tab.

This is a simple example of how design can solve problems by changing consumer behavior *without* making explicit demands on them.

Generally speaking, responsible design reduces use of non-renewable resources, minimizes environmental impact, and, ideally, helps consumers to understand the consequences of their choices.

Like the related term "sustainable design," it's somewhat controversial; some critics claim that it's simply a fad for wealthy Westerners, while others claim that since industrial growth generally outpaces advances in efficiency, questions of sustainability and responsibility are moot; in the long run, "sustainable growth" is a contradiction in terms.

These arguments are beyond the scope of this book. What is clear, however, is that we're at the beginning of a design



Design can solve problems by changing consumer behavior without making explicit demands on them

“Nature provides a free lunch, but only if we control our appetites.”

-William Ruckelshaus

revolution that’s working to solve the problems created by past generations of designers. While we don’t know what it will ultimately achieve, we can be pretty confident that the next decade will bring dramatic changes to the design, production, delivery, and use of many common products.

Here are some interesting examples of responsible design:

- **Cradle to cradle design (C2C)** sees pollution and waste of any sort as evidence of bad design. The goal of C2C designers is to make products at the end of their lives serve as inputs for new products, by means of industrial practices that actually purify air and water. Perhaps the most famous example of this trend is Ford Motor Company’s hiring of architect William McDonough to redesign its Rouge Truck Plant in Dearborn, Michigan. The new plant features a “fumes to fuel” system that converts paint fumes into electrical power; a storm water management system that collects water and reuses it throughout the plant complex; and plants that break down polluting compounds naturally.
- **Appropriate technology (AT)** is increasingly common in the developing world, where it’s often associated with the idea of shifting from a third-world economy to a green economy by “leapfrogging” over the industrial stage common to first-world nations.

AT attempts to use local resources and skills to address local problems in innovative, inexpensive, and “appropriate” ways, although it also makes use of cutting-edge technologies like LED lighting and cell phones.

- **Biomimetic design** is based on the highly efficient design of living organisms. Its goal is to integrate the technological world with the natural world. For example, a designer might base the design for a turbine blade on the wing of a bird or the fin of a whale.

Green Packaging

Many businesses achieve success by devising new ways to package their products. By changing the packaging, they reposition the product in the minds of customers, hit new customer segments, and even open new channels of distribution.

Packaging changes can also free your business from regulatory oversight, reduce shipping costs, earn goodwill, and increase your access to foreign markets.

Most companies that wish to redesign their packaging look for biodegradable or otherwise eco-friendly versions of whatever they’re already using. For instance, they might go from a plastic box to one made from recycled plastic or cardboard.

Before you follow in their footsteps, take a few moments to consider whether you actually *need* the packaging you’re using. In other words, don’t just question the plastic...question the box! Could you get rid of it entirely? Or could you retool it into something the consumer will keep

because it's useful or desirable? If so, what are the costs and benefits, for you and your customers?

Not long ago, Wal-Mart redesigned the milk jugs it sells. The new jug had a flat top, which meant that jugs could be stacked atop one another. Wal-Mart estimated this would cut labor costs in half, and reduce water use by 60 to 70 percent.

For some consumers, however, the milk jugs were problematic. They seemed more difficult to use and easier to spill, especially for children. All of a sudden, these customers had to learn new skills to accomplish an everyday task that most of them had never thought twice about.

Wal-Mart's design dilemma illustrates the difference between product orientation and customer orientation. You may be convinced that your product can save the world, but if it's too hard or confusing to use, customers may reject it.

With that in mind, consider these ideas for making your packaging greener:

- Eliminate unnecessary packaging (e.g., an outer box).
- Choose a container that can be used for some other purpose (cf. the bodycare company Pangea, which packages its soaps in a small compostable carton embedded with seeds, so that it can be planted in a garden or flower pot).
- Change package shape to decrease package-to-product ratio.
- Use lighter materials.

- Choose recyclable or biodegradable materials, and water-based glues.
- Reduce label size to save paper and ink.
- Don't use composite materials that are difficult to recycle (e.g., thermoform blisterpacks).
- Use containers and caps made from the same material.
- Use sustainable materials (organic bamboo, corn, soya, or cotton).

One of the best things you can do in regards to packaging is to stay flexible. Things are changing quickly in many industries, and you never know when some inspired new idea for packaging will occur to you or someone else. If you can settle on a comparatively simple design with a quick turnaround time, that can be changed or improved with a minimum of expense, you'll be better positioned to take advantages of new options as they become available.

"The world is changing very fast. Big will not beat small anymore. It will be the fast beating the slow."

-Rupert Murdoch

Soy-Based Inks

If you work with a commercial printer, you should definitely look into soy-based inks. They're less toxic than conventional petroleum-based inks, and they also produce brighter colors. The vast majority of the country's large daily newspapers are currently using soy ink, so it's usually priced competitively.

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Over the next couple of weeks, Ray did his best to figure out exactly what it cost to maintain a normal swimming pool. He didn't just look at the upfront cost; he also considered the time involved, which he knew was a big consideration for many of his customers. Sweeping, changing filters, applying algaecide, and testing pH were not things that most pool owners enjoyed. If the new system required more maintenance of this sort, that was a definite strike against it.

Used properly, there was no doubt that the new system saved on chemicals. Whether you were better off in the long run, when you factored in the other costs and maintenance time, was a grey area. The potential was there, but to really get the benefits, you had to stay on top of maintenance, and I wasn't sure my customers would do that. If the benefits didn't come, I knew who'd get the blame!

This brought up another problem. I'd been focusing on reducing chemical use. That's a great thing for my customers, but how would it affect my business? Suppose a third of my customers cut their use of pool chemicals by, say, 75 percent. How much revenue would I lose each month? And what would I do to make up for it? How much money and time would getting rid of the regulated chemicals save me? Was it really worth it?

Before, I'd been surprised by how a little adjustment here could save you a lot of money there. Now, I was seeing that these interconnections go both ways. You could pursue a little benefit here, and wind up with a big cost somewhere else. It was starting to feel like there were a million calculations to make. I didn't want to go out and get a PhD in physics just to sell swimming pools.

Consumers don't just buy products—they buy an image of what the product will do for them

My daughter Kathy was studying business at Delta College, and she said I should go talk to a counselor at the Small Business Development Center. I resisted at first. To me, it was like admitting I was a bad businessman. But she said, "Dad, getting help when you need it makes you a good businessman!"

So I went.

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Green Branding and Marketing

A **brand** is the psychological representation of everything a business stands for. That includes the name and logo, and the products to which they refer. But it also includes the expectations and emotions that a business evokes in the hearts and minds of consumers, employees, and distribution channel partners.

Brand identity refers to how you present your product to the world. That includes its benefits, its packaging, its advertising, the philosophy behind it, and the services delivered along with it.

Brand image refers to the associations that your brand evokes in consumers' minds. Remember: Consumers don't just buy products; they buy an image of what the product will do for them.

In essence, brand identity is how you want to be seen, while brand image is how you are seen. You could look at your brand as a promise. When customers see your name or logo, it promises them certain things. Each time you deliver on that promise, your brand is strengthened. Any time you break the promise, your brand is weakened.

Some experts consider green branding to be essential. For example, Lee Daley, CEO of the global advertising agency Saatchi & Saatchi, claims that a green brand identity is no longer optional. “Companies which do not live by a green protocol will be financially damaged because consumers will punish them,” he says.

Fortunately, it’s not necessary to spend millions of dollars to establish a brand identity. A firm with a strong sense of what it stands for, that consistently meets or exceeds the promises it makes, will develop a good brand image.

Creating Your Brand

Branding means telling the story of your business and your product in a compelling and consistent way—one that will make people want to buy your product instead of someone else’s.

In a sense, branding is like tuning in a radio station so that the static disappears. If you think of yourself as a radio transmitter, and your customers as receivers, then branding would be like getting your signal through loud and clear, without any distracting static.

Your brand identity has to be one that your target customers value, so an essential part of building a brand is understanding where their desires and your abilities intersect. It’s not enough to make a promise; the customer has to value it, and you have to be capable of keeping it.

Customers, markets, and products change, and brands must change with them. A brand requires constant, vigilant attention, and adaptation when necessary.

Remember that every interaction with a customer or client is an opportunity to

communicate your brand identity. That’s why you need to drill your employees on what your brand identity is, and why and how they need to communicate it clearly.

Be sure to ask for their suggestions, too. Employees who deal with customers every day are in a perfect position to know what they’re thinking.

Being green isn’t enough

Today, green business practices may seem like a good way to differentiate yourself from your competitors. But what about tomorrow?

If Lee Daley is correct that all brands will soon need to have a green component, then it seems clear that a day is coming when you will no longer be able to differentiate your brand on that basis alone.

Some people would argue that this day is already here. Plenty of chain stores and big-box retailers are currently selling organic or green products, and many others are moving in that direction. In an age when giants like Wal-Mart are “green,” it’s very wise to have other methods of differentiating yourself.

Don’t get so wrapped up in green issues that you lose sight of the other things that make you, your business, and your employees special. Customers should feel that the green aspects of your business are a natural outgrowth of qualities and values that you already have.

Think of it this way: You’re not a green business; you’re a business that has embraced green principles in support of fulfilling a larger mission. That mission may be to repair motorcycles, provide delicious catered food for weddings, or produce

Don’t get so wrapped up in green issues that you lose sight of the other things that make you, your business, and your employees special

silkscreened t-shirts. But whatever your business may be, there's much more to it than solar water heaters, carbon offsets and chlorine-free bleach. In most cases, these things explain *how* you run your business, not why.

Chances are, there was something that attracted you to your business before you heard of any of these things, and made you feel like you had more to offer than your competitors. That's what your brand must communicate and celebrate, above and beyond your environmental ethics.

Green Marketing

Marketing includes the actions you take while designing your product, and manufacturing it, and promoting it, and selling it, and delivering it, and servicing it.

In other words, marketing is everything you do that affects your customers. From a marketing perspective, no detail is insignificant; anything that affects the customer affects the company.

How you market your product should depend on who your customers are and why they buy. Here are some of the main reasons consumers buy:

- **Self-image.** They believe the product will make them seem younger, more attractive, more fashionable, or more interesting.
- **Health and security.** They believe the product is better for them, either because it does something good for them, or doesn't do something bad to them. Or because they believe it will protect them in some way.

- **Time savings.** People will often pay a little more, or settle for lower quality, if it will save them some time or trouble.
- **Rewards and gifts.** On a special occasion, they want to treat themselves, or someone else, to the best. They may also want to cheer themselves up if they're feeling low.
- **Social concerns.** They believe that buying the product will help people, the country, the environment, or animals.

It might be a mistake to assume that there are enough socially concerned buyers to support your business. While studies have consistently shown that most consumers want to make environmentally sound buying decisions, they have also consistently shown that very few consumers regularly put their money where their mouth is.

For this reason, as we saw in the section on branding, it's unwise to compete on the basis of green credentials alone. Instead, you must communicate all the traditional benefits of your product, and then use your green credentials to seal the deal.

For many consumers, environmentally preferable products are still associated with compromise and self-denial. When possible, you need to show consumers that they're *not* settling for less, and may even be getting more for their money. The more reasons you can give your customers to buy, the better.

Anything that affects
your customer affects
your company

With this in mind, here are some very important aspects of green marketing:

- **Take your time!** Don't roll out your green business idea until your employees have bought into it and adjusted to it. Give yourself some margin for error while you wait for new habits to sink in, and bugs to be worked out.
- **Be honest!** One recycled ingredient doesn't make your product green, especially if other components aren't. Companies that claim to be green while pursuing business as usual are often accused of **greenwashing**, and they usually suffer for it. Expect customers to evaluate your claims skeptically, and don't make claims you can't back up with facts!
- **Be consistent!** The more aspects of your business are green, the more credibility you'll have. For example, you wouldn't want your fleet to drive around town emitting clouds of black smoke, nor would you want to be seen watering your lawn with a leaky hose in the middle of a drought. You might also try to avoid using products from companies that greenwash; you don't want their bad image to rub off on you.
- **Be exciting!** Show how your green business decisions have led to a better product. When possible, emphasize features and benefits that are groundbreaking, desirable, fun, and fashionable.

Give customers lots of reasons to feel good about buying from you.

- **Be positive!** If there's one thing green marketers have learned, it's that frightening people turns them off. Don't describe a problem without offering a solution.
- **Be specific!** Avoid using meaningless phrases like "100% natural" or "good for the earth." If your product has an environmental benefit, or meets an environmental standard, explain it clearly and provide supporting evidence.
- **Educate your customers!** Don't just tell people your business is green; tell them what specific steps you're taking, and why they matter. Don't make the mistake of assuming that they already understand the issues, or that they'll agree with whatever you say. Be prepared to defend your case.
- **Get them involved!** After you've explained what you're doing, explain to your customers how this will make a difference to them and to the community. If you've decided to stop using plastic bags, explain the environmental benefits of this choice, and then explain what customers can do to help (e.g., switch to reusable cloth bags printed with your logo). Or if you run a cleaning service, explain why you've stopped using chlorine bleach, so that your customers understand the difference they'll make by hiring you.

Don't describe a problem without offering a solution!



Eco-labeling

Businesses are increasingly using certification labels to assure consumers that their commitment to green practices is real and measurable. These labels show that an independent third party has verified that a given product or service meets applicable environmental standards.

Certification can be expensive, and it usually requires you to pay annual renewal fees, so you'll want to weigh the costs and benefits carefully before proceeding.

Here are a few of the national organizations that provide green certification:

- **Chlorine Free Products Association** (www.chlorinefreeproducts.org) is an independent nonprofit accreditation and standard-setting organization that promotes chlorine-free policies, programs, and technologies.
- **Co-op America** (www.coopamerica.org) offers membership in its Green Business Network to qualifying firms. Though not as scientifically rigorous as other options, it's relatively inexpensive, and can help to establish your credentials as a green business.
- **Green-e** (www.green-e.org) is the nation's leading independent consumer protection program for the sale of renewable energy and greenhouse gas reductions. It offers certification and verification of renewable energy and greenhouse gas mitigation products.

- **Green Seal** (www.greenseal.org) sets product standards and awards its label to a wide variety of products, in order to certify that they have "been tested according to science-based procedures...without bias or conflict of interest."
- **Scientific Certification Systems** (www.scs-certified.com) tests and certifies a wide range of sustainable products and processes, including office furniture, building materials, paints, finishes, wood products, home and garden supplies, and cleaning products.

There are also international bodies that provide green certification. We'll discuss them in our section on exporting.

Carbon offsets

Many businesses are paying to offset the negative effects of emissions that result from doing business, traveling, commuting, and so forth. Typical strategies include reforestation efforts, building wind farms, or capturing methane from landfills.

When done properly, this can be an effective means of mitigating greenhouse gases and financing carbon reduction projects. It can also improve your brand image and earn consumer goodwill. TerraPass (www.terrapass.com) is a good example of a reputable offset firm; they provide you with a "badge" that can be used on marketing materials to inform people of your commitment.

Note that carbon offsetting is *not* a form of conservation or pollution prevention.

"The economy is a wholly owned subsidiary of the environment, not the reverse."

-Herman Daly

You should think of it more as an acknowledgement of responsibility, and an investment in environmentally beneficial technology.

If you do choose to offset your emissions, make sure that you explain what this means to your customers.

As a general rule, it's better to make serious conservation efforts and *not* offset your carbon emissions, than to offset without conserving resources. Carbon offsets should complement your conservation and efficiency efforts, not substitute for them.

It's also important to remember that the claims of some firms that offer carbon offsets have been found to be misleading or fraudulent. Always perform due diligence when buying offsets!

Green Pricing and Placement

Two of the biggest hurdles green businesses face are setting the right price, and using the right placement (or distribution) strategy.

These problems can be overcome to some extent by selling online. Not having a brick-and-mortar outlet can lower costs, and consumers can buy at any hour from all over the world.

On the other hand, many consumers remain wary about buying online, and online marketing can be tricky; locally, you may have few competitors, but online, you may have hundreds or thousands.

The lesson here is that no matter how you sell, you need to offer the greatest possible degree of convenience at a profitable price your customers can afford.

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When Ray showed up for his appointment with SBDC counselor Susan Howe, he didn't expect much. What could an outsider tell him about swimming pools that he didn't already know?

To his surprise, Susan didn't seem to want to talk about his specific problem. Instead, she asked a lot of questions about his customers and his business. She was very interested in knowing why he was changing things around, and how he'd market the changes to his customers.

After we talked a while, I could see that she felt I hadn't really done my homework. I had ideas, and she acknowledged that they might be good ones, but until I had some facts to back them up, they were just opinions.

With Susan's help, Ray came up with a prioritized list of goals for Swimming Hole. Once that was done, they went through the pros and cons of each: What would they cost to implement? How much would they save? What did he and his employees have to learn, and what changes would his customers have to make?

She pointed out that when it came to setting a price, there were more issues to consider than which system cost more. Were his customers concerned about health? If so, then maybe they'd pay a little more for a healthier system. Were they more concerned about time and convenience? In that case, they probably wouldn't pay a premium price.

We spent a lot of time hammering out the details. She told me to interview my sales and service people about what our customers were like, what they wanted, what they complained about. I learned a lot

"The ultimate test of man's conscience may be his willingness to sacrifice something today for future generations whose words of thanks will not be heard."

-Gaylord Nelson

from that. I think the best thing about the process was that she broke it into logical steps, so that it seemed manageable. I'd been trying to figure everything out at once, and it paralyzed me.

To make a long story short, we decided that I'd emphasize the health and luxury angle: fewer chemicals, improved skin condition, and a more pleasant, comfortable experience overall. The green side of the business was still very important, but it focused mainly on energy savings.

We also decided that for a limited time, we'd offer two months of free maintenance with the new system. That way, we'd prove to customers that the system really does work when you follow the procedures. After that, customers could take over the maintenance, or continue to have us do it for a small monthly fee. That would help us to offset the money we were losing on chemical sales.

I came away from those meetings feeling confident. Not just because I had a plan I was comfortable with, but also because Susan gave me a framework for making future decisions. Next time, I'd do a feasibility study to figure out whether an opportunity was worth pursuing, and how to go about it. And since Susan had advised me to position myself as the area's cutting-edge pool and spa dealer, I knew there'd be a lot of next times.

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Setting the right price

When surveyed, most consumers say that they're willing to pay more for products and services that help the environment.

But as we've seen, there's a gap between words and action. They may feel this way in the abstract, but that doesn't mean they follow through on it when they buy.

Your goal is not to set a price that will make consumers want to buy, but to make a product that consumers will want to pay for

While many businesses are selling environmentally friendly products at a premium price, this strategy is a risky one, especially in a volatile economy. When possible, it may be wise to keep prices competitive with those of non-green alternatives. Studies show that given a choice between green and traditional products of roughly the same cost and quality, buyers overwhelmingly prefer the green product.

Does that mean you can never charge a premium price for green goods and services? Not at all! Indeed, competing solely on the basis of price is seldom an option for small businesses. Globalized competition and the growth of big-box stores have lowered prices for many goods to a point where most small businesses are simply unable to compete solely on price.

Fortunately, you have many other competitive advantages. Shrewd branding, high quality, a good location, and excellent customer service can differentiate your business, and decrease the importance of price to your customers.

Always remember: Your goal is not to set a price that will make consumers want to buy, but to make a product that consumers will want to pay for.

Value-based pricing

This strategy, which is common among green businesses, requires you to determine how much your product is worth to your customers, based on their perception of its value. The goal is to charge an above-average price, while leaving customers with the feeling that they've gotten a good deal.

Let's start by defining our basic terms.

- **Cost** is what you spend to produce your product.
- **Price** is the amount you charge customers for the product.
- **Value** is what your customer perceives the product to be worth.

Note that in this list, price falls in between cost and value. That's as it should be, because a successful pricing strategy requires finding the point between cost and value that will enable you to meet your goals.

In pricing, cost is often called the "floor." Obviously, your product must sell for more than it costs you to manufacture.

Value is the "ceiling"; it's the maximum amount your customers will pay, based on their perception of what your product is worth. Note that the highest price for a product in your market may *not* be the ceiling price.

Perceived value depends to a great extent on things like goodwill, brand image, and customer loyalty. It isn't an inherent quality of your product; it's something earned by good business practices, marketing strategies and advertising.

Here are some reasons why consumers may pay more for your product, besides the fact that it's green:

- They like and trust you
- You were recommended by someone they like and trust
- You offer convenience

- You offer security or reduced risk
- You offer faster service
- Your products confer social status or distinction
- Your products are unique
- Your products are artistic

Branding is an essential part of creating perceived value, and perceived value is at the heart of value-based pricing. Thus, every branding choice you make affects the perceived value of your product, which in turn affects your ceiling price.

Value in use

When dealing with skeptical customers, it's often necessary to communicate your green product's **value in use**. This refers to the overall savings that a customer will realize by paying a bit more for your product.

Remember our discussion of lightbulbs? The familiar incandescent bulb has a lower price than CFLs, but its value in use is considerably less because of its higher energy use. You save in the short term, and lose in the long run.

This is a central marketing concept for many green businesses. Does your product last longer than a less-expensive competing product? Does it offer a savings in time or effort? Does it have lower disposal costs? If so, show your customer how paying a little in advance can save a lot down the road.

Every branding choice you make affects the perceived value of your product

Premium pricing

Premium pricing means setting a price above market value, in order to evoke perceptions of quality and prestige in market segments that are less price-sensitive.

There are five primary reasons why customers pay premium prices:

- **Quality.** They believe that a premium price indicates impeccable quality.
- **Extravagance.** They want to give themselves a treat, or reward themselves for achieving a particular goal.
- **Status.** Premium-priced items demonstrate that buyers are members of a discerning, exclusive group (being green certainly qualifies).
- **Uniqueness.** You are first in the marketplace with a unique product or service.
- **Altruism.** They believe that buying the product is worthwhile because it benefits society or supports a worthy cause.

As with marketing, it's best to give customers a number of reasons to pay a higher price. Consider the Toyota Prius. It saves gas, of course, but that's only part of the reason for its popularity. It also confers green status, and demonstrates the buyer's altruistic nature. And the dashboard and controls have an innovative design that makes it appeal to connoisseurs of automotive technology and style. While each of these factors may be

attractive in itself to different drivers, it's the combination of them that has made the car so successful.

These can all be powerful motivators, but they shouldn't guide your pricing strategy unless you're very sure that you understand your customers' psychology. Remember that a premium-pricing strategy that misfires can have negative consequences in your other target markets.

Making price fit your marketing mix

No matter which pricing strategy you use, it must be consistent with the other elements of your marketing mix.

- **Product strategy.** Is your price in line with your customers' perception of quality? If not, then you should consider lowering your prices, improving your quality, or educating customers.
- **Distribution strategy.** Is your product's price consistent with the image of your distribution channels? High-priced, premium products should be distributed selectively, while economy products should be distributed intensively to maximize their availability to larger, price-sensitive markets.
- **Promotional strategy.** Is your advertising message consistent with your product's price? If you offer a premium product, is your advertising image one of quality and service? If it is an economy product, is your advertising image one of value and convenience?

"A thing is worth what it can do for you, not what you choose to pay for it."

-John Ruskin

Try to understand the most common and effective practices in your industry, then tailor your strategy to fit your business and the perceived value of your offerings. Above all, remember that while green practices add value, that's only one of the qualities people are looking for. Most consumers also want reliability, honesty, service, respect, time savings, convenience, and a fair price. Simply being green will rarely satisfy discerning customers.

Placement Strategies

Placement describes everything involved in getting your product to your customer. All businesses rely on some form of distribution network. They might take care of distribution themselves, work with intermediaries (e.g., wholesalers or distributors), or use some combination of the two.

Needless to say, your distribution strategy ought to reinforce your image as a green business. That's why it's important to work with distribution partners who share your goals. Whether you're working with retailers, wholesalers, reps, agents, or brokers, you'll want to make sure that they're familiar with green business concepts, and that they're willing and able to communicate the things that make your business special.

Service businesses must also have a distribution strategy. For instance, some bookkeepers work from home, some rent an office space, and some do most of their work at their clients' offices. If you're offering a service, think about where you'll serve your clients, and what environmental consequences this has.

Selecting a distribution strategy

Do your customers want speedy delivery? Do you need to maintain control over handling and delivery? Which strategy makes the best economic sense? Which fits your brand identity?

These are the type of questions you should ask yourself when choosing a distribution strategy. In some cases, traditional distribution channels might not be feasible, and you'll have to seek more "entrepreneurial" methods.

Whatever strategy you choose, be sure to research both cost and effectiveness.

Here are some things to consider when choosing a distribution strategy:

- **Product.** Perishable or fragile products may require direct sales to avoid spoilage or breakage. Also, note that there may be transportation restrictions on certain types of goods, based on weight, size, materials, or purpose.
- **Profit.** Which strategy will allow you to meet your sales goals? Remember: intermediaries cost money. The more you have, the more of your product you must sell to make a profit. But if you sell direct, you have to do everything yourself. That can be expensive, too. And it can also take time away from things that are critical to your success, like making your product and serving your customers.

"If you ask the wrong question, of course you get the wrong answer. It's much more important and difficult to ask the right question. Once you do that, the right answer becomes obvious."

-Amory Lovins

- **Customers.** What do your customers value, and how do they view themselves? If your target customer doesn't shop at malls, there's no sense in selling to a mall-based retailer. If your customers don't buy online, e-commerce won't be an option. Your distribution strategies must reflect your customers' lifestyle.
- **Competition.** How do your competitors sell? Are they regional, local, national, or international? Will your products be handled by the same stores, wholesalers, distributors, or agents? If so, will you get equal treatment? What about online competition?
- **Confidence.** Are you confident in the competence and honesty of your intermediaries? Remember: The way they display and deliver your product will reflect on you. Also, depending on how quickly they pay you, they may have some control over your cash flow.
- **Resource use.** Some green businesses try to reduce or offset the environmental impact of their distribution strategy. Options might include using PDFs instead of printed books and manuals; offering music for download instead of selling CDs; buying carbon offsets; using delivery vehicles that run on alternative fuels; or — if your business is local — hiring a bicycle delivery fleet.

"The Stone Age didn't end because they ran out of stones."

-Red Cavaney

Finding Money, Getting Help

Grants, Tax Breaks, and Subsidies

In past years, taxpayer-funded subsidies to the fossil fuel industry have totaled \$5 to \$10 billion per year. The subsidies that Congress has made available for renewable energy have traditionally been far more modest, but that's beginning to change.

Federal, state, and local grants and subsidies can greatly reduce your up-front investment and your break-even time, and are well worth looking into.

The following programs are subject to change; consult the appropriate agencies for the most current information.

Tax credits

- **Business Energy Tax Credit.** For solar energy property, solar hybrid lighting, and geothermal systems installed on or after January 1, 2009, the tax credit is 10%. The credit for fuel cells is capped at \$500 per 0.5 kilowatt (kW) of capacity. The maximum microturbine credit is \$200 per kW of capacity.
- **Modified Accelerated Cost-Recovery System (MACRS).** Under MACRS, businesses may take depreciation deductions on solar, wind, biomass and geothermal property, as well as on fuel cells, microturbines and solar hybrid lighting technologies. In addition, the federal Economic

Stimulus Act of 2008 included a 50% bonus depreciation provision for eligible renewable-energy systems acquired and placed in service in 2008. For more information, see *IRS Publication 946, IRS Form 4562: Depreciation and Amortization*, and *Instructions for Form 4562*.

- **Renewable Electricity Production Tax Credit (PTC).**

The PTC provides a corporate tax credit of 1.5¢ per kilowatt hour (kWh) for wind, closed-loop biomass and geothermal. Currently, the PTC for these technologies is 2.0¢/kWh. Electricity from open-loop biomass, small irrigation hydroelectric, landfill gas, municipal solid waste resources, and hydropower currently receives 1.0¢/kWh.

- **Rural Energy for America Program (REAP).** This USDA program promotes energy efficiency and renewable energy for agricultural producers and rural small businesses by offering grants and loan guarantees for up to 25% of project costs. Eligible projects include solar water heating, solar thermal electric, photovoltaics, wind, biomass, hydroelectric, renewable transportation fuels, geothermal heat pumps, hydroelectric, and microturbines.

- **State, local, and utility incentives.** Many states, towns, and utilities offer subsidies, tax breaks, and other incentives for renewable

energy and energy efficiency. You can see what's available in your area by visiting the **Database of State Incentives for Renewables & Efficiency** (www.dsireusa.org). We also suggest checking your state's official Website.

Government assistance programs

- **Environmentally Preferable Purchasing** (www.epa.gov/epp) can help you find and evaluate information on green products and services; identify federal green buying requirements; and calculate the costs and benefits of purchasing choices.
- **Green Power Partnership** (www.epa.gov/greenpower) provides "technical support in identifying green power products that meet your organization's needs and goals."
- **Hollings Manufacturing Extension Partnerships** (www.mep.nist.gov) "is a national network with hundreds of specialists who understand the needs of manufacturers. For the past 17 years, they have worked with thousands of manufacturers, delivering \$1.3 billion in cost savings annually and \$6.25 billion in increased or retained sales in one year."



Green Industry Groups and Advocates

Apollo Alliance (www.apolloalliance.org) is a coalition of business, labor, environmental, and community leaders working to reduce America's dependence on foreign oil, cut carbon emissions, and expand opportunities for American businesses and workers.

Business Alliance for Local Living Economies

(www.livingeconomies.org) is a network of green businesses committed to building local economies and transforming the community economic development field. BALLE comprises nearly 60 local networks of independent businesses in a variety of locales across the US and Canada, and represents more than 15,000 entrepreneurs.

Carbonfund.org (www.carbonfund.org) aims to make it “easy and affordable for any individual, business or organization to eliminate their climate impact and hasten the transformation to a clean energy future.”

ClimateBiz (www.climatebiz.com) is a resource center focusing on strategies for companies seeking to reduce their climate footprint while saving money and increasing productivity. Its free e-newsletter, *ClimateBiz News*, offers the latest developments, research, and strategies related to business and the environment.

Sustainable Business (www.sustainablebusiness.com) provides global news and networking services to help green businesses grow.

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After talking with Susan, Ray knew he couldn't simply switch over from one system to another. He'd have to make the change gradually. With that in mind, he continued to research and test alternatives to traditional pool chemicals. He reasoned that while pool owners might not be willing to spend the money for a new system, they might be willing to try out greener additives.

He found a lot of variety among these chemicals. Some simply didn't work as advertised. Some were pretty similar to traditional chemicals, but they were more expensive, or required more frequent applications, or were harder to use. A couple were just ordinary pool chemicals with a new, green-looking label. In the end, after following the feasibility tests he'd learned from Susan, he found only a few that were appropriate for his business.

Since these new products were a little more expensive, he decided he'd initially market them in wealthier neighborhoods. He started by sending out a mass mailing to pool owners that offered tips on saving energy:

- Install a pool cover. This will reduce your heating cost and chemical use.
- Lower your pool temperature, especially in warmer weather.
- Schedule filtering and sweeping for off-peak hours (7pm to 7am).
- Maintain filtering and heating equipment to ensure its efficiency.
- In colder weather, reduce filtering time to two hours per day.

“We cannot live for ourselves alone. Our lives are connected by a thousand invisible threads, and along these sympathetic fibers, our actions run as causes and return to us as results.”

-Herman Melville

The mailing told pool owners to contact Swimming Hole for more information on green pool maintenance.

Our logic was, first we'll save them some money, and then maybe they'll feel like spending it with us. If we lowered their costs up front, we could make a stronger case for spending a little more to go green.

The response was pretty good. People were curious about what they could do to save energy, and how we could help them do it. Better yet, it helped us to confirm what people's concerns were. We assumed the savings issue was what mattered most. But when people talked to us, they were interested in health, comfort, safety... personal issues like that. I thought we'd have to coax them in that direction, but it turned out the market was ready for us.

Susan had thought that was how things would go, and she was exactly right.

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Green Investment Capital

In recent years, there's been an explosion in **venture capital (VC)** for green and sustainable businesses. Smaller businesses may have an advantage in this area, as they're often able to respond and adapt more quickly than larger firms.

Green investors are usually interested in firms that offer innovative solutions for energy and cleantech. They're looking for breakthroughs and ideas that will change the way a sector or an industry does business, like nonpolluting manufacturing processes, renewable energy sources, and advances in environmental remediation. Appropriate-tech solutions for the developing world — like solar ovens and water purification — may also be of interest to some VCs.

Before you approach VCs, you'll need to research and write a detailed business plan, and be able to defend its assumptions and conclusions. If you don't know how to do this, the *NxLevel® Guide for Entrepreneurs* can help.

Most venture capitalists are looking for a high, short- to mid-term return on investment. Good intentions are not enough to earn investment capital; you need to show that you can generate millions of dollars, and be profitable in three to five years. In addition, green VCs are looking for investment opportunities that offer low risks; a real, measurable environmental benefit (as opposed to greenwashing); clear differentiation from competing companies; and tremendous growth potential.

Here are a few investment firms that focus on green business. Reading their materials will give you a sense of what sort of businesses they're looking for, and what they require. Note that it's vitally important to understand these things *before* you approach investors. Otherwise, your business plan is likely to go straight into the recycle bin.

- **Investors' Circle** (www.investorscircle.net) is "a network of over 200 angel investors, professional venture capitalists, foundations, family offices and others who are using private capital to promote the transition to a sustainable economy." Their "Resources" page offers essays on green business and funding, as well as links to other funding resources for entrepreneurs. They hold a conference and venture fair twice a year.

Good intentions are not enough to earn investment capital



- **Good Capital** (www.goodcap.net) is “an investment firm that accelerates the flow of capital to innovative ventures and initiatives that harness the power of the market to create sustainable solutions to some of society’s most challenging problems.”
- **Cleantech Group** (cleantech.com) comprises “8,000 qualified cleantech investors, 9,500 companies and professional services organizations worldwide and a core group of 1,300 elite members with assets exceeding \$3 trillion.”

Green Export / Import

Until recently, the prevailing wisdom was that international trade was strictly for larger firms that could sell enough to justify the effort and expense. But today, small businesses are finding profitable and exciting opportunities in markets all over the world.

Due to currency fluctuations, foreign buyers have recently found it more affordable to buy US products. They’re also finding it more convenient, thanks to the Internet. Whether you sell direct to consumers, or to other businesses, there’s never been a better time to sell your goods to international buyers.

Annual exports are currently in the neighborhood of \$1.2 trillion, according to the International Trade Administration. Small businesses like yours account for roughly 30% of that total, and that number is growing.

There are many benefits of going global:

- American-made green products may enjoy a competitive advantage in foreign markets
- Increased sales volume may result in higher profits
- New markets may have few or no competitors
- New markets may increase a product’s life cycle, or offset flagging sales in an existing market
- New markets present opportunities for new or improved products
- Foreign sales can solve seasonal cash flow problems
- Selling specific products abroad can present opportunities to learn new things about your industry

On the other hand, international trade can require a considerable commitment in terms of funds and personnel. Here are a few potential pitfalls to consider:

- Focus on international business may hurt domestic business
- Websites, catalogs, brochures, packaging and manuals may need to be translated and localized
- Legal disputes may be difficult to resolve
- Payments may take longer
- You may need to apply for special export or import licenses

- It may be difficult to obtain intellectual property protection
- Political or economic instability may affect sales or payments
- Quality control may be harder if you offer a service or manufacture goods in a foreign market

Next, consider your own abilities and resources:

- **Ability to adapt.** Does your product require adaptations to conform with foreign safety, quality, technical, or cultural standards? Does the cost outweigh potential benefits?

“Change is the law of life. And those who look only to the past or present are certain to miss the future.”

John F. Kennedy

Are You Ready To Export?

If you’re considering selling internationally, start by considering these factors:

- **Unmet needs.** Is there a need for your green product that isn’t being met by domestic or international competitors?
- **Familiarity.** Are you selling something people already know about and appreciate, or will you have to educate consumers?
- **Technological innovation.** Do you have a unique product?
- **Capacity.** Does your target country have the infrastructure to support your product? Consider transportation, electrical systems, refrigeration, phone lines, and the like.
- **Alternative uses.** How do people in your target country use your product? Is another type of product fulfilling the same purpose as yours, resulting in “hidden” competition?
- **Increased costs.** Once all export costs are factored in, is the product still competitively priced?
- **Commitment.** Can you commit to exporting, given that the investment in time and resources may not pay off for a year or two?
- **Knowledge.** Are you familiar with the culture, laws, and business practices of the foreign market? Do you speak the language, or have a trusted employee who does? Do you have relatives, friends, or business partners living in your target country?
- **Resources.** Do you have the facilities, personnel, and capital to meet additional demand?

Evaluating Export Markets

The next step is to identify a demand for your product. Having done so, you need to look at the competition. Bear in mind that other countries may already have several green businesses that offer your product, and that these competitors are likely to be more skilled than you at meeting regulatory standards and requirements.

Here are some things to think about when looking at foreign markets:

- Are your target markets large enough to justify your efforts?
- Who is your foreign and domestic competition?
- What political and cultural factors affect your business?
- What tariffs and other costs apply, and how will they affect price?
- What's your expected sales volume and profit margin?
- How will you manage risk?
- How will you get paid, and when?

The more risk you take to sell internationally, the more research you need to conduct

The more risk you have to take to sell internationally, the more time you need to spend researching your customers, your competitors, and the laws and regulations that apply to you as an exporter.

Finding Foreign Market Data

Federal and state governments, trade associations, exporters' associations, and foreign governments are good sources for foreign market data.

Contact the **US Commercial Service** (www.export.gov/) for more information. You can also get research data from the **National Trade Data Bank**, which is accessible through www.stat-usa.gov/. Also, many state governments will have an export assistance office.

Product Modifications

It's important to understand that a product that's green by US standards may not be considered green in other countries! Environmental standards that seem extreme to some Americans are mainstream in many parts of the world.

In addition to whatever green redesign is necessary, foreign markets may require you to modify your product in a number of other important ways:

- Language changes
- Conversion to the metric system
- Different electrical standards
- Different colors and graphics
- Pricing must factor in the costs of shipping, redesign, export fees, import duties, and so forth, which may affect your competitiveness

Extended producer responsibility

As we discussed earlier, EPR programs require producers to take back spent products so that they can reuse or recycle them. EPR can also mandate that manufacturers change packaging, ingredients, and disposal methods.

The underlying philosophy of EPR is that placing responsibility for waste management on producers creates an incentive for them to design products with a low environmental impact, rather than creating a costly disposal problem for society.

You're undoubtedly familiar with American take-back policies for nickel-cadmium batteries, spent toner cartridges, and cell

phones. But foreign EPR programs can affect the packaging and content of all kinds of products, from chewing gum to toothpaste to shoes.

That said, American states and cities are increasingly implementing forms of EPR, especially for electronic products, so compliance with EU laws may also bestow a competitive advantage in domestic markets.

Eco-labeling

Many countries have eco-labeling certification systems. Like their American counterparts, they tend to be expensive. All the same, it's a good idea to familiarize yourself with them. Even if you decide not to go for certification, they may help you to understand your competition and your options.

- **EcoLogo** (www.ecologo.org) is North America's oldest environmental standard and certification organization. It sets standards and certifies Canadian and American products in more than 120 categories.
- **EcoMark** (www.ecomark.jp/english) is a Japanese certification system based on ISO 14020 and 14024.
- **European Union Eco-Label** (ec.europa.eu/environment/ecolabel/index_en.htm) encourages businesses to market environmentally friendly products and services, and to help European consumers identify them.

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About eight months after Ray first started exploring alternative pool chemicals and water purification systems, Swimming Hole had a steady stream of interest and five or six big sales a month. Usually, it was people who were looking to install new pools who opted for the green features. But there was also a good number of people who wanted to switch an existing pool over to an alternative system, like ozone or solar purification.

Ray still sold some chlorine products, but he only stored amounts and types that were comparatively safe; the more powerful oxidizing agents, which had been of such concern to the fire department, were a thing of the past.

I'd say that two things made our roll-out successful: We studied our customers, and we familiarized ourselves with the new systems and products. We knew how to troubleshoot things, how to tweak them. Whatever there was to know about these products, I learned it inside and out and drilled it into my people's heads.

Even so, we spent a lot of time on the phone with suppliers and manufacturers, trying to resolve problems and questions our customers had. We had to learn a lot of stuff on the fly, without letting customers know we were basically improvising.

We had good products and a good business model, but in the end, it came down to our team: if we hadn't been able to handle the service calls and the questions and the confusion, we would've lost a lot of business.

If you're going to offer a new product, especially one where health and safety are key, you need to know exactly what it can and can't do, and how to adapt it to your customers' needs. And you need

"Action springs not from thought, but from a readiness for responsibility."

-Dietrich Bonhoeffer

suppliers who are ready and able to answer questions, and get it right the first time.

As much preparation as we did, I think it was only a day or two before we got a question none of us could answer. We were lucky that we turned out to have great suppliers who were there when we needed them. But that's something I'm not going to leave to chance in the future!

As the green portion of his business expanded, Ray started looking into other options, like natural pool design and alternative construction materials.

After conducting feasibility studies, and talking to other pool business owners in online forums, he decided that these ideas were a little too ambitious for the business as it stood. Instead, he decided to focus next on solar water heaters and pumps.

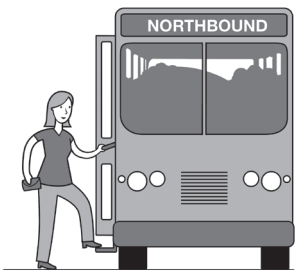
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Getting Help

The US government has a strong interest in increasing exports, and dedicates considerable resources to helping small businesses export.

Gold Key Matching Service (GKMS)

Under this program of the US Commercial Service, in-country staffers match American exporters with foreign buyers and partners. GKMS is most commonly used in Latin America, Europe, and Asia. Visit www.export.gov/comm_svc/goldkey.html for more details.



Export-Import Bank of the United States

Ex-Im Bank (www.exim.gov/) helps to finance and facilitate the export of US goods. It offers five types of programs to help exporters: insurance, working capital, guarantees, intermediary loans, and direct loans. About 85% of the Bank's transactions support small businesses.

Ex-Im Bank is particularly interested in supporting exporters of environmentally beneficial goods and services (many of whom are small businesses).

Eligible products and projects include:

- Pollution control
- Waste collection and disposal systems
- Ecological monitoring
- Hazardous material handling
- Water purification
- Improved energy efficiency
- Alternative energy
- Toxic waste cleanup projects

Small Business Administration (SBA)

The SBA offers financial and business assistance to help small businesses export. SBA district and branch offices administer term loan programs locally, while US Export Assistance Centers (USEACs) administer export loan programs.

For a list of USEACs, visit www.sba.gov/oit/export/useac.html.

State Export Finance Programs

In many states, the state department of commerce and other international trade organizations sponsor financing programs. Many cities and states have established cooperative programs with the Ex-Im Bank and can provide specialized export finance counseling. Details of these programs are available through your state department of commerce.

Becoming an Importer

As we mentioned previously, certain countries have a more mainstream green culture than the United States. This means that their products may already meet or exceed US environmental standards, or offer advantages that domestic products don't. Importing such products can be a great way to launch or expand a green business.

Most export topics apply (in reverse) to importing. Here are some things to consider:

- **Market demand.** Will importing give you an advantage over competitors? Is it something that is not available in the US market?
- **Quality.** Does the product meet your quality standards?
- **Price.** How does the price compare to domestic counterparts?
- **Quantity.** Does your vendor have the capacity to fill your order?
- **Tariffs.** Are there US tariffs or legal restrictions on the product?

- **Political stability.** Will changes in the foreign government affect your business?
- **Security.** Increased scrutiny of imported goods (food products, in particular) means that you must allow greater time for goods to arrive; you may wish to adjust your order size and inventory levels accordingly.

Staying Green

Some businesses make the mistake of thinking that once they've improved efficiency, greened their products and processes, and offset their carbon emissions, their work is finished.

This is wishful thinking. Doing the hard work of assessing every aspect of your operations, uncovering the hidden costs of business as usual, and weighing the costs and benefits of taking action, should have given you a keen eye for waste and false economy. These are skills that every business owner should have, and use daily.

If green business isn't just a fad, but is in fact setting a new baseline for best practices and consumer expectations, then staying green is just as important as going green.

This means that the process you've just gone through needs to become second nature. You need to be flexible, so that you can act quickly to eliminate waste and improve efficiency, but you also need to be skeptical, so that you're not changing your business around every time some new green product or process hits the market.

"No sensible decision can be made any longer without taking into account not only the world as it is, but the world as it will be."

-Isaac Asimov

What gets rewarded gets repeated!

One of the best things you can do to stay green is listen to your customers and employees. Don't wait for them to come to you with suggestions for making things better; take every opportunity to seek out their advice. You may find that in some ways, they know more about green business ideas than you do. When people come up with an idea you can use, be sure to give them credit by name. And if you want new ideas to keep coming, reward them. Positive reinforcement will bring out more of that behavior.

If you haven't joined a green business forum online, do so! This will allow you to ask questions, hear about hands-on experience with new products, and learn from the mistakes and successes of entrepreneurs just like you. It will also help you to keep up on new technologies and regulations, and may even make you a few friends and allies.

Last, you need to stay informed, both about your industry and about green business generally. You should definitely subscribe to industry-related publications, newsletters, and listservs, and set aside time to read them.

You should also find some Websites to visit regularly, so that you can stay up to date on green technology, theory, practice, and policy. Some of these sites will undoubtedly have a specific political agenda (which you may or may not support), while others are mainly concerned with the nuts and bolts of green business.

We recommend seeking a wide range of opinions, and trying to stay open-minded. While "dark green" environmentalism remains something of a fringe movement, and may seem shrill or unreasonable to

many people, it's also true that many greens were far ahead of the curve in creating and promoting many of the policies and products that make good business sense today. If you want to get a sense of where things may be headed, it's not a bad idea to keep up with what the true believers are doing and saying.

Here's a list of sites to get you started. Be sure to explore their links; you may find other sites you prefer.

- **Ask Pablo** (www.askpablo.org) is a fascinating and informative site that scientifically answers readers' questions about sustainability and lifestyle choices, with an emphasis on "such technical issues as energy consumption, efficiency, life cycle analysis, and environmental footprints." The site includes an archive that provides a crash course in sustainability issues.
- **Breakthrough Institute** (www.thebreakthrough.org) is a thinktank founded by Michael Shellenberger and Ted Nordhaus, who have written extensively (and controversially) on what they call "the death of environmentalism," and the need to replace "complaint-based issue organizing" with "positive, inspirational politics that transcends older issue categories and identities."
- **Environmental Capital** (blogs.wsj.com/environmentalcapital) is the *Wall Street Journal's* daily blog on environmental business, featuring analysis of current news and trends.

- **Environmental Economics** (www.env-econ.net) is a lively blog featuring informed analysis of green business, environmental policy, and economic theory. Although it's written by professors of economics, it's generally informal and down to earth.
- **Green Options** (greenoptions.com) is a network of environmentally focused blogs that offers a broad spectrum of information and guidance on making sustainable choices.
- **MetaEfficient** (www.metaefficient.com) is a fun site devoted to reviews of new and efficient green gadgetry. It's one of the best ways to keep on top of the latest in green design.
- **The Oil Drum** (www.theoil drum.com) explores the political and economic implications of oil depletion. Compared to other sites listed here, its view of the future tends to be fairly pessimistic. Still, you'll find important news stories here that you probably won't read anywhere else, along with very knowledgeable discussion of subjects like biofuels and energy efficiency. The authors are engineers and petroleum geologists, so discussions can get a bit technical.
- **PESWiki** (www.peswiki.com) is a collaborative, community-built site "on the topic of cutting-edge

energy technologies that move us away from dependence on fossil fuels and toward cleaner, greener, more reliable, safe and affordable energy solutions."

- **Practical Environmentalist** (www.practicalenvironmentalist.com) focuses on green news, with an emphasis on simple, straightforward things that people can do to help the environment. Its outlook is summed up nicely by one of its founders: "I truly believe that the future is bright, and that technology and human ingenuity will prevail, bringing us a world that is even better tomorrow than it is today."
- **Treehugger** (www.treehugger.com) is a popular news site with about 30 posts per day. Its focus is primarily on green tech, green gadgets, and the design revolution, but it also covers policy, news, activism, and culture. Comment is allowed on stories, which can be useful as it allows expert readers to provide a bit of perspective on potentially overhyped products.
- **Triple Pundit** (www.triplepundit.com) bills itself as "a conversation about conscious, responsible business in the context of today's environmental and social challenges." The emphasis here is on the triple bottom line: "people planet profit."

"We are all faced with a series of great opportunities brilliantly disguised as impossible situations."

-Charles R. Swindoll



“Our greatest responsibility is to be good ancestors.”

-Jonas Salk

- **WorldChanging** (www.worldchanging.com) discusses news, policy, and technology, but it’s primarily a philosophical site dedicated to the possibility and promise of creating a green society, with an emphasis on technology, community building, and innovation. It strongly rejects the “doom and gloom” school of environmentalism, and recommends a positive, hopeful approach to solving environmental and other social problems. Wherever you stand on the environmental or political spectrum, you’ll probably find something here that will challenge your assumptions.

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This year, Swimming Hole installed solar panels on its roof. These panels provide most of the electricity the business uses. The system is set up in such a way that it feeds excess power to the electrical grid. This means that in some months, Ray actually gets a credit on his electric bill!

The decision to switch to solar panels was a natural outgrowth of the solar pool heating systems we were selling. I felt like we had to stand behind the concept.

It was a hard decision, because we had to weigh the upfront costs against the break-even point, which was a pretty long way out. What sealed the deal for me was two things. First, the switch to green had helped us to grow, and I felt that we needed to solidify our position as the green alternative in the Stockton area. We had a lot of new customers, and I wanted to earn their loyalty by taking the same plunge into green energy that I was asking them to take.

Otherwise, it seemed like I was saying, “You folks need to shell out for a solar heating system, and I’m gonna take the money and spend it on coal power, and maybe a fleet of Hummers.”

I wasn’t really doing that, of course, but I felt like our way of doing business had to match our rhetoric. If we wanted people to buy in, I felt like we had to buy in too.

The second thing was, I frankly just liked the idea of getting off the grid as much as possible. Getting clobbered by that one electric-bill was the thing that put me on this path in the first place, so it just felt right to put my money where my mouth is and gain some real independence.

I feel good about doing that, and I feel good about where things are heading. I feel like if I can travel this road, anyone can, and I’m excited to see where it leads us.

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The NxLevel® Green Action Plan

You’ve done lots of research and hard work, and now it’s time to put your ideas into practice. By completing the NxLevel® workbook, you will develop appropriate, affordable, and attainable goals that will transform your business into a green success story.

The NxLevel® Feasibility Study Outline

By now, you understand how a green business opportunity leads to a feasibility study, which in turn leads to an actionable idea. That idea is added to the action plan, and brought to fruition through project management techniques.

Note that effective project management provides data that will help you to improve your feasibility studies (e.g., by identifying bad assumptions, variances, and so on).

With this in mind, it's time to use the data from the **Feasibility Study Worksheets** to write a NxLevel® Feasibility Study Outline for each idea that warrants the effort.

Use the following section headings:

1. Business Opportunity
2. Legal, Environmental and Social Issues
3. Market Research
4. Budget/Financing/Projected Cash Flows
5. Revenue Model (including sales forecast and break-even analysis)
6. Personnel/Skills
7. Time Schedule
8. Risks/Threats
9. Conclusion (one-page summary)
10. List of Assumptions

Do yourself a favor and be honest when writing your feasibility study. Are your assumptions accurate? Have you addressed all the questions lenders will ask? Do you have the right skills and resources?

It's also a very good idea to seek input from your friends, family, employees, and advisors before you commit to a given project.

The NxLevel® Green Action Plan

The NxLevel® Green Action Plan draws ideas from contemporary project management techniques and corporate action plans, and simplifies the process with an easy to use checklist and individual project template. It outlines how, by whom, and when each of your green goals will be accomplished, and will help you to track costs, benefits, and variances.

All your appropriate, affordable, and attainable ideas should be listed here, from simple energy-saving ideas like turning down your thermostat, to more complex and time-consuming projects like installing permeable pavement or switching to sustainable packaging.

Remember that seemingly simple goals can become difficult if they involve changing behavior. Even if the goal is simply to get employees to turn lights and appliances off when they're not in use, having an action plan can help. After all, someone needs to be in charge of spreading the message, establishing benchmarks, and monitoring compliance.

Ideally, your NxLevel® Green Action Plan should be posted on a whiteboard or blackboard where all team members can see it. You can update it every week or two as necessary to reflect changing circumstances (with the exception of the cost and time estimates, which must stay the same so that they can be compared with actual results).

Utilizing this system conscientiously will help you to choose the right green projects, and finish them on schedule and on



"The discipline of writing something down is the first step toward making it happen."

-Lee Iacocca



budget. It will also help your employees know exactly what is expected of them. These kinds of projects are perfect for teamwork-building exercises, and provide an excellent opportunity for you to improve your leadership skills.

Better yet, the NxLevel® Green Action Plan will serve as a daily reminder that you and your employees are doing good things for your company, your customers, and your planet.

success stories and innovative entrepreneurial solutions.

The entrepreneurial vision is a powerful force. It can transform the quality of your life, your family, and your community. When you combine this vision with your expanding knowledge of business, your entrepreneurial journey becomes fun, fulfilling, and profitable!

“To accomplish great things, we must not only act, but also dream; not only plan, but also believe.”

-Anatole France

Welcome to the NxLevel® Training Network!

The greatest asset NxLevel® gives its participants is access to other people who have participated in and taught programs. By sharing ideas and supporting one another, entrepreneurs learn from each other's mistakes and explore new ways to achieve their goals. They also enjoy the comfort of knowing that others have experienced similar challenges, risks, and rewards.

You can participate in this network by visiting our Website, and by building on the relationships you formed with fellow participants. Furthermore, local trade associations, chambers of commerce, Small Business Development Centers, community colleges and universities sponsor many events for small businesses. Attend them, contribute to them, and benefit from them!

If taking this class has made you realize that you need to create a full-fledged business plan, we suggest the *NxLevel® Guide to Start-Ups* or the *NxLevel® Guide for Entrepreneurs*.

We are happy to welcome you into the NxLevel® network of entrepreneurs, and look forward to your contribution to our

Learning Objectives

- Understanding the course curriculum and materials
- Understanding feasibility studies and capital budgeting
- Understanding opportunity costs and externalities
- Identifying and prioritizing green opportunities
- Review NxLevel® Feasibility Study Outline
- Learn to create and use the NxLevel® Green Action Plan

Going Green Participant Outline

Date: _____

Class Overview and Instructor Topics

1. Getting the Class Started

2. Participant Introduction

3. Class Introduction

- The NxLevel® Green Action Plan
- Textbook Review

4. Instructor Topics

- Why Go Green?
- Is It Feasible?
- Weighing Advantages and Disadvantages
- Project Management
- Saving Money By Saving Resources

Break



Guest Speaker

Instructor Topics

5. Instructor Topics

- Pollution Prevention and Product Redesign
- Green Branding and Marketing
- Green Export / Import
- Staying Green
- The NxLevel® Feasibility Study Outline
- The NxLevel® Green Action Plan

Workbook Introduction

The worksheets in this section are designed to help you develop a Green Action Plan that will help you reach green business goals that are appropriate, affordable, and attainable. The ideas, tools and techniques they teach will help you to take a hard look at the feasibility of your green options, and decide whether you have the time, energy, desire and resources to pursue them.

HOW TO USE THE GREEN ACTION PLAN WORKSHEETS

The worksheets will help you through the process of researching and writing your NxLevel® Green Action Plan, one step at a time. They comprise a series of questions relating to the current operations of your business, your goals for the future, and the opportunities that are available. They will help stimulate your thinking about the advantages and disadvantages of pursuing different courses of action, and aid you in choosing the path and the tools that are right for your business and your beliefs.

There are also worksheets that will help you to choose strategies, examine operating costs, predict expansion costs, and project future financial performance. If you are unsure of how to answer a particular question or complete a worksheet, you can ask your accountant or business mentor for clarification or undertake additional research.

Preparing a worthwhile action plan is a slow, careful process of research, analysis, writing and calculations. The structure of the workbook makes the process easier, by giving you direction, purpose and discipline. Your goal is to produce a NxLevel® Green Action Plan that will explain to employees and partners exactly how you intend to achieve a greener business, and why.

In addition to helping the environment, the steps you'll go through to produce an appropriate, affordable, and attainable action plan will teach you skills that you can use to improve all aspects of your business.

Green Priorities Worksheet

What drives your desire to go green? Are you doing it for yourself, for your customers, or for the sake of the planet? Remember: Different goals require different tactics and approaches to risk!

Use this worksheet to prioritize your green business goals, by entering 1 for low-priority goals, and 5 for high-priority goals. Once you've finished, try to answer from the standpoint of your employees and customers. If you have no idea how they feel, enter a question mark. This indicates information you may need to obtain, perhaps by conducting a survey.

Green Business Priorities			
	You	Your Employees	Your Customers
Beat the competition			
Gain market share			
Win new customers			
New source of revenue			
Avoid regulatory burdens			
Reduce waste and inefficiency			
Launch a new product or service			
Satisfy request from customers			
Save natural resources			
Achieve energy independence			
Prevent or solve a crisis			
Effect a political change			
Benefit the environment			
Benefit future generations			
Benefit animals			
Benefit a specific community			
Other:			
Other:			

Feasibility Study Worksheet

1. Describe your green business concept or opportunity.

2. SWOT Analysis

Strengths

Weaknesses

Opportunities

Threats

3. Financial feasibility

a. What are some of the basic expenses for your business, per year?

Rent / utilities _____

Input costs _____

Equipment _____

Labor _____

Owner's draw (salary) _____

Vehicles / gas _____

Other _____

TOTAL _____

b. What are some of the basic expenses for your new business opportunity?

Input costs _____

New equipment _____

Labor _____

Marketing costs _____

Overhead _____

Other _____

TOTAL _____

Feasibility Study Worksheet—continued

c. How will you finance the new opportunity? What are your projected cash flows?

Source of financing (loan, personal funds, or company profits)?

When will financing become available?

Uses of financing

Repayment period (if applicable)

Interest rate (if applicable)

What are your projected cash flows for the next three years?

4. Feasibility of sales volume

Current sales

Future sales growth (three-year forecast)

5. Is your idea feasible so far? If so, continue to the next step. If not, start over with a new idea.

6. Marketing feasibility

Use the following worksheet to profile at least two customer segments. Customer Segment A should be the one you think is the strongest market for your product. This is your *primary* customer segment.

Customer Profile Worksheet

Demographic Characteristics	Customer Segment A Primary Customers	Customer Segment B Secondary Customers
Gender (male, female, both)		
Age (range)		
Income Level (range)		
Occupation (blue-collar, professional)		
Location (neighborhood, town, etc.)		
Marital status (single, married)		
Children (none, at home, grown)		
Education Level		
Ethnic Origin		
Other:		
Psychographic Characteristics		
Where do they shop? (malls, boutiques, in town, catalogs)		
When do they shop? (am, pm, holidays, weekends)		
Why do they buy? (motivations)		
How do they shop? (in person, phone, Internet)		
Other:		
Other:		
Expectations		
What do buyers want and expect from your product (e.g., quality, convenience, speedy service)?		

If you're going to be marketing your product to other businesses, use the following worksheet to research prospective business customers. Otherwise, skip ahead to question a.

Feasibility Study Worksheet—continued

Business Segment Worksheet

Characteristics	Business Segments		
Fill in the names of potential business customers and research the following information about them.	A. _____	B. _____	C. _____
Annual sales			
Number of employees			
Location (town, region, country)			
One site, or multiple branches?			
Who handles purchasing?			
Where do they get product info?			
Procedures for buying?			
What do they expect from your product?			
Other:			

- a. Based on your customer profiles, who are your target customer segments? Where did you get your information?**

- b. What is the geographic territory of your business area?**

- c. How many people in your target market live or work in this geographic area?** (You'll probably have to do some more research, using census data or other resources.)

d. Is your target market growing, staying the same, or getting smaller? (Discuss the trend.)

e. How many members of your target market do you expect to buy your product per year? How did you estimate this amount?

f. What is the average dollar amount each customer segment will spend per year on your products? How did you estimate this amount?

g. Estimate your annual sales amount. This will give you a first look at whether your business can generate enough sales to be worth pursuing. Use the worksheet below for years 1 through 3, and remember to be conservative in your estimates.

A.	Number of customers who will buy from you each year (answer from question e)	
B.	Average amount they will spend each year (answer from question f)	
C.	Total estimated sales amount each year (multiply A x B)	
D.	Estimated basic expenses each year (answer from question 3)	
E.	Difference between sales and expenses (subtract C - D)	

Is Line E a positive number, or a negative one? It should be positive, because your estimated sales should exceed your estimated expenses. If it's negative, what can you do (if anything) to fix this? Are you satisfied with these initial findings? Do you think it's worthwhile to move forward with your idea?

h. Describe your competition.

Feasibility Study Worksheet—continued

7. Feasibility of personnel

List the tasks that need to be done, the personnel responsible for them, the skills they require, and the timeframe for completion.

Task	Employee(s)	Skills	Timeframe

8. Logistical feasibility

- a. **Where do you get the raw materials for your product? What's the average turnaround time? How is it transported?**

b. What equipment do you use?

c. How much can you produce under your current system?

d. How much do you need to produce to meet projected sales volume? Are these amounts available from your suppliers? Do you have or need alternative suppliers?

e. How will you ensure the reliability and specifications of new or substitute products and materials? What tests do you need to perform? How long will they take?

f. List your suppliers and partners, and explain how they can help you meet your green goals.

Feasibility Study Worksheet—continued

9. Legal feasibility

a. What environmental laws apply to your business?

b. Explain how employee regulations affect your business (ADA, labor laws, harassment, organized labor laws, worker safety laws like OSHA, and so on).

c. Use the following table to help you decide if you need to protect your intellectual property by filing for a patent, copyright, or trademark.

Intellectual Property Right	Associated Cost	What must be done to secure IP rights?
Patent		
Trademark		
Copyright		
Product name		
Trade secret		
Other:		

d. Use the worksheet below to decide which contracts and leases you will need.

Type of Contract or Lease	Intended Use
Employment Agreement	
Nondisclosure Agreement	
Independent Contractor Agreement	
Power of Attorney	
Partnership Agreement	
Buy/Sell Agreement	
Promissory Note	
Lease Agreement	
Land Usage Contract	
Warranties	
Sales Contract	

10. Environmental feasibility

a. List the hazardous wastes you produce.

b. What disposal method(s) do you use?

c. What is the disposal cost?

d. Do you have greener disposal options? If so, what is the cost?

Feasibility Study Worksheet—continued

11. Social feasibility

a. List the external costs of your operations.

b. List the external benefits of your operations.

[illegible]

12. List all assumptions used in this feasibility study.

[illegible]

Capital Budgeting Worksheet

1. What discount rate will you use in order to calculate net present value (NPV)? Why?

2. Here's the NPV formula:

$$\frac{R_t}{(1 + i)^t} \quad \text{or} \quad \frac{\text{Inflow} - \text{Outflow}_{\text{year}}}{(1 + \text{discount rate})^{\text{year}}}$$

a. Re-read the section on NPV in the text, and then fill out the following chart for each of your capital expenditures. Remember that there is no cash inflow for t=0.

Year	Cash Flow	Present Value
t=0		
t=1		
t=2		
t=3		
t=4		
t=5		

b. Next, total the right-hand column to get NPV: _____

c. If the NPV is positive, it indicates a good business opportunity. If the NPV is 0 or negative, will you proceed with the idea? If so, why? What are the non-financial benefits?

Advantages and Disadvantages Worksheet

- 1. As a final review of every project that made it through your feasibility tests, check your conclusions by weighing advantages against disadvantages.**

[illegible]

Project Management Worksheet

1. Which of your projects are large or complex enough to require using project management software?

2. Which type and brand of project management software will you use, and why?

3. Who will be responsible for keeping software programs current?

4. Who are the team members for each project, what are their responsibilities, and how often will they meet?

5. How will you get back on track if you fall behind?

Project Management Worksheet—continued

6. Break one of your projects into its components tasks, and list them from first to last in the left-hand column of the Gantt chart. Then, estimate the time each will take by blocking in the numbered boxes, each of which represents one week. Finally, estimate the cost of each task in the space provided. (Do this exercise for each major project you wish to undertake.)

[illegible]

Materials Substitution Worksheet

1. Choose three products or materials you currently use in your business (e.g., raw materials, office equipment, cleaning supplies, packing materials, etc.), and use the chart below to research greener substitutes. Note the source and cost of each material, and use the checklist provided to compare their green / sustainable characteristics.

Current Material	Green Features	Alternative Material	Green Features
Name <i>Deth-Grip Adhesive</i>	<input type="checkbox"/> Sustainable <input type="checkbox"/> Recyclable <input type="checkbox"/> Reusable <input type="checkbox"/> Nontoxic	<i>Hold-Tite Eco-Glue</i>	<input type="checkbox"/> Sustainable <input type="checkbox"/> Recyclable <input type="checkbox"/> Reusable <input checked="" type="checkbox"/> Nontoxic
Source and Cost <i>Toxico, Inc.</i> <i>\$1 per oz</i>	<input type="checkbox"/> Biodegradable <input type="checkbox"/> Energy efficient <input type="checkbox"/> Organic <input type="checkbox"/> Fair trade	<i>Green Glues, LLC</i> <i>\$1.50 per oz</i>	<input type="checkbox"/> Biodegradable <input type="checkbox"/> Energy efficient <input type="checkbox"/> Organic <input type="checkbox"/> Fair trade
Name	<input type="checkbox"/> Sustainable <input type="checkbox"/> Recyclable <input type="checkbox"/> Reusable <input type="checkbox"/> Nontoxic		<input type="checkbox"/> Sustainable <input type="checkbox"/> Recyclable <input type="checkbox"/> Reusable <input type="checkbox"/> Nontoxic
Source and Cost	<input type="checkbox"/> Biodegradable <input type="checkbox"/> Energy efficient <input type="checkbox"/> Organic <input type="checkbox"/> Fair trade		<input type="checkbox"/> Biodegradable <input type="checkbox"/> Energy efficient <input type="checkbox"/> Organic <input type="checkbox"/> Fair trade
Name	<input type="checkbox"/> Sustainable <input type="checkbox"/> Recyclable <input type="checkbox"/> Reusable <input type="checkbox"/> Nontoxic		<input type="checkbox"/> Sustainable <input type="checkbox"/> Recyclable <input type="checkbox"/> Reusable <input type="checkbox"/> Nontoxic
Source and Cost	<input type="checkbox"/> Biodegradable <input type="checkbox"/> Energy efficient <input type="checkbox"/> Organic <input type="checkbox"/> Fair trade		<input type="checkbox"/> Biodegradable <input type="checkbox"/> Energy efficient <input type="checkbox"/> Organic <input type="checkbox"/> Fair trade
Name	<input type="checkbox"/> Sustainable <input type="checkbox"/> Recyclable <input type="checkbox"/> Reusable <input type="checkbox"/> Nontoxic		<input type="checkbox"/> Sustainable <input type="checkbox"/> Recyclable <input type="checkbox"/> Reusable <input type="checkbox"/> Nontoxic
Source and Cost	<input type="checkbox"/> Biodegradable <input type="checkbox"/> Energy efficient <input type="checkbox"/> Organic <input type="checkbox"/> Fair trade		<input type="checkbox"/> Biodegradable <input type="checkbox"/> Energy efficient <input type="checkbox"/> Organic <input type="checkbox"/> Fair trade

Materials Substitution Worksheet—continued

2. Next, pick one of the materials above, and do whatever research is necessary to answer the following questions. (Complete this exercise for all proposed major material changes.)

a. What are the pros and cons of the current material?

b. What are the pros and cons of the substitute material?

c. Which material offers greater value in use? Why?

d. Which is easier to transport, store and use?

e. How long has the manufacturer been around? Who are their distributors? What's the average turnaround time on orders of your size?

f. What performance standards and specifications must be met? How will you test the product for compliance?

g. What aspects of production will change if you use the substitute material?

h. How will using the substitute material change your packaging?

Materials Substitution Worksheet—continued

i. How will it change your price?

j. How will it change your promotional message?

k. How will it affect your distribution strategy?

l. List any other changes that will result from substitution.

Writing Your Feasibility Study

Using the information gathered in this workbook, write your NxLevel® Green Feasibility Study. The outline below is formatted to assist you in reaching conclusions about your green opportunities. Remember: You will repeat this process for every major opportunity that comes your way.

1. Business Opportunity
2. Legal, Environmental & Social Issues
3. Market Research
4. Budget/Financing/Projected Cash Flows
5. Revenue Model (including sales forecast and break-even analysis)
6. Personnel/Skills
7. Time Schedule
8. Risks/Threats
9. Conclusion (one-page summary)
10. List of Assumptions

NxLevel® Green Action Plan

Each project you identified as worthwhile—including those for which you didn't need to do a feasibility study—should be prioritized, and then added to your NxLevel® Green Action Plan, so that it can be brought to fruition through project management. Note that effective project management provides data that will help you to improve your feasibility studies (e.g., by identifying bad assumptions, variances, and so on).

Ideally, your Green Action Plan should be posted on a whiteboard or blackboard where all team members can see it. You can update it every week or two as necessary to reflect changes (with the exception of the cost and time estimates, which must stay the same so that they can be compared with actual results).

A sample Green Action Plan appears on the next page.



NxLevel® Green Action Plan

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