

# Invest in Conserving Resources

Our current energy system is irrational and dangerous. Current investments degrade the biosphere, wreak havoc on business and community life and create wealth for a select few. We are all familiar with the results: global climate change, extreme weather, energy blackouts and extreme prices, threatened wildlife refuges, smog and its negative health effects. Holistic Solutions offers a different vision.

There are great rewards investing in conservation. Everyone can make money, contribute to avoiding global climate change and improve their quality of life by investing in conservation. As a part of Holistic Solutions' mission to create sustainable abundance that honors humane principles, we offer the following suggestions on how to create profitable, rational and ecologically sound conservation investments.

## What are Conservation Investments?

A conservation investment is a little different. When we think of investments we usually think of securities such as stocks, bonds and mutual funds. According to Merriam-Webster an investment is an "outlay of money usually for income or profit." A conservation investment is an outlay of money that creates profits by saving money. A classic example is spending \$20 on weather stripping to save \$100 in annual heating costs. Like investing in a house or real estate, a conservation investment is generally illiquid, meaning that it is difficult to take the investment (such as rolls of insulation) and then easily turn them back into cash. Some conservation investments however, such as a solar panel or a fuel efficient car, can be turned into cash without too much difficulty.

We also normally think of investments as assets. Some conservation investments are assets, such as photovoltaic panels or planting trees around a house. Others are not. Weather stripping per se is not an asset but it does add value to your home, obviously an asset. Some conservation investments appreciate and some depreciate; a fuel efficient car decreases in value but trees and other landscaping features add value and become more valuable over time. The costs of many of the home improvement conservation investments will be realized in an increased return on the sale of your home.

The financial reward can be very competitive, especially when you figure in the tax savings. If you spend \$1000 on weather stripping and insulation and it saves you \$250 a year in home heating and cooling costs, that's a 25% return, tax free. As energy prices rise, as they will, your investment return increases. You save money, conserve resources, and improve your standard of living.

There are other benefits to conservation investments. It feels good knowing that you are making money by saving resources and reducing your impact on global warming. We all need shelter that is reasonably comfortable; you can enjoy that with minimal global impacts. Conservation investments also help support sustainable businesses such as those small companies that make highly efficient appliances or solar panels. An often overlooked benefit of living in an energy efficient house is that it is more comfortable.

It is important to keep conservation investments in reasonable perspective. I used to make the joke that I was saving loads of money and doing an environmental good turn because I was boycotting cruises. Well, I have never taken a cruise, probably never will, I'm not the target demographic for your average cruise line, so the money I'm saving by not taking cruises is not properly a "return on investment." But the extra money I spent on compact florescent light bulbs is saving me real money. There are reasonable limits; it must be something you're already spending money on.

Conservation investments come in all shapes and sizes. Some that you are probably familiar with include

- Home energy – insulation of all types, weather stripping, efficient windows
- Highly efficient appliances – Sunfrost refrigerators, on-demand water heaters, compact florescent lights
- Appliance replacements – clothes rack instead of dryer,
- Better design – house design to dramatically reduce or eliminate the need for a furnace or air conditioner, orientation for solar gain

If you look through a Real Goods or similar catalog you will find thousands of examples. I would like to discuss three great examples in more detail: home insulation, biodiesel cars and photovoltaic utility intertie systems.

#### **Rule of 72 and “payback” periods.**

Occasionally you will hear representatives of oil companies or their policy makers downplaying the viability of renewable energy sources. “Payback periods” of ten to twenty years are thrown out as stumbling blocks to dissuade people from investing in renewables. But what does a “payback period” mean? A payback period of ten years means that if you spend \$1000, it takes ten years to earn that \$1000 back. If the payback period is 20 years, it takes 20 years to get your \$1000 back. This is disingenuous. When you buy \$1000 of a municipal bond fund, and it has a rate of 3.6%, no one complains “oh those bond funds have a 20 year payback period.” Because that is what you are doing with a conservation investment, you are saving money, or making money available that can then be invested in other income producing ways. If, like the average American family, you spend \$1500 a year on energy for your home, that is real money. You have to work to earn an income, pay taxes on your income, and then pay your bills.

To overcome the smoke and mirrors of the conventional energy company, use the rule of 72. The rule of 72 is a simple way to figure out rates of return, or how long it will take for an investment to return the same amount as the original investment. If you want to know how many years it will take to earn your initial investment back, divide 72 by the rate of return. In the bond fund example above the rate is 3.6%. Divide 72 by 3.6, and the answer is 20 or twenty years to earn your investment back, the payback period. If someone tells you that the payback period is 15 years, divide that into 72 to figure the rate of return, 4.8% in this example. Make your own decisions; does a 7.2% return sound better than a 10 year payback period? Which would you invest in?

#### **Home Insulation**

Insulation is a great example of a conservation investment. Everyone needs shelter of some kind and usually needs heating and cooling. The average American household spends more

than \$1500 a year for energy. That's a lot of dollars and a lot of carbon in the atmosphere. Spending \$1000 on insulation can easily save \$300 to \$400 a year in home heating and cooling costs. That's a 30% to 40% return on your investment, and you don't have to pay taxes on it. When analyzing home energy losses the best returns at the beginning usually come from the small efforts, such as weather stripping around doors and windows. A \$20 roll of weather stripping can easily save the first \$100 dollars of that yearly savings. It also makes a dramatic improvement in the comfort of a house. The \$300-400 that you were spending on energy can now be spent on other conservation improvements and other investments.

An important point needs to be made here: spend the least amount of money and effort *first* to get the best savings. Or put another way: get the biggest bang for your buck. It makes more sense to spend \$5 on a can of insulating foam that'll save you \$50 a year, and then spend \$20 for weather stripping that'll save you \$125, before spending \$500 for insulation that'll save you \$200. This "biggest bang for the buck" principle applies to any investment you have under consideration.

Here in California electricity prices have been moving all over the place. Stories abound about people having to choose between electricity and food. Limiting your exposure to expenses that fluctuate greatly helps contain the effects of inflation on your budget, and creates a more resilient financial plan. This is particularly important for those on fixed incomes. This strategy applies to most expenses, and will encourage a more rational and sustainable use of the world's resources. The security of the returns offered by conservation investments is another appealing feature. The returns on most securities fluctuate greatly, the savings from conservation investments are locked in, and will probably only increase with time.

Of course you cannot put your entire portfolio into home conservation efforts, insulation and weather stripping don't cost that much, but you do want to invest in it as soon and as much as you can.

### **Efficient Appliances – The Biodiesel Car**

Another great area for conservation is in efficient appliances. Probably the best returns in this area come from aerating screens that go on faucets and low-flow showerheads. That'll set you back less than \$20, so let's look a little more ambitiously at a bigger expense: the automobile. The best thing would be to not have one at all. Walk or bike to work and errands. If that isn't possible right now, look for ways to dramatically reduce the amount of miles you drive. Other options include car sharing and public transport. There are other benefits to reducing the time you spend in a car such as reduced stress, more exercise as well as the financial savings.

Perhaps right now it is not possible for you to do without at least one vehicle for your household. If so, buy a vehicle that gets superior miles to the gallon. A current favorite idea of mine and an idea that I think will be a wave of the future is a diesel car run on "biodiesel." Biodiesel is a fuel that is made from vegetable oil that has undergone a simple chemical reaction, so simple that you could do it in your kitchen or in your backyard. 50 governmental fleets currently run on biodiesel, and there are several cities in the country that have biodiesel fueling stations.

Biodiesel can be made from waste, used vegetable oil, such as what you can find at a fast food restaurant. Biodiesel produces considerably less pollution and diesel engines are much more fuel efficient. The Volkswagon Golf, Jetta and Passat, the only new vehicles currently offered in a diesel model, average 49 miles to the gallon on the highway. According to reports biodiesel is slightly more efficient than normal diesel and less expensive.

Biodiesel cars have a beneficial effect on global climate change since they do not contribute to the release of additional carbon into the atmosphere. Carbon dioxide is a byproduct of combustion but biodiesel cycles “current carbon.” This means that you are not pumping ancient carbon out of the ground in the form of oil, but are growing crops (that store carbon inside of them) for oil, such as soybeans or sunflowers. When the oil is burned releasing the carbon back into the atmosphere, it can be absorbed by the next crop. One caveat: a car is not an investment. Automobiles depreciate so rapidly, they more properly go under the expense column of your financial statements.

### **Photovoltaic Utility Intertie Systems**

Here’s an interesting idea: mount an array of photovoltaic panels to your roof, plug them into a sophisticated inverter and intertie system, and run your electricity meter backwards! The electric company will pay you for the electricity you generate. Of course there are limits, but to make it even more enticing most states currently offer a rebate, grant or buy-back of up to 50% of the cost of the system. This becomes an almost irresistible investment.

Let me back up and explain some of these terms. “Photovoltaic” refers to special silicon panels that are able to turn the light of the sun into electricity. They are sometimes referred to as solar or solar electric panels. A “utility intertie system” is a renewable energy generating source, such as photo-voltaic panels in this example, that is connected to the electricity grid through a special inverter and utility connection. An inverter converts the electricity to the same form as the electricity coming into the house. The inverter is then connected to the electric meter and the electric wires that send power into your home. When the sun is shining the panels generate electricity, which is converted to the proper form, and is then fed into the electricity power grid. If you are generating more electricity than you are using, your meter turns backwards! Obviously I am leaving out several important steps and technical details, but you get the idea. In the rebate programs the renewable energy source can also be wind turbine systems, fuel cells, and a few others.

Let’s look at an example: a 2500 watt photo-voltaic utility intertie system can produce, on average, 13.3 kwh per day and costs \$18,500. In California there is currently a \$10,730 rebate for such a system. This system would save a homeowner approximately \$60 a month in electricity charges. At \$720 a year, and including installation costs, that represents an annual return of 8.3%, and you don’t have to pay taxes on the savings. Where else can you find an investment with this kind of a return, with such low risk? If you know, please contact me immediately! Even without the rebate program, this is a good investment, competitive with current money market fund rates.

Utility intertie systems are easily scalable; you can add more panels without difficulty. A 5000 watt system, twice the size of the system mentioned above, produces approximately 25 kwh/day of electricity, which represents the amount a frugal household uses. This system

would save approximately \$125 a month in electricity costs, or \$1500 a year. Assuming it cost \$17,000 total to buy and install such a system, \$1500 represents a return of 8.8%. I must mention again that you don't have to pay taxes on these savings, or go out and earn money that you then pay taxes on, to pay this bill.

This type of conservation investment only makes sense though if you have reduced your electricity needs within your house to a low level. As was mentioned previously, compact florescent light bulbs provide a much better bang for your buck. The refrigerator is a big energy hog; more efficient models can save half the electricity of a normal fridge. Take care of the "big bang for the buck" conservation investments first and then move on to more ambitious projects like this.

### **The Next Frontier**

I will mention that with good design there are great opportunities to completely eliminate many expenses. A well-designed house, even in cold climates, can be designed to eliminate the need for a furnace. With good insulation, proper overhangs, ample shading from trees, and a few other strategies houses in very hot areas can be free of the air conditioner. Landscaping can work wonders on the comfort and livability of your home and property. If some of the trees that you have planted for shade also block the cold winter wind and provide fruit in the fall, your investment has tripled in value. And what are beauty, peace of mind and an ecological contribution worth?

### **Resources**

Rocky Mountain Institute has a great website ([www.rmi.org](http://www.rmi.org)) with downloadable articles, books for sale, and they do great work. Two books of special note:  
*Homemade Money: How to Save Energy and Dollars in Your Home.* Richard Heede

*Factor Four: Doubling Wealth, Halving Resource Use,* Ernst von Weizsäcker, Amory Lovins, and Hunter Lovins.

This database of state rebates for renewable energy programs has every state and local program in an easily searchable form. ([www.dcs.ncsu.edu/solar/dsire/dsire.cfm](http://www.dcs.ncsu.edu/solar/dsire/dsire.cfm))

The Real Goods website ([www.realgoods.com](http://www.realgoods.com)) has access to thousands of renewable energy and efficiency technologies. On the front page they have a downloadable article about photovoltaic utility intertie systems.

The Natural Capitalism website ([www.natcap.org](http://www.natcap.org)) has information on all the good work that they're involved in and links to profitable energy efficiency sites.

EcoMall is a site with loads of links on renewable energy. ([www.ecomall.com](http://www.ecomall.com))

For more on biodiesel check out ([www.greenfuels.org/bioindex.html](http://www.greenfuels.org/bioindex.html)) and ([www.afdc.doe.gov/altfuel/biodiesel.html](http://www.afdc.doe.gov/altfuel/biodiesel.html)) Grease Car has fun backyard biodiesel info and links. ([www.greasecar.com](http://www.greasecar.com))

These two sites have information on the most energy efficient appliances for your home. ([www.aceee.org/consumerguide/mostenef.htm](http://www.aceee.org/consumerguide/mostenef.htm)) ([www.eren.doe.gov/consumerinfo/energy\\_savers](http://www.eren.doe.gov/consumerinfo/energy_savers))