

Green Nivesh

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INTRODUCTION

These are traditional investment vehicles (such as stocks, exchange-traded funds and mutual funds) in which the underlying business is somehow involved in operations aimed at improving the environment. This can range from companies that are developing alternative energy technology to companies that have the best environmental practices.

For the stock savvy, there are many pure-plays, leading edge green companies that are traded on the major stock exchanges of the world. These include start-ups that are developing new methods for creating bio fuels or solar panels, and traditional market cap heavyweights that are expanding their product lines to include environmentally friendly products (such as General Electric's development of wind-powered electric generators).

Green investing can also be achieved through exchange-traded funds (ETFs), which mimic the stock indexes made up of green companies. Mutual funds can be another alternative, in which case a professional portfolio manager makes the green asset allocation decisions based on the fund's prospectus.

Unfortunately, because individual beliefs on what constitutes a "green investment" vary, exactly what qualifies as a green investment is a bit of a gray area. Purchasing stock in a business that is an industry leader in terms of employing environmentally conscious businesses practices in a traditionally "ungreen" industry may be considered a green investment for some, but not for others. For example, consider an oil company that has the best record for environmental practices. While it is environmentally sound that the company is making the best precautions in preventing any direct damage to the environment through its day-to-day operations of drilling for oil, some people may object to purchasing its stock as a green investment, because burning fossil fuels is the leading contributor of global warming.

Therefore, prospective green investors should research their investments (by checking out a green fund's prospectus or a stock's annual filings) to see if an investment includes the types of companies that fit their personal definition of "green".

WHERE TO INVEST?

Many investors who would like to invest in order to make the world a better place to live are unsure of in which projects to exactly. Let's look at some projects in which an investor can invest in.

1. **Geothermal** - The potential of geothermal power is vast. Tapping the heat from the earth's core could turn out to be one of the most abundant sources of low carbon, zero-emission renewable energy we have available. The geothermal potential of places like Iceland, Hawaii and New Zealand are well-known, but new technologies now being developed will make it possible to generate heat and electricity from just about anywhere. Geothermal is the power behind domestic ground-source Heat Pumps, which take advantage of the constant temperature of the earth and use it for both cooling and heating.
2. **Hydrogen & Fuel Cells** - Hydrogen-powered fuel cells are already in use for an increasing number of applications. Fuel cell buses are on the roads of California, China and Germany. The first passenger ferry powered by fuel cells has been operational in Hamburg since summer 2008. There's even a propotype airplane powered by fuel cells. A fuel cell is basically an electricity producing machine that uses oxygen (from the air) and hydrogen to generate electricity and heat. Hydrogen is the most abundant substance in the universe, and contains more energy per unit of weight than any other fuel. A fuel cell powered by hydrogen emits only water and heat as by-products: there are no harmful emissions or gases. Fuel cells are incredibly efficient, run silently (so they can be used anywhere), and can operate continuously (providing base load power and therefore stability to the grid). In today's tough economic times, the outlook remains uncertain for the entire sector. But for long-term investors there are interesting opportunities.
3. **Power Storage** - ENERGY storage is a key component of the low-carbon revolution. It goes hand-in-hand with the Smart Grid in making the most of renewable power, which (as critics are quick to point out) can be variable in its output. High-performance, cost-effective power storage will go a long way towards solving this problem – which is why President Obama's economic stimulus bill, the American

Recovery and Reinvestment Act 2009, includes over US\$2 billion in grants for advanced power solutions.

4. **Smart Grids** - The world's electricity grids need a major overhaul. Most national power grids are using technology invented in the nineteenth century and the whole infrastructure (with massive, centralised power plants supplying far-flung cities) is hugely inefficient, with up to 20 per cent of all electricity generated lost in transmission. These grids are also vulnerable to natural disaster and accidents, and simply aren't flexible enough to deal with the variable nature of renewables. In other words, they're pretty dumb. Enter the smart grid. The essence of a smart grid is to add 'intelligence' (information technology) to the electric networks. The aim is to maximise energy efficiency whilst reducing electricity consumption. The starting point are smart meters, advanced electricity meters which monitor consumption and feed the information back to the utility for analysis and billing. As the smart grid evolves, there will be less reliance on centralised power generation – instead, more energy will be generated locally. The grid will be able to take power from multiple renewable sources and distribute it more efficiently. When the wind is blowing hard in Norway or the sun is at its peak in Spain, surplus electrons will be more easily distributed to the rest of Europe through new, high-powered transmission lines.
5. **Solar Power** - Solar energy is by far the most abundant source of power we have available: enough solar energy hits the earth every day to meet our energy needs for 27 years. The challenge lies in capturing this free bonanza of 3,850,000 exajoules annually and converting it into electricity at a reasonable cost. Current solar energy technologies fall into two main groups, solar photovoltaic (PV) and solar thermal power.
6. **Waste management** - There's no question that waste management is moving up the agenda, driven by the same factors powering other green sectors of the economy. The overarching driver is of course climate change but other factors include pollution control, lack of landfill capacity, resource depletion, and the rising cost of waste disposal.
7. **Wave and Tidal** - The marine renewables industry is in its infancy compared to solar and wind, but the drive for clean energy is rapidly accelerating progress in this sector. Harvesting energy from the ocean has advantages and disadvantages compared to other sources of renewable energy. Firstly, it's much more predictable: tides and marine currents can be forecast years in advance. Secondly, water is over 800 times

more dense than air so the energy potential is greater. And thirdly most of the hydrodynamic theory, engineering principles, and marine construction techniques are well studied.

8. **Wind power** - Wind energy is currently the fastest-growing of all the renewables, increasing at a rate of around 25% per annum globally. This amazing growth rate is being driven by a number of factors including policy and climate change targets, huge improvements in turbine technology, and peak oil.

HOW TO INVEST?

Now we where we should I invest. But how do I do it? Let's look at the options of Green Nivesh.

1. **Green Equities** - Investing in green equities is no different from investing in any other kind of equities – except, of course, that you'll have the satisfaction of knowing that (hopefully) you're helping to solve the planet's problems rather than contribute to them. With new government regulation, increasing emphasis on corporate social responsibility, and growing consumer demand, green equity investments are becoming a great investment opportunity for the long-term investor. Many large companies and billionaires have already invested heavily in this sector and the retail investor now also has many options available to add this new asset class to a diversified portfolio.
2. **Ethical Finance** - Ethical finance is a difficult term to define. A very restrictive way to describe it would be as an "umbrella concept" for a philosophy of investing based on a combination of financial, social, environmental and sustainability criteria. Eurosif defines this philosophy with the term of Sustainable and Responsible Investment (SRI): "This is a concept that continues to evolve. Nevertheless, the constant within this area is that sustainable and responsible investors are concerned with long-term investment; and environmental, social and governance (ESG) issues are important criteria to determining long-term investment performance."
3. **Green ETFs** - For small investors looking to gain a broad-based exposure to the green technology sector, Exchange Traded Funds (ETFs) are one of the best options available. An ETF is designed to mimic the performance of a particular market or index, and their value is determined by whether the index rises or falls. However,

unlike traditional tracker funds, ETFs are traded like individual stocks, and can be bought and sold very easily through your broker (or on-line broker) just like any other listed stock. In choosing an ETF you need to consider :-

- Performance of the fund
 - The expense ratio; the lower the better, otherwise costs will eat into your investments
 - The proportional mix of technologies/stocks in the fund: is there too much reliance on wind? Are they overweight in solar?
 - Ethical concerns: do you want to be invested in biofuels, nuclear power, or medical waste technologies? (all of which appear in some 'clean energy' ETFs)
4. **Green Indexes** - You can track the global clean technology sector via a range of indexes focussing on specific green sectors such as wind and solar as well as general clean tech funds. You can use these by buying into Green ETFs which track specific indexes. Some of the green indexes of the world are :
- S & P Global Clean Energy Index
 - NASDAQ Clean Edge U S Liquid Series Index
 - NASDAQ OMX Clean Edge Global Wind Energy Index

THE INDIA STORY

Massive \$20 trillion will be invested in energy sector until 2030. It is likely that most of these investments will go into low carbon sectors as various and large portion of this investment will go into developing Asian nations, particularly India and China. As per United Nations, 979 CDM (Clean Development Mechanism) projects worth US\$18 billion are currently registered in the world. Of this, 62 per cent or 611 projects are registered in Asia, mostly in China and India.

Some Green Investment that has happened in India are as follows:-

- UTI Ventures, a private equity firm, invested \$8 million in Pesco Beam Environmental Solutions, a firm involved in waste-oil recycling and alternate energy systems,
- IDFC Private Equity had invested Rs35 crore in Ahmedabad-based Doshion, a water management firm, in the second half of 2007.

- Tribi Embedded Technologies receives Rs. 10 CR VC Funding from Sequoia Capital (designs devices for motor control and industrial automation – offers upto 25% reduction in energy consumption,)
- Nexus India Capital invests Rs. 12 Crores in Suminter India Organics (exporters of organically grown agro produce)
- Canara Bank invests Rs. 4.5 Crores in Natura Fibretech (coir (coconut-fiber) composites and other innovative materials that serve as an alternative for timber in the construction sector)
- ICICI Bank invests INR.49.9 Million in HMX Sumaya (environmentally-friendly HVAC solutions)
- Launch of focused funds like www.newventuresindia.org

CONCLUSION

Significant constraints on GreenTech investments are: Long gestation period, High risk/Low return and lack of government subsidies – essentially this is a very long term play and may not give a near-term RoI to VCs. But at the same time, this is a rising industry and indian VCs are looking actively in investing in green tech sector in India.

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