

Clean Tech: Just another energy play or something more?

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Trustees responsible for asset pools with long-dated liabilities could be forgiven for feeling that the risks they confront today are much more complex than they were even one decade ago. In addition to the risks of cyclical market and economic exposure, trustees now need to consider broader financial system risk, the risks imposed by climate change, and the risks posed by scarcity of essential resources. As these risks increase, trustees need a way to hedge against them, and produce alpha returns.

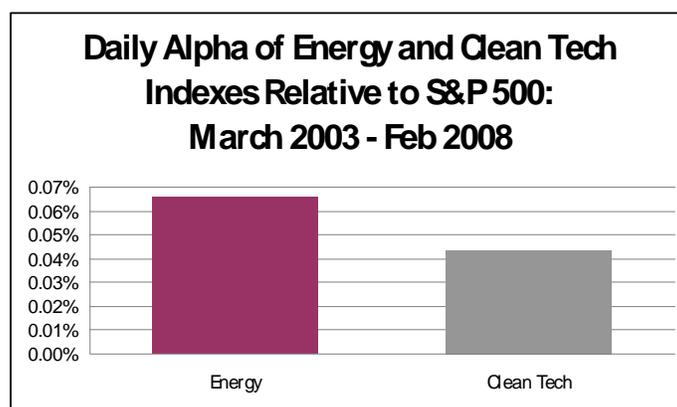
And the risks associated with climate change and resource scarcity are only going to increase. Take for example the risks associated with resource scarcity. Over the course of modern economic history growth and progress have led to a steady decrease in the share of economic resources dedicated to essential commodities such as food, energy and water. The value of food and energy consumed declined from over 50% of global GDP at the beginning of the 20th century to approximately 10% at the beginning of the 21st. Over that time, manufacturing and then the service sector has grown to take the place of food, energy and water, as the dominant economic force.

If the first years of this century are any indication, resource costs may be aggressively rebounding. At 2008 prices – with oil over \$100 per barrel and food prices racing to catch up – food and energy represent, by our calculations, nearly 20% of global GDP, a near doubling in less than a decade. The increased resources we have had to dedicate to these sectors have come at the expense of the broader economy, reducing growth in the service sector below what it might otherwise have been. With services representing 70% of the developed world economy, returns to diversified investment portfolios are imperiled by the risks associated with increased resource expenses.

Institutional investors have partially responded to these risks by increasing their allocations to commodity-linked investments. However, commodity producers face many of the same scarcity and climate change risks that confront the broader economy, and therefore are not an ideal way to hedge. Clean tech investments are likely to be *more effective* at directly mitigating these risks because clean tech investments produce alpha exactly where returns are diminished by these risks in the broader market. In this article we consider specifically how clean tech mitigates these risks as they affect traditional energy, and why clean tech, as an emerging sector is rife with opportunities for knowledgeable active manager to produce alpha in ways not available in the broader market.

Why is there alpha in clean tech vs. traditional energy?

Over the past five years, alpha has been available in both traditional energy and clean tech. This can be seen by comparing the alpha of the past 5 years of results of a traditional energy ETF (the Energy Spider XLE) and a clean tech index (CTIUS) against the S&P 500.



We believe that this alpha is driven by both (i) energy prices and (ii) environmental regulation. The higher alpha from traditional energy over the past five years has likely been the result of the primacy of the first driver (high energy prices). However, going forward, environmental regulation will likely become a more important driver, increasing the alpha of clean tech versus broader market indexes.

That said, *currently*, there is an *inefficient distribution of information* about each of these drivers, and their effect on the emerging clean tech sector (and the individual companies within it). Accordingly, certain

market risks and opportunities associated with these drivers have not yet been accurately priced, and therefore clean tech is rife with opportunities to produce alpha. Specifically, this alpha may be produced (i) by investing broadly in clean tech versus the general market index, and (ii) by investing actively within the sector.

Alternative returns in clean tech

We believe greater alpha will be produced by the clean tech sector (in relation to the general market) than will be produced by traditional energy because the market inaccurately values the long term effects of rising energy prices and environmental regulation on both sectors.

The rise of crude oil prices (from around \$20 at the beginning of the decade to over \$100 today) has improved oil companies' revenues but also led to increased costs of production, potentially squeezing margins. The effect of rising oil prices on the clean tech sector has been much more benign. While it is true that clean tech production incurs some of the same commodity and energy costs as traditional energy, these are relatively minor as a percentage of total costs. Furthermore, higher energy costs just add to the business case for investing in alternative energy and energy efficiency.

And the gap in production cost trends between traditional energy and clean tech is only going to widen in the future. While the oil industry has been forced, due to decreasing supply, to drill in increasingly difficult locations using increasingly expensive techniques (such as boiling rocks in northern Alberta and drilling through arctic sea ice), alternative energy producers are in no danger of running low on cheap sources of wind and sun. Indeed, with continuous technological improvements, the cost of clean energy production has nowhere to go but down. We believe these trends that favor clean tech are yet to be accurately priced by the market.

Traditional energy is also subject to regulatory and legal risks that are substantially avoided by clean tech, and which the market has not yet adequately priced. Indeed, *Clean Energy Trends'* March 2008 report states that "Citigroup, JPMorgan Chase and Morgan Stanley have issued strict new guidelines for coal investments" because "investing in CO2-emitting fossil fuel generation entails uncertain financial, regulatory and environmental liability risks."

The Importance of Active Management

But while we believe that investing in the clean tech sector as a whole can produce alpha vs. the S&P 500, the opportunities to profit from this alpha will likely be missed (to a large degree) by *passive* clean tech indices. Why? Because of the inefficient distribution of information about the technologies, markets, and companies within this emerging sector. This inefficiency can and does lead to inappropriate valuations.

The risk of inappropriate valuations is a particular concern in clean tech. Valuations in this sector tend to be quite high (and volatile) because clean tech is an emerging industry that is fairly small and has high growth rates. Consequently, the expected cash flows of businesses are heavily weighted to the future, and valuation depends critically on the risk levels (i.e. discount rate) that investors assign to these expected cash flows. Further, there are a large number of competing technologies in clean tech, many of which have not had to prove their economic merit outside of the shelter of government subsidies and regulation and may not survive as more competitive markets develop.

Yet investors, much as was the case in the 2000 technology bubble, may tend to underestimate the risks and assume high growth rates can continue for most clean tech companies, assigning inappropriate risk levels (i.e. low discount rates and high multiples) to their valuation and opening up a source of alpha for more knowledgeable portfolio managers. The dependence of valuations on high-growth assumptions has led clean tech stocks to be relatively high in beta compared to traditional energy: These downside risks of the high growth assumptions and high beta returns can be seen in the major declines (30%-70%) in the solar energy segment during the first quarter of 2008.

Passive indices are more vulnerable to inappropriate valuations because they typically do not adjust weights for performance. As a result, stocks that achieve high valuations often gain higher weights in indices over time. Naturally, actively managed funds can add alpha by taking profits at high values and investing in the

**Beta of Energy and Clean Tech
Indexes Relative to S&P 500:
March 2003 - Feb 2008**



less-appreciated technologies that could be the next big winner, and by avoiding the downside risks of higher valuations.

As a result of these informational inefficiencies, the clean tech sector is full of opportunities for the active manager to produce alpha. This alpha advantage, when coupled with clean tech's value as a hedge against rising commodity and environmental risks, means that clean tech represents an important sector in which pensions and foundation should consider investing.

This paper is based on an article originally appearing on www.Allaboutalpha.com.

Charles Holt, director of operations at Investeco Financial Corp., assisted in the research and preparation of this report.