



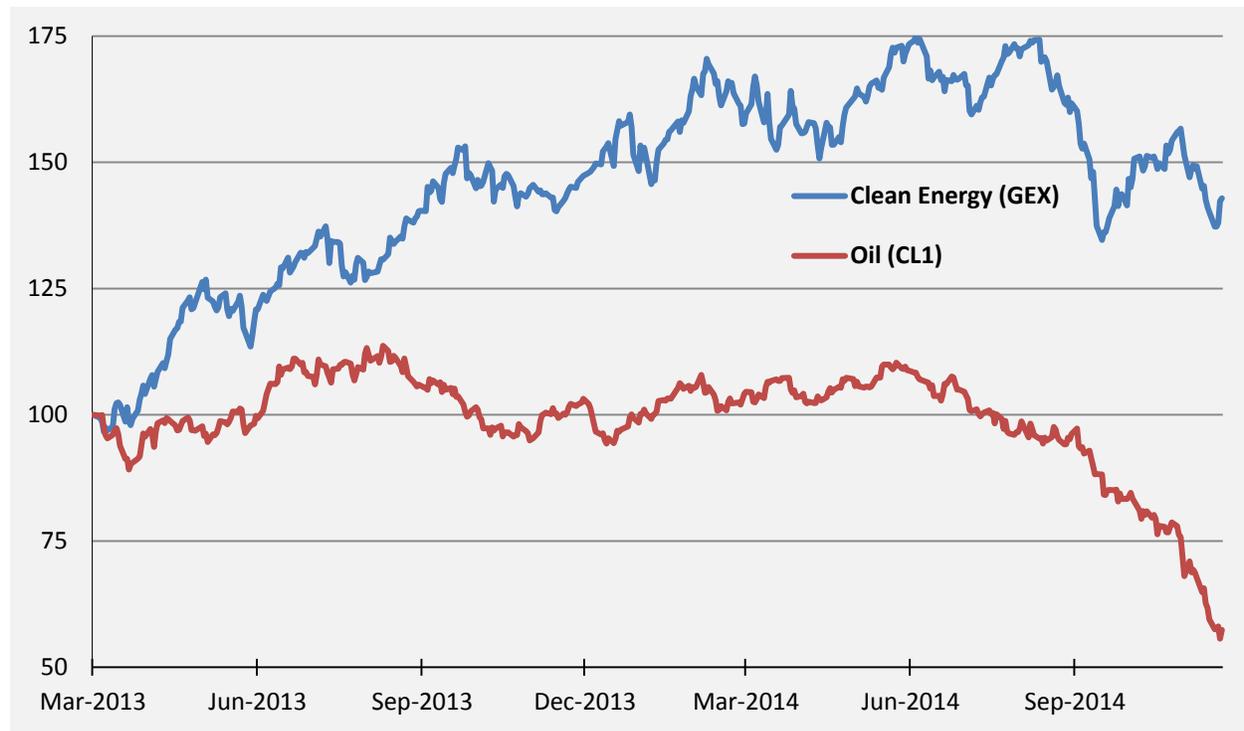
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Clean Energy: When Opportunity Emerges

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Between late June and mid-December 2014, the price of crude oil declined 50% to \$53.60 per barrel. This was an unprecedented decline for a major commodity in the absence of a sharp economic contraction, and it left most investors asking, what happened? Historically high oil prices, prior to 2008, led to technological developments in fracking that increased U.S. oil production by 3 million barrels per day. This additional output, coupled with a slowdown in worldwide demand growth, created a small supply overhang that precipitated the initial decline in oil prices. Saudi Arabia saw the initial decline in oil prices as an opportunity to pressure competing oil production.

Clean Energy and Oil Prices from March 31, 2013 to Present



Source: Bloomberg

A History: Saudi Arabia

Saudi Arabia has historically been a swing producer of oil, and in the 1980s, they used this position to maintain higher oil prices. These higher oil prices led to the development of the North Sea oil by Norway and the U.K. and a decline in the Saudis market. Chastened by their experience in the 1980s, they refused to cut supplies in order to maintain market share and make production unprofitable for many companies. Price declines accelerated in December, as hard pressed producers, including Russia, sold oil at prices as low as \$45 per barrel to secure much needed cash. The sharp price decline also resulted in the closure of Occidental's commodities trading company and the liquidation of their long-term oil positions.

Oil Production Today

Lower prices are buying to achieve the Saudis' desired effect. Stripper wells, which produce only a few barrels of oil daily, are being shut down. These will account for about 11% of U.S. oil production. Oil exploration and production companies are reducing capital expenditure budgets by 20% to 40%, with the greatest cuts coming from the tar sands and shale oil producers. Since most shale oil producers are not cash flow positive, they have to borrow money to increase production. The U.S. oil industry, as a whole, spent \$105 billion more in capital than it produced in cash flow from operations last year. The excess was financed by high yield debt, on which prices have fallen sharply.

Declining investments will further reduce production, which will be most pronounced in shale oil, where 70% of the oil is extracted in the first year. It would not be surprising to see U.S. oil production decline by 20% and global oil production fall by 5% as a result of the recent declines in the price of oil. Production cuts should restore the balance between supply and demand in the oil market and lead to more stable prices over the short term. Although oil traded in the range of \$80 to \$110 per barrel over the past few years, the changing dynamics of the oil market should result in an adjusted trading range of \$50 to \$80 per barrel.

Declining oil prices into mid-December, coupled with year-end tax loss selling and window dressing, combined to depress both conventional and clean energy stocks. Investors sold clean energy stocks in the belief that declining oil prices would affect the growth and earnings of clean energy companies as well. This belief is erroneously rooted in perception rather than fact, as oil accounts for only 1% of U.S. electricity production. Clean energy's true competitors are natural gas and coal, which are both selling below \$25 per barrel, on an energy equivalent basis. The decline in clean energy stocks has created an opportunity for investors to benefit from the rebound as demand growth and earnings continue to rise. Oil prices and global clean energy stocks are on different paths, as shown in the chart on page one.

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