

Turn on the Lights



Photo credits: NASA, NOAA

William Page, Vice President, Portfolio Manager
Global Environmental Opportunities Strategy (GEOS)
Essex Investment Management, LLC
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Sixth Revolution

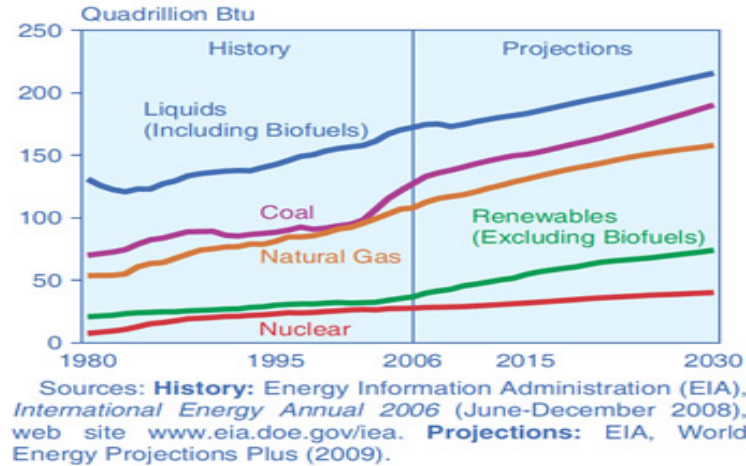
We are currently in the early stages of a great energy revolution. Energy is the fuel for economic growth, and the transition to supplementing carbon-based fuel sources such as coal and oil with cleaner energy will be a very long-term, secular growth trend. Over the past 240 years, developed economies have been driven by successive technological revolutions, from the Industrial Revolution of 1771, to the age of steam and rail transport of the 1800's, followed by the age of steel and infrastructure development. While Great Britain led the first two technological revolutions, the U.S. and Germany assisted Britain with the third, and the U.S. led the next two: the age of the automobile and petrochemicals and the age of information technology and telecommunications, both of which fostered U.S. domestic growth from 1908 through the 1990's. We believe clean technology is the sixth great revolution, and while the U.S. and other developed economies will play a part, non-OECD countries will equally participate, and quite possibly lead the transition.ⁱ

Converging Catalysts Create Opportunity

There are multiple and converging catalysts at work that are enabling this sixth revolution to power global economies more efficiently. Companies are now acting, and are not only embracing environmental sustainability, but are also leveraging energy source diversification and energy efficiency projects. Corporations are not planning for a brief period of commodity price pressure, but for a secular shift, as demand for natural resources is driven by emerging economies. We met recently with a natural gas engine technology company whose order backlog has grown five-fold as increased fleet orders are driven by companies seeking to diversify fuel sources. Costco, which began solar energy trials several years ago, is in the midst of doubling solar power retail locations. Major corporations such as Motorola, Johnson & Johnson, Intel and Starbucks are now sourcing renewable energy to levels approaching 50% according to the EPA. Whole Foods is now sourcing renewables to 100% of energy use. Bottom-line driven corporations are anticipating supply/demand imbalances for energy which will be catalyzed by the global economic recovery and long-term secular growth trends.

With coal increasingly targeted by environmental regulations given its high greenhouse gas emissions, nations are beginning to determine how to supplement traditional fossil fuels with clean energy technologies. The photo above, "the world at night", demonstrates the long-term challenges for global energy sources given secular growth trends in non-OECD countries. What happens when everyone wants to turn on the lights like that of the Eastern Seaboard of the United States? Energy independence and access are major drivers for the implementation of clean technology practices, with energy source diversification a key, long-term indicator of sustainable economic growth.

Figure 14. World Marketed Energy Use by Fuel Type, 1980-2030



As figure 14, from the Energy Information Administration (EIA) depicts above, all energy sources will be required as world economies expand and energy demand increases a forecasted 30% from today to 2030. Furthermore, EIA figure 11 below shows energy demand globally is driven by non-OECD countries, as their energy consumption passed OECD energy consumption back in 2006. While demand for energy surges, driven by economic transition, all fuel types will be in demand, from liquid fuel, to coal, natural gas, nuclear and renewable energy. The challenge exists to develop alternatives to recognized contributors to climate change such as coal, at a time when China's demand for coal surpassed the rest of the world in 2005, depicted in figure 15.ⁱⁱ China has recognized this dilemma not only as a challenge, but also as an opportunity, and has placed a significant "stake in the ground" to lead the new energy revolution. China began its clean energy focus with wind power, and in just a few years, is now the world's largest wind turbine market.

Figure 11. World Marketed Energy Consumption: OECD and Non-OECD, 1980-2030

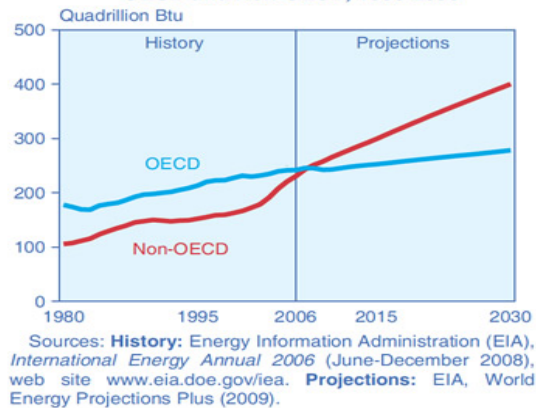
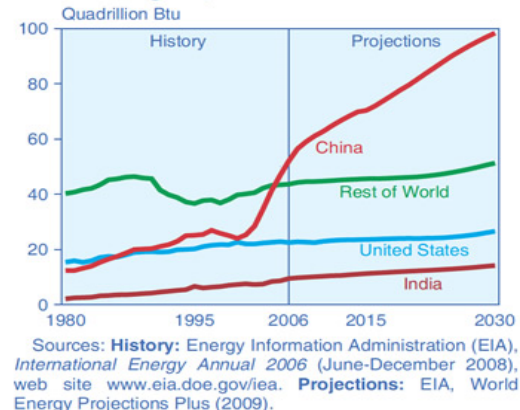


Figure 15. Coal Consumption in Selected World Regions, 1980-2030



Broad Opportunities

We believe tremendous long-term growth opportunities exist today for investors to seize this new energy transition by holding companies that effect de-carbonization and cleaner means of economic growth. These opportunities abound in the global equity markets, with companies of all sizes positioned to profit from this long-term, secular trend. Our approach to environmental investing is the recognition that companies enabling this new energy revolution will deliver greater shareholder returns over time. In managing the Global Environmental Opportunities Strategy (GEOS), we take a thematic approach to environmental investing, and have developed nine themes that we believe capture the opportunities stemming from global climate change mitigation and adaptation. There is no single solution to combat climate change while meeting global energy demands, yet cross-economy solutions from many industries will drive clean technology.

Nine GEOS Themes

The GEOS investment process leverages climate change mitigation and adaptation opportunities across nine environmental themes:

- agricultural productivity and clean fuels*: improve agricultural yields; non-carbon fuel sources
- clean technology and efficiency*: environmental conservation methods; limit waste during power generation
- efficient transport*: enable greater efficiencies for transport
- environmental finance*: carbon trading infrastructure and financing
- power merchants and generation*: power sources and services with low greenhouse gas (GHG) emissions
- power technology*: improve the efficiency of power production, distribution and storage
- renewable energy*: power generation using natural resources that are naturally replenished
- low carbon commerce*: businesses which lower GHG emissions for global commerce and consumption
- water*: water treatment, purification, desalination and distribution

William H. Page, Vice President & Portfolio Manager, Essex Investment Management, LLC

Bill is a Portfolio Manager on the Global Environmental Opportunities Strategy (GEOS). Bill directs environmental investment policy and research for Essex, and is on the Investment and Proxy Voting Committees. Prior to joining Essex in 2009, he spent eleven years at State Street Global Advisors (SSgA), most recently as Lead Portfolio Manager for GEOS and Head of the Environmental, Social and Governance(ESG) investment team. Bill developed GEOS over a four year period at SSgA, and was a member of the Global Fundamental Strategies group. He earned a Bachelors degree in Economics from Boston University and an MBA from the F.W. Olin School of Business at Babson College.

wpage@essexinvest.com; 617-342-3256

ⁱ *Growth after the Financial Crisis*. Carlota Perez, Universities of Cambridge and Sussex, UK. Presentation at the Institute for Public Policy Research, London, June 2009.

ⁱⁱ Energy Information Administration (EIA), *International Energy Annual 2006*. Projections: *World Energy Projections Plus, 2009*.

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