

The New Energy Economy

Leaders are just beginning to properly value the impact of energy on America's financial markets.

MACROECONOMIC pressures over the past three years have combined to create the perfect storm of inflation, unemployment, and severe declines in industrial productivity. The slow, evolutionary pace of change in the utilities industry cannot keep up with exponential demand increases, the need to address aging infrastructure, and commodity supply risks associated with carbon dioxide emissions. The new economy of growth, prosperity, and security requires a revolutionary departure from today's energy paradigm. What Americans need is a new energy economy.

Businesses that succeed in the future will use on-site, renewable energy solutions, maximize energy efficiency, and track emissions reductions as closely as profits. Investors will create renewable energy asset portfolios using monthly power purchase agreement (PPA) annuities for income and the energy-producing equipment as a depreciable market asset. Meanwhile, businesses and homeowners will purchase long-term, lower-cost electricity without an upfront investment. Businesses with a smart energy focus today will mitigate financial downturns, reduce expenses, and increase profitability.

Achieving success in developing a new energy economy will require three key components:

- ▷ technological advances that automate conservation and efficiency processes, and provide clean-energy alternatives at a payback the market supports;
- ▷ building and home occupants that modify their behavior to make choices that reduce energy demand; and
- ▷ regulations that reduce subsidies for fossil fuels, reward reduction

of carbon dioxide emissions, and create financial incentives.

According to the United Nations Environment Program, global sectors that will be particularly important in terms of their environmental, economic, and employment impact are renewable energy, buildings and construction, transportation, basic industries, agriculture, and forestry. For a new energy economy to succeed, focus within these industries will need to be on conservation and efficiency opportunities, renewable energy development, and an entirely new market of financial models for completing them.

Employment and Investment Opportunities

The number of job opportunities in energy efficiency are increasing exponentially. As utilities face challenges in attaining permits to build new coal power plants to meet ever-growing demand for electricity, many are turning to massive efficiency programs to stave off demand. These programs, which include both commercial and residential energy audits, provide employment opportunities to a diverse labor force.

Besides utilities, corporate offices, industrial facilities, and even the federal government are turning to efficiency and conservation as a means to save money. They also are beginning to view efficiency and conservation as a way to reduce financial risk. Energy prices continue to rise, and the rate at which they increase is largely unpredictable. Efficiency improves financial stability, and many major consulting firms are capitalizing on that correlation by offering new energy risk manage-

ment consulting services, including KPMG, North Highland, and Jones Lang LaSalle.

The United Nations Environment Program projected in a 2008 report that the global market for environmental products and services will double by 2020 from \$1.37 trillion per year today to \$2.74 trillion, half of which will be energy efficiency. In the United States and Europe alone, investments in improved building energy efficiency could generate an additional 2 million to 3.5 million green jobs, the report projected. In addition, a worldwide transition to energy-efficient buildings would create millions of jobs, it said, as well as add an environmental focus to many of the estimated 111 million jobs in the global construction sector, one of the hardest-hit industries last year in terms of employment. For example, Clark Construction and Balfour Beatty Capital Group—large U.S. builders employing thousands of workers to develop homes and other buildings—have expanded their businesses to include renewable energy development and widespread energy-efficiency savings programs.

Beyond energy efficiency and conservation opportunities, over 2 million people have found new jobs in the renewable energy sector during the past few years, and the potential for continued job growth in this sector is staggering. Employment in alternative energies may rise to 2.1 million in wind and 6.3 million in solar power by 2030, a United Nations report projects.

In the new energy economy, modern investment advisers will focus on creating a portfolio of energy assets for investors that reflects desired levels of risk and return. Owning a solar array



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Energy savings and renewable energy-generation assets will be the premier investment vehicles of the future because demand for them will increase exponentially in the next decade. Focus for developers can shift from building new homes and facilities to making existing structures more resource efficient. Energy efficiency in buildings could generate an additional 3 million green jobs for those in the development sector.

is much like owning a long-term bond: it is purchased at a given value, has the potential to earn monthly annuities via PPA arrangements, and can be “flipped” or sold to another investor as it matures. It is through this lens that one can see the incredible creative potential for financial instruments to support the adoption of efficiency and renewable energy programs.

Clean energy technologies are already the third-largest sector for venture capital in the United States after information and biotechnology. New financial models allow companies and homeowners to obtain the benefits of renewable energy without traditional upfront costs. These models, such as PPAs, carbon credits, and carbon trading, will revolutionize the financial industry by enabling capital markets to properly value clean energy alternatives.

For companies to get credit for these commitments in the marketplace and from financial markets, they must disclose information about their progress toward meeting social and environmental goals. Globally, more than 4,600 companies issued reports on sustainability issues in 2007 and 2008, including more than half the global Fortune 250, says an international survey of corporate responsibility created by KPMG.

True Cost Considerations

The U.S. electric power system is designed and operated to meet a “three nines” reliability standard, meaning that the electric grid power is 99.97 percent reliable. While this sounds good in theory, in practice it translates to interruptions in the electricity supply that cost American consumers an estimated \$150



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billion a year, says an article by Galvin Power, an organization that provides resources on the impact of electric outages. In other words, for every dollar spent on electricity by individual consumers and industries, customers are spending at least 50 cents on other goods and services, such as alternative products and additional insurance to cover the costs of power failures, says Galvin Power. These costs result from losses in affected industries being passed on to consumers.

In an increasingly digital world, even the slightest disturbances in power quality and reliability cause loss of information, processes, and productivity. Interruptions and disturbances measuring less than one cycle—less than 1/60th of a second—are enough to crash servers, computers, intensive-care and life-support machines, automated equipment, and other microprocessor-based devices. Given the continual increase in demand and unreliability of supply, smart businesses will not bear the risk of losing power. They will seek local, controllable sources of energy and will insure themselves against electricity supply interruptions.

Seventy industrial case studies compiled by the energy analysis

department of Lawrence Berkeley National Laboratory show energy-efficient technologies present an opportunity for larger productivity gains. Including productivity benefits explicitly in economic modeling would double the possible cost savings from improving energy efficiency, the energy analysis department says.

Energy costs will drive two megatrends in the drive to maintain productivity: decentralization and carbon valuation. The new energy economy will demand distributive solutions—getting energy where it is needed when it is needed, and at a predictable price. Distributive energy solutions will improve reliability and lower long-term costs, increasing and maintaining higher productivity in the new energy economy.

Financial markets assign a monetary value to carbon dioxide emissions or reduction of those emissions. Cap-and-trade legislation, the Dow Jones Sustainability Index, the United Nations’ General Reporting Index, and the Carbon Disclosure Project report—produced by a not-for-profit organization holding the world’s largest database of corporate climate change information—are a few of the relevant approaches that will

increase the risk of using traditional fossil fuels by exposing consumption.

In October 2007, the Kansas Department of Health and Environment became the first government agency in the country to cite carbon dioxide emissions as the reason for rejecting an air permit for a proposed coal-fired electricity generation plant, saying that the byproduct greenhouse gas emissions would threaten public health and the environment. That decision may be the first of a series of similar state actions inspired by a U.S. Supreme Court decision asserting that greenhouse gases such as carbon dioxide should be considered pollutants under the Clean Air Act.

The new energy economy will allow markets to freely consider the true costs of each energy source—meaning the actual cost, rather than the cost excluding support by government subsidies. Smart businesses will begin creating baselines for energy consumption to show reductions in coming years.

National Security

While not a standard financial indicator on Wall Street, national security has an obvious impact on the U.S. domestic economy, and energy security is one of the U.S.

Defense Department's top concerns. Energy supply availability and reliability, climate/health risks, commodity rates, and true costs are all important factors affecting America's national security. The U.S. Army is preparing a new energy security policy that will incorporate efficiency, conservation, and renewable energy requirements. An energy advisory board at the Army's executive level, which will oversee the policy, will focus on leveraging private-partner expertise and funds to create local energy solutions.

The private sector can be expected to follow the military's lead by turning to local energy solutions. Security, rate risk, and commodity availability will become more important to everyday businesses as the U.S. electricity distribution grid continues to age.

Businesses and consumers should view energy as a critical part of financial decision making. As they prepare for the new energy economy, they should do the following things:

- ▷ seek diversification strategies that capitalize on the growth of conservation, recycling, energy efficiency, and development of renewable energy resources;
- ▷ build homes and facilities that will hold their appraisal value by making them as energy efficient as possible and using renewable energy generated on site or locally whenever possible;
- ▷ consider new renewable energy leasing models or investment in clean energy assets; and
- ▷ treat energy reliability issues as if they present the same level of risk as loss of computer data, and include contingency planning.

The new energy economy will provide employment, boost housing starts, improve job productivity, and heighten national security by decentralizing power production. **UL**