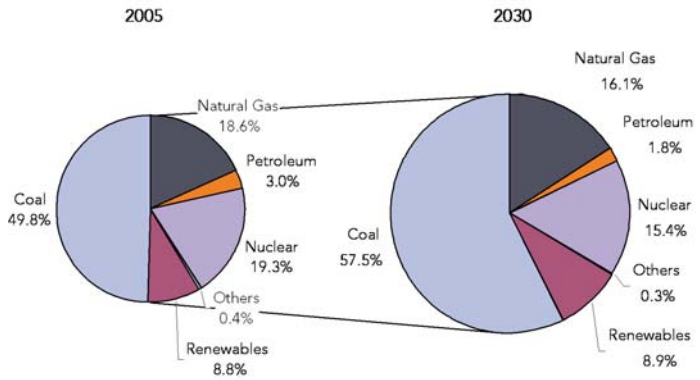
# Green Energy in the US

Renewable investment, capacity growth and future outlook

**New Energy Report - Published June 2007**

**Net Generation by Energy Source, 2005/2030**




**Source: Green Energy in the US**

"Though generation from nuclear power is expected to increase with improvements in plant performance and expansion of existing facilities, the share of nuclear power in total US electricity generation is projected to decrease from 19.3% in 2005 to 15.4% in 2030. This is because four units, totalling 2.6 GW, are projected to be retired by 2030. Renewables contributed approximately 9.0% to the total electricity generation in the US in 2005 and it is projected that the share of renewables will remain roughly constant at about 9.0% in 2030 because of poor economics and technology performance of renewable technologies..."

**Identify the key trends expected to drive the renewables industry in the future with this new management report's analysis and forecasts...**

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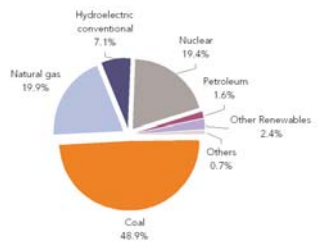
## Some key findings from this report...

**Net generation shares by energy source, 2006**




Source: Green Energy in the US

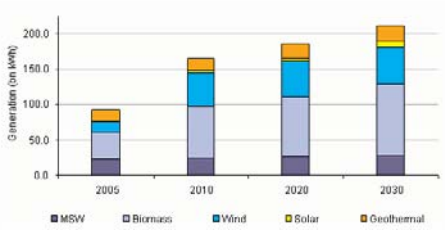
"In 2006, the total generation of electricity in the US was around 4.1 trillion kWh. Generation of electricity in the US is dominated by coal...Renewables other than hydroelectric plants (primarily biomass, but also geothermal, solar, and wind) generated 2.4% of total electric power while other miscellaneous energy sources generated the remaining electric power in the US..."

- **Electricity generation in the US is dominated by coal.** During 2006, 48.9% of the total US electric power was generated at coal-fired plants.
- **Renewable sources contributed approximately 9.5% to US total electric generation in 2006,** generating 385.0bn kWh of electricity.
- **Wind was the fastest growing source of power generation** in the US during 2006.
- **US electricity consumption is projected to increase by only 1.5% per year between 2005 and 2030 according to EIA.** It forecasts that coal will continue to dominate power generation with a share of 57.0% in 2030 and that renewables will contribute only 9.0% in that year.
- **The outlook for renewables in the US is dependent on the course of future federal and state legislations.** Legislation that introduces an effective cap and trade system, by placing a price on carbon emission, could enhance the growth of renewable energy by making it more competitive with conventional sources.

# Green Energy in the US

Renewable investment, capacity growth and future outlook

**Non-hydroelectric renewable electricity generation by energy source, 2004-2030**




**Source: Green Energy in the US**

"According to DOE Biopower Program estimates, approximately 45,000 MW of new biomass capacity could be brought online by 2020, employing 190,000 people mainly in rural areas. This capacity comprises of co-firing 26,000 MW, industrial pulp and paper 7,000 MW, biomass gasification 6,000 MW, and modular systems 6,000 MW..."

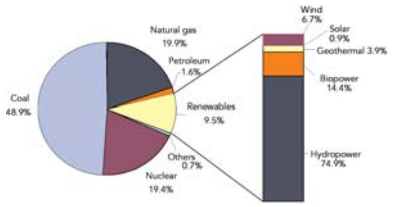
The future of power generation in the US is at an interesting cross-road. On the one hand, cheap generation technologies such as coal and natural gas fired plants are well positioned to dominate future power generation if the current legislative and regulatory environments persists. On the other hand, the increasing public and political concern about climate change has made it likely that legislative changes that usher in some form of price on carbon emission is imminent. In addition, the US is taking the lead in establishing RPS measures to encourage wider use of greener power.

**Green Energy in the US: Renewable investment, capacity growth and future outlook** is a new report published by Business Insights that assesses the outlook for renewable energy in the US and analyzes each of the key renewable technologies. This new report examines the current market, assesses the key drivers and resistors and forecasts future potential growth areas.

**Assess the future prospects and investment potential for renewable technologies in the US with this new report.**

## This new report will enable you to...

**Net generation by energy source, 2006**




**Source: Green Energy in the US**

" In 2006, renewable sources contributed approximately 9.5% to the total electric generation in the US generating 385.0bn kWh of electricity. Hydropower is the largest source of renewable energy in the US, contributing around 7.1% to the US electric generation and accounts for nearly 75.0% of the renewable energy in the US..."

- **Benchmark the growth potential for each of the leading renewable energy technologies in the US** using this report's independent comparative assessment of the six leading technologies.
- **Understand the drivers and resistors of the key renewable technologies in the US** with the help of this report's overview of the factors affecting technologies' growth.
- **Assess the competitive landscape for renewable technologies in the US** with this report's detailed analysis of the market structure including capacity and generation, global comparison, economic conditions and key players.
- **Identify the leading players in US renewable energy technologies** using the analysis of the key competitors contained in this report.

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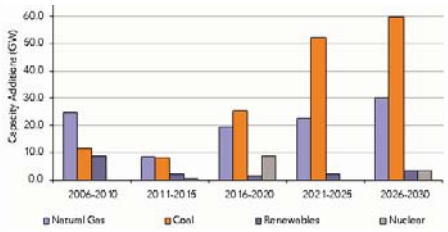
## Key issues examined in this report...

**Electricity generation capacity additions by fuel type, 2006-2030**



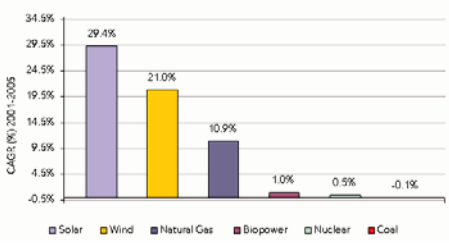

Source: Green Energy in the US

"With natural gas prices rising, coal-fired plants make up most of the capacity additions through 2030, given the assumption that current environmental policies are maintained indefinitely..."

- **Climate change.** There is a growing concern about the climate change issue in the US. Public opinion is expected to spur legislative change at both state and federal levels to encourage further use of renewable sources to generate power.
- **Cap and trade mechanism.** Legislation which ushers in an effective cap and trade system, by placing a price on carbon emission, could enhance the growth of renewable energy by making it more competitive with conventional sources such as coal and gas.
- **Increasing corporate activism/Corporate Social Responsibility.** Demand for renewable energy among large firms is growing rapidly. For example, Wal-Mart is intending to introduce a program to power its stores with solar power generated on-site.
- **Federal and state legislation.** The outlook for renewables in the US is dependent on the course of future federal and state legislations on climate change and to promote renewables.

## Your questions answered...

**CAGR (2001-2005) of various energy sources in the US**




Source: Green Energy in the US

"In terms of installed capacity, solar energy was the fastest growing source of renewable energy during 2001-2005 with a CAGR of around 29.4%. Wind was the second fastest growing source of renewable energy with a CAGR of 21.0%..."

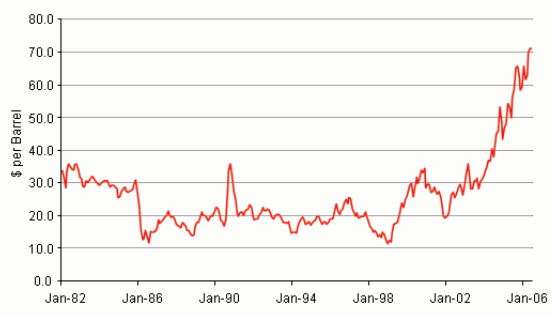
- What are the top technologies in the renewable energy sector in the US?
- What are the emerging trends in the renewable energy industry in the US?
- What are the drivers and resistors of the renewable energy technologies in the US?
- What is the contribution of the different renewable energy technologies to the total electricity market in the US?
- What is the relative market positioning of different renewable technologies in the US in the global renewable energy industry?
- What are the economics of different renewable technologies in comparison with the conventional sources?
- Who are the key players in different renewable energy technologies?

## Sample Information: 'Green Energy in the US'

# Chapter : Market development

### Overview of renewable energy in the US

**Figure 1.4: Crude oil spot prices, 1982-2006**




Source: Green Energy in the US

**Background**

For several decades, the federal government has intermittently attempted to encourage alternate energy through subsidies. However, none of these measures have yielded the desired result of alternate energy forms that are economically competitive. Over the last 35 years, the federal government's interest in promoting renewable energy has often peaked with high oil prices and waned as oil prices fell. Federal research spending on renewable energy peaked in the mid 1970s. However, declining oil prices invariably led to increased oil imports and reduced budgets to promote renewable energy. Since 1980, energy related R&D as a percentage of total US R&D has fallen from 10.0% to 2.0%. The sharp increase in oil and gas prices in 2005 and 2006 has ignited fresh interest in alternative energy.

**Installed capacity and growth of renewables**

Although there has been significant media coverage about the rapid growth of renewable energy, their share in total electric generation continues to be low and dominated by hydroelectricity and biomass based biopower. In 2006, renewable sources contributed approximately 9.5% to the total electric generation in the US generating 385.0bn kWh of electricity. Hydropower is the largest source of renewable energy in the US, contributing around 7.1% to the US electric generation and accounts for nearly 75.0% of the renewable energy in the US. Biopower (biomass energy used to generate electricity) is the largest non-hydro renewable source contributing approximately 1.4% to the US electricity generation and represents 14.4% of the renewable energy in the US. Though wind and solar contribute a very small percentage of the US total electricity generation, they are the fastest growing forms of renewable energy in the US. Many wind farms are already economically competitive with gas and coal-fired plants. GE Wind has predicted that wind turbine sales could surpass gas turbine sales within the next few years.

In terms of installed capacity, solar energy was the fastest growing source of renewable energy during 2006 and grew by 29.8% over 2005. The CAGR (2001-2005) of solar energy was around 29.4%. Wind was the second fastest growing source of renewable energy during 2006 in terms of installed capacity. It grew by 26.8% over 2005. In terms of electricity generation, however, wind ranked first with its generation growing nearly 45.0% over 2005. The CAGR (2001-2005) for wind was 21.0%.

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