

## **USD 46 Billion Renewable Energy Market by 2008**

Electrical power is an essential element in all productive processes of agricultural enterprises; but its irreplaceable importance is in many countries very often underrated.

However, after past serious blackouts in USA, Canada, England, Denmark, Sweden and Italy also governments of high developed countries realized that lack of electrical power may:-

- Cripple Country's Economics;
- Cause Chaos in the Cities;
- Have a Significant Impact on Production Costs, and
- Pose Important Technical Problems to Key Consumers.

A study measuring the economic impact of the North American power blackout in August 2003 has concluded that the blackout will have far-reaching, long term economic implications in the affected region.

Among others, one key finding of the study was that more than 38% of the business surveyed said that they would be likely to invest in the alternate power generation systems.

The main questions related to electrical power supply and to the choice of appropriate power generating technology are usually concentrated to the following main criteria:-

- Grid Availability;
- Fuel Availability;
- Consumers Structure;
- Production Reliability and Costs.

Most of the time the major power consumer centres, like townships and large industrial enterprises have good access to reliable and safe electrical power.

The complete absence of electrical power supply means that self-sufficient solutions should be considered and the use of traditional fuel sources (coal, natural gas or oil) versus renewable resources (solar, wind, geothermal, hydro, ocean or biomass) for power generation has to be evaluated.

The renewable energy market worldwide will nearly double in size from its 2005 levels by 2008 according to Renewable Energy World Markets, a newly released report from the Mcllvaine Company.

A market of USD 27 billion in 2005 is forecast to reach USD 46 billion by 2008. The leading segment will continue to be wind energy followed by solar and in third place biomass.

Many advantages are claimed for renewable energy. Fuel costs are low or nonexistent.

Once a plant is built costs are unchanging and predictable. There is no contribution to CO<sub>2</sub> emissions.

There is no water required for wind or photovoltaic (PV) solar power. In some cases power is generated onsite with no concerns about transmission. In developing

countries renewable energy can meet the needs of the people without the installation of an extensive transmission system.

The Kyoto Treaty is forcing many countries to turn to renewable sources of energy.

Although not a signatory to the treaty, local initiatives are driving the market in the United States. Individual states have mandates to generate a certain percentage of their energy from renewable sources.

Some states have banded together in regional groups. In other cases, cities have made a commitment to renewables and some companies have also jumped on the green bandwagon.

Germany has the largest installed wind capacity, followed by the United States. In the U.S. California has over 2000 MW of wind power and Texas has over 1000 MW. Spain is in third place followed by Denmark.

Solar energy use has been growing at the rate of 30% per year. Germany and Japan are the world's largest markets for grid-connected systems. Each had government subsidized programs for the installation of solar panels on roofs. California is the leading state in the United States.

Japanese manufacturers contributed 48% of the world's PV production with the USA contributing 11%.

Several technologies exist for large-scale combustion of biomass. Electricity generation based on biomass combustion employing boiler steam turbine systems is well established.

Biomass integrated gasification combined cycle units are in an early stage of commercialization. They are expected to operate with efficiencies exceeding 40%.

Biomass may be co-fired with coal. Between 5% and 15% or more biomass may be used. There is also the possibility of reducing NO<sub>x</sub> emissions by co-firing with biomass or by using biomass as a reburn fuel.

The rising cost of competing energy sources has made the cost of renewable energy much more competitive. Improvements in technology have brought down the cost of renewable energy while the cost of oil and natural gas are rapidly increasing.

Wind turbines have grown larger and more efficient. Solar cells have increased in efficiency. Improvements have been made in biomass burning technologies.

More information on renewable energy can be found on the website [www.imteag.com](http://www.imteag.com) Clean Energy.