

# Global Renewables Report Ed 1 2011

## Market Intelligence

Despite a depression in spending at the tail end of the economic downturn, investment in renewable energy capacity has continued. Solar PV and wind still attract the most interest and funding. However, other renewable sources are gaining more interest.

### Wind

Wind power is moving slowly from onshore to offshore and from small to larger scale. However, there are no bottlenecks for the onshore supply chain but the same can't be said for offshore projects. A shortage of vessels and subsea cabling are significant barriers to offshore development. Furthermore the size of turbines will be restricted by logistic bottlenecks and the cost of specialised materials needed for very large turbines.

Gearless turbines are becoming more attractive. Chinese manufacturers, which have increased their market share, have an advantage in this market as China is the main producer of the rare earth metal needed for these types of turbine.

### Solar PV

Downstream acquisitions have dominated the solar PV sector with PV manufacturers acquiring project developers and project pipelines. Manufacturers are slowly moving their operations overseas to cheaper markets, but often keep an assembly facility in major markets because of their low labour costs. Big oil incumbents seem to be giving up on solar and wind developers and Korean manufacturing giants are entering the space.

Chinese manufacturers, which produce cells at low cost, and crystalline silicon manufacturers, are gaining market share. Inverter not silicon supply was the main bottleneck in the supply chain.

### Solar thermal

Solar thermal plants are getting bigger and utilities are starting to take an interest. Once the domain of parabolic trough technology, solar towers are starting to make inroads into the sector, with the US investing heavily into R&D on towers. Big players are starting to enter the CSP sector. Perhaps this is partially due to increased interest in the Desertec plan to connect the grid systems of North Africa and Southern Europe, and invest in renewable energy projects in the region.

By contrast solar heating and cooling was hit by the downturn in the construction sector.

### Biomass

The biomass market suffered during the economic downturn in the face of low coal prices, logistic barriers and supply issues. 2010 saw more movement in the sector as coal prices are beginning to rise once again making co-firing coal plants with biomass more attractive. Furthermore, the biomass component of a coal-fired plant may be eligible for feed-in tariff or count towards renewable portfolio standards.

China and India are growth countries for waste-to-energy plants.

### Hydro

Hydro, the largest source of electricity, is experiencing a mini resurgence, especially of technologies with a lower environmental impact such as run-of-river, small hydro and low head turbines are proving to be extremely popular to both appease critics of hydro and meet energy needs.

There has been an increase in pumped storage projects as a standalone option and retrofitted on to existing hydro power assets. As pumped storage is the most mature technology to store electricity

generated from intermittent renewables such as wind and solar and then release it to meet peak demand.

#### Ocean technologies

Wave and marine current technologies are getting closer to commercial deployment, and are attracting the most interest and investment. Ocean devices have reached the prototype stage and have been tested out at sea. Considerably more funding has been available for projects to take this leap. Portugal and the UK remain as the main countries for wave energy projects due to generous grants and subsidies, targets and in the case of Portugal, a feed-in tariff

#### Geothermal

Geothermal is slowly experiencing resurgence due to government subsidies and incentives. Hot spots for growth may be in East Africa and South America, along with countries with existing capacity.

On a smaller scale, the ground source heat pump market has grown in recent years and geothermal cooling to become a growing direct use market.

#### Biofuels

Low oil prices have made biofuels unattractive. But concern over the environmental impact of growing the feedstock for biofuels and the 'food versus fuel debate' has gone off the radar for the time being.

The dynamics of the biofuels market is changing. New EU sustainability criteria for biofuels are set to limit imports of biodiesel derived from palm oil imported from Indonesia and Malaysia. Anti-dumping legislation and international trade loopholes are changing both the destination of biofuel exports and the trade routes.

## Highlights

This NRG EXPERT report is a full overview of all of the renewable energies, their sources and technologies. The report analyses their current stages of development, the advantages and disadvantages and their current and potential contribution.

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