

Energy Blowing in the Wind

Wind power has long been a source of renewable energy, as evidenced by the many windmills of centuries past. The flow of air is used to run wind turbines, some of which can produce up to 5 megawatts of power. The most common wind turbines for renewable energy used commercially produce between 1.5 and 3 megawatts. The renewable energy that a wind turbine gives off is derived by the cube of the speed of the wind. As the speed of the wind increases the power that the turbine puts out increases almost exponentially. In places where wind is strong and nearly continual such as at high altitudes and offshore are the best places to locate wind farms.

Wind is the fastest growing source of power through any of the renewable energy resources and technologies. In the past ten years, the maximum capacity of wind power installed the world over went from a 1992 high of 2500 megawatts to a high of 40,000 in 2003 and continued to grow each year after that by another 30 percent. This shows no signs of abating. Due to wind being an intermittent energy resource most wind turbines in the European Union only produce an average of one fourth of the power they are actually capable of. Under favourable wind conditions, however, some reach 35 percent or more. In winter the EU realizes a higher load factor. What this means is that wind as a renewable energy in Europe typically has a capacity for 5 megawatts maximum per turbine but regularly produces 1.7 megawatts.

The long term potential for wind as a reliable renewable energy resource throughout the global is probably about five times what it currently produces and forty times what is currently demanded of it. Large pieces of land that are not now being used for wind turbines could easily do so, especially in high wind areas. The offshore areas, where wind is nearly twice as fast and dependable as that of inshore land masses could be increased substantially as renewable wind energy sources.

The strength of the wind near the surface of the earth varies considerably and scientists cannot assure that the earth would have continuous renewable wind energy there unless it was combined with other sources of energy or stored in some way. Some suggest that 1000 megawatts of the capacity for conventional wind gathering could be counted on to produce 333 megawatts of power that is continuous. This could change as our technology evolves, but most experts suggest using wind in the context of a renewable energy system that has an expansive capacity for reserving the energy. Examples of these would be hydro power, desalination plants, reserve loads and the mitigation of the economic impact of variability of resources.

Not only is wind power a renewable energy, but like other renewable energies it gives off no harmful greenhouse gases while being operated – no methane, no carbon dioxide. The one negative of wind power is that bats and birds get caught up in the turbines and get killed. Wind turbines should, therefore, be built where this impact would be least felt.

About the Author

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