APPLICATION NOTES FOR SATEL RADIO MODEMS

Wireless Data Networks for Wind Farms

Stark against the horizon like giant palms reaching for the sky, their beauty and contribution to the environment are a matter of some discussion. But love them or hate them, wind driven generators are here to stay and are almost certainly going to become even more pervasive.

In fact a great deal of investment in wind farms for the production of electrical power is going-on in several European countries as well as in the USA. And every wind farm represents a classic market opportunity for an integrated data network, turn-key project.

By definition these farms are located in scarcely populated windy areas such as hills, narrow valleys or cliffs open to the sea; all places where there is little, if any, coverage from the public communication networks.

On the other hand, the nature of the energy produced requires that it can not be stored but must be used immediately at the very same moment it is generated. Consequently wind farms are almost always connected to the national grid; normally via a substation. Here the outputs of all the turbines are combined and the voltage is transformed up, the power is metered for accounting purposes and transferred to the grid. Often there are several vendors

(producers of power from the wind), each with its own substation next to that of the grid. These substations are usually located in the middle of nowhere and, for environmentally aesthetic reasons, are in hidden areas.

As with any advanced technology, each and every turbine needs to be carefully controlled and monitored.

Furthermore there are maintenance teams who have to communicate with each other whilst in the field: typically between the ground and the top of towers and vice versa, from each tower to the control room, etc.

In some instances it is also necessary to transmit video signals.

In situations where the area of operation is relatively small and the number of towers is limited, a dedicated network with high speed narrow band radiomodems such as SATELLINE-3AS is more than adequate.; however where the installation is spread over areas covering many hundreds of kilometers then the delay time introduced by the repetition of the UHF signals is no longer acceptable and more sophisticated networks are required; e.g. a long distance microwave network transmitting in real time with an adequate number of broadcasting points from which utilities up to 20 to 30 km are served.

Sartelco Sistemi S.r.l. has the capability and the experience to evaluate customer's requirements, design the network and implement it on a turn key basis as required.

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