Submarine electric cables scrutinized

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The lead federal agency reviewing the proposed Nantucket Sound wind farm has begun a $250,000 study on the effects of submarine electric cables on marine wildlife.

The plan by Cape Wind Associates LLC to build 130 wind turbines in the Sound calls for two 115-kilovolt cables that would make landfall in West Yarmouth.

Undersea electric cables, buried beneath the ocean floor, emit an electromagnetic field. The field is a combination of an electrical field created by the electrical charge of a cable and a magnetic field created by the flow of electric current.

U.S. Minerals Management Service — a division of the Interior Department — issued a final environmental report in January that, among other findings, indicated that the effects of electromagnetic fields from the two cables would be negligible. The agency has yet to release a formal decision on whether it will approve a lease for the project, a move that Interior Secretary Ken Salazar recently said could be made in the next several months.

It was not clear yesterday whether the new study would delay a final decision by the federal government on whether to issue a lease to Cape Wind, and MMS spokesmen did not respond to requests for more information.

The MMS study, which will be performed by New Hampshire-based Normandeau Associates, Inc., will examine ways to mitigate the effects of the phenomena. Peter Kinner, a senior vice president with the company, said yesterday that the study was scheduled to be complete in 18 months.

Work done in Europe

No similar studies have been performed in the United States, he said, but staff with the environmental consulting firm have experience with similar work in Europe. "They're a bit ahead of us here in the U.S. — obviously because they have wind farms," Kinner said.

A pair of 46-kilovolt cables connect Nantucket to the Cape. And there are four 25-kilovolt cables that run from Oak Bluffs and Tisbury on Martha's Vineyard to Surf Drive in Falmouth, according to NStar spokesman Michael Durand.

Neither Durand nor a spokesman for National Grid, which installed the Nantucket cables, could say yesterday what studies had been done on the effects of electromagnetic fields from the submarine transmission lines.

The Vineyard cables are capable of providing a combined 64 megawatts of electricity to the island, said David McGlinchey, executive director of the nonprofit Vineyard Electric Project.

Cape Wind's cables would use alternate current or AC. Research, according to the final report on the project from MMS, shows that marine species such as sharks have shown high sensitivity to weak electric fields but that sensitivity is limited to direct current, or DC, electricity.

The wind farm cables would be buried 6 feet below the seabed and encased in thick armor, Cape Wind spokesman Mark Rodgers said.

Three copper wire bundles at the center of the cable will be surrounded by 11 layers of metal and plastic insulation, he said. "Both of these measures will minimize the release of (electromagnetic fields) in the aquatic environment."

danish survey

A 2006 report on wind farms published by the Danish government found few effects from electromagnetic fields on fisheries at the 72-turbine Nysted Wind Farm in the Baltic Sea.

"As electromagnetic fields are sensed by some fish species, the power cables may influence the behaviour and migration of the fish fauna in areas traversed by the cables," the report's authors wrote. "In the extreme case the cable could act as a barrier to the migration of fish, especially for species that use the Earth's magnetic field for navigation and orientation."

Depending on the species, fish may be either attracted or repulsed by submarine electric cables, according to the report. The migration of sand eels, for example, was not adversely affected by the cables' presence. Migration patterns of Baltic herring, the common eel, Atlantic cod and flounder, however, may have been "impaired" by the electric cables.

The report concluded that, while the effects of the electromagnetic fields appeared weak, more detailed studies are necessary.