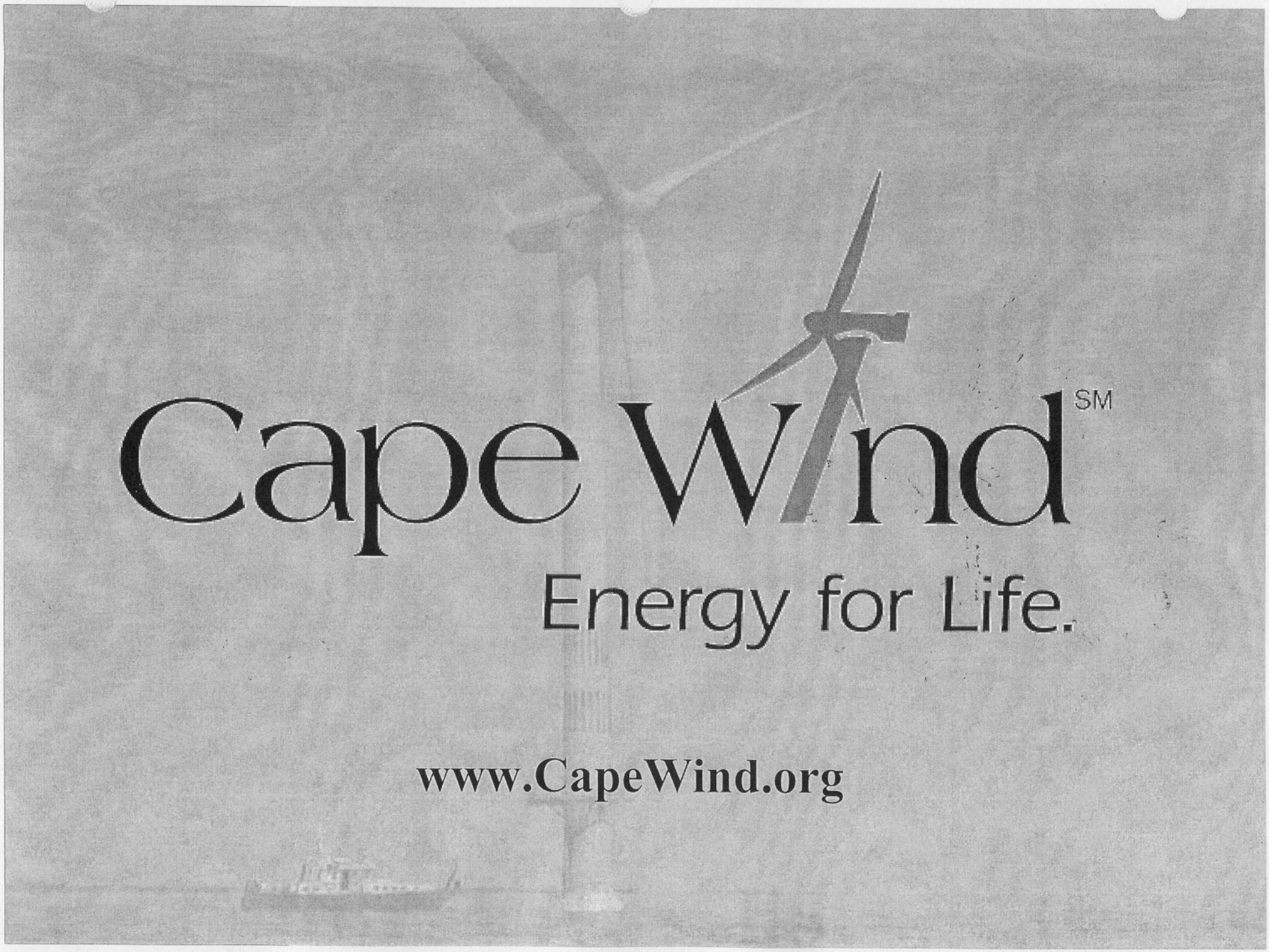
Cape Wind℠
Energy for Life.
www.CapeWind.org

Cape Wind℠
Energy for Life.

Why Cape Wind?

- Global Warming and Climate Change
- Air and Water Pollution
- High Energy Prices
- Over Reliance on Imported Energy

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Alternatives Analysis

- Wind park location
  - Offshore versus onshore
  - Geographic siting analysis
  - Nantucket Sound alternative sites
- Landfall / Interconnect

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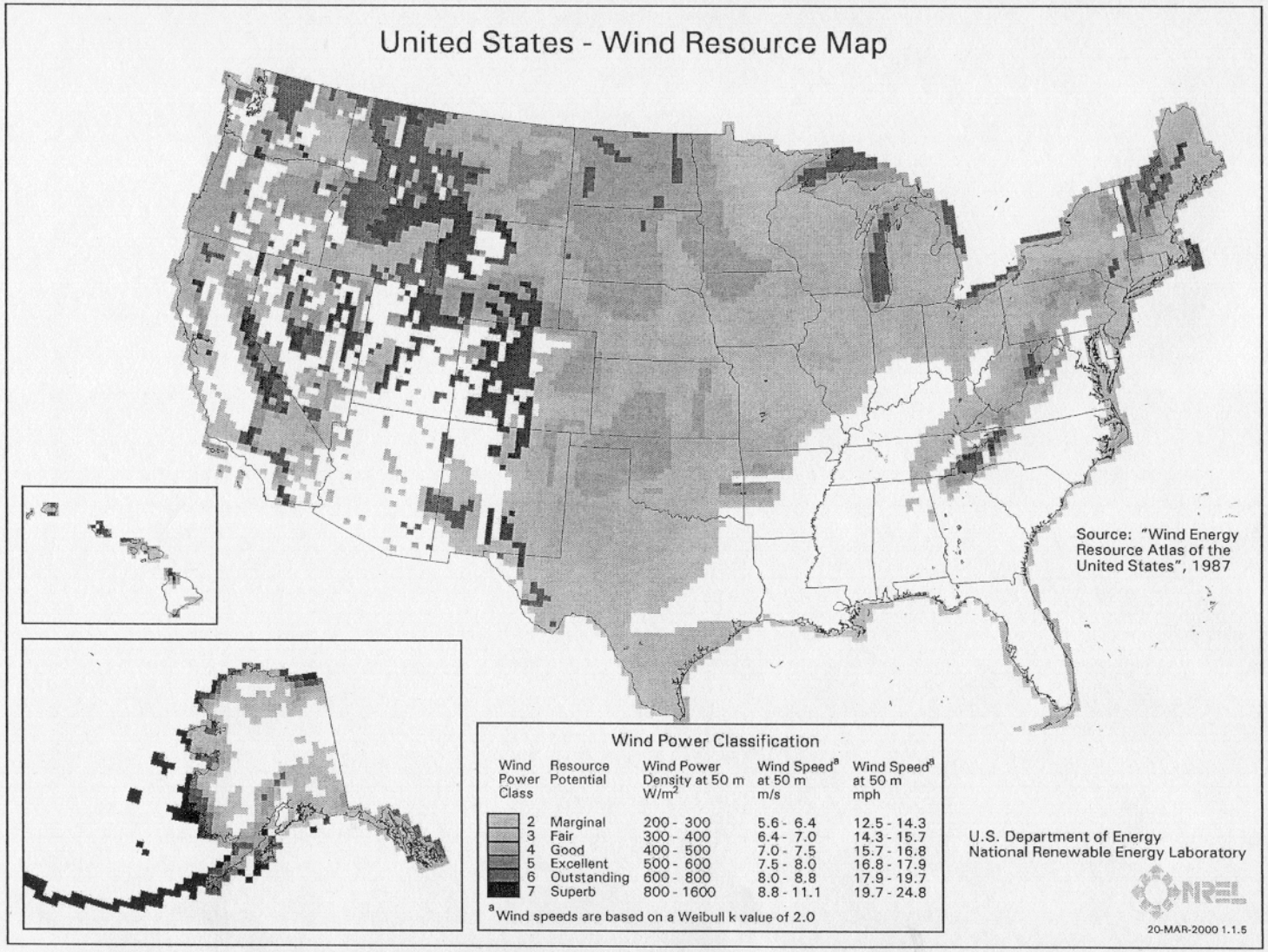

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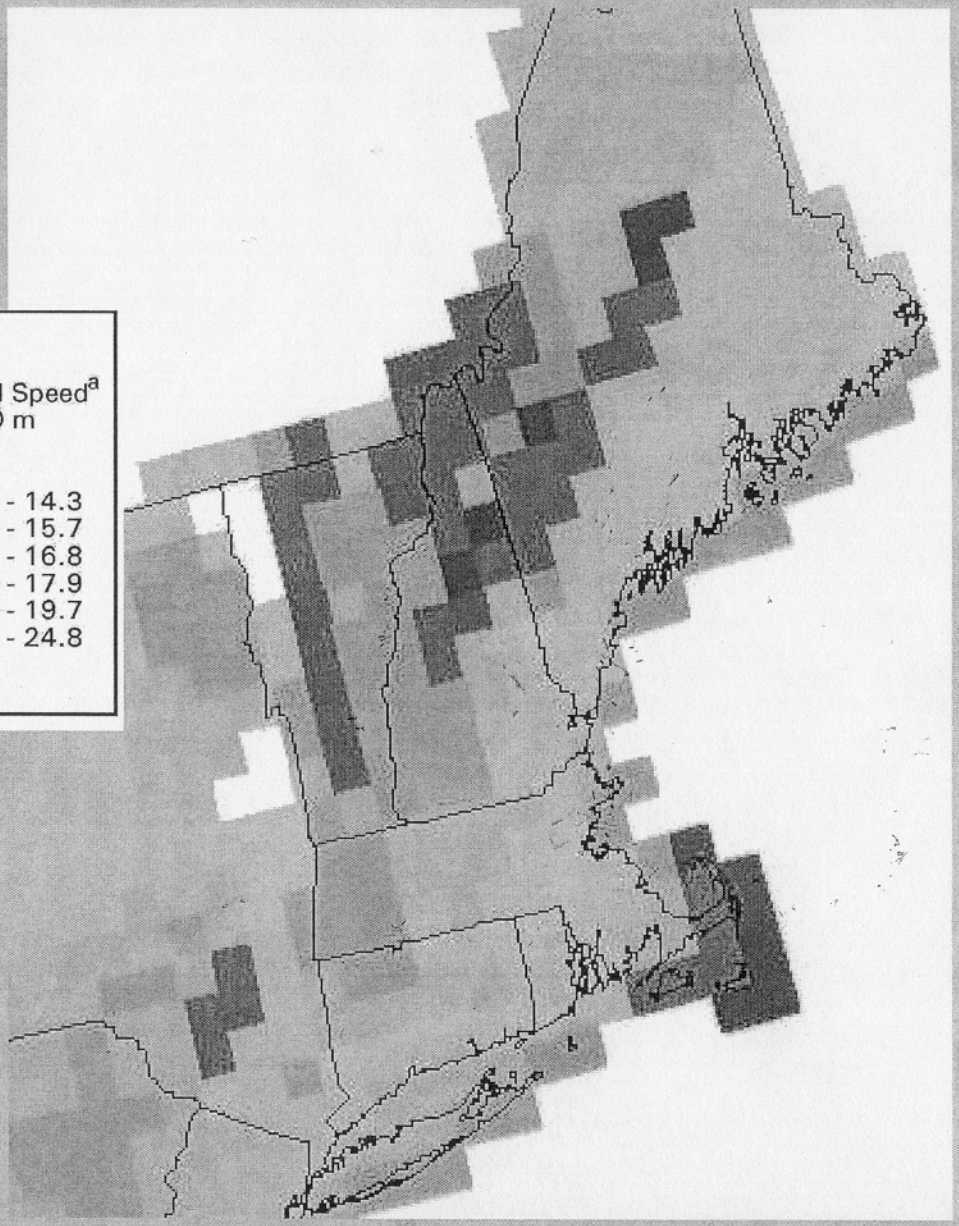
Wind Power Classification

Wind Power Class	Resource Potential	Wind Power Density at 50 m W/m^2	Wind Speed[a] at 50 m m/s	Wind Speed[a] at 50 m mph
2	Marginal	200 - 300	5.6 - 6.4	12.5 - 14.3
3	Fair	300 - 400	6.4 - 7.0	14.3 - 15.7
4	Good	400 - 500	7.0 - 7.5	15.7 - 16.8
5	Excellent	500 - 600	7.5 - 8.0	16.8 - 17.9
6	Outstanding	600 - 800	8.0 - 8.8	17.9 - 19.7
7	Superb	800 - 1600	8.8 - 11.1	19.7 - 24.8

[a] Wind speeds are based on a Weibull k value of 2.0



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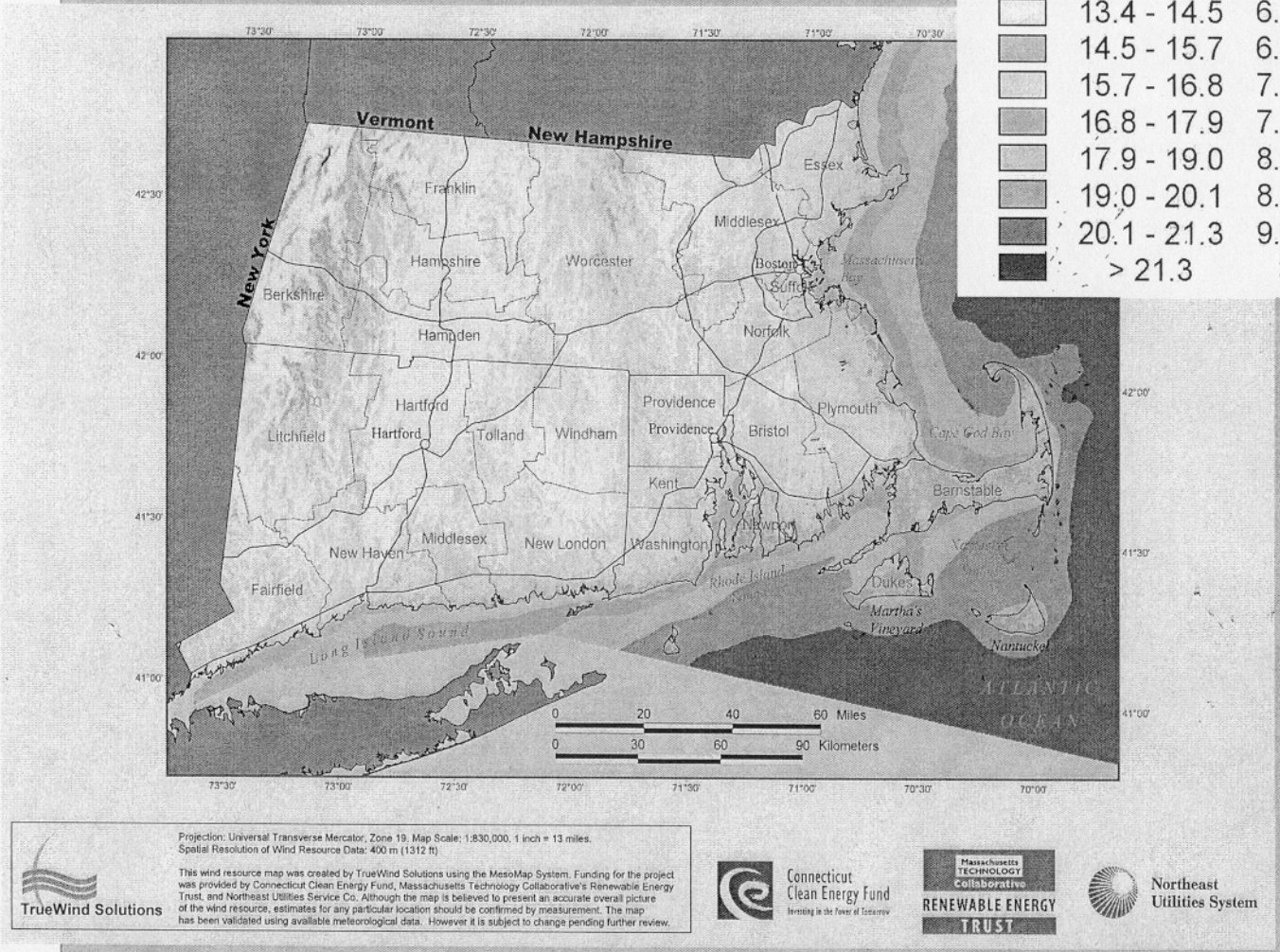
Wind Energy Map of Southern New England



Projection: Universal Transverse Mercator, Zone 19. Map Scale: 1:830,000, 1 inch = 13 miles.
Spatial Resolution of Wind Resource Data: 400 m (1312 ft)

This wind resource map was created by TrueWind Solutions using the MesoMap System. Funding for the project was provided by Connecticut Clean Energy Fund, Massachusetts Technology Collaborative's Renewable Energy Trust, and Northeast Utilities Service Co. Although the map is believed to present an accurate overall picture of the wind resource, estimates for any particular location should be confirmed by measurement. The map has been validated using available meteorological data. However it is subject to change pending further review.

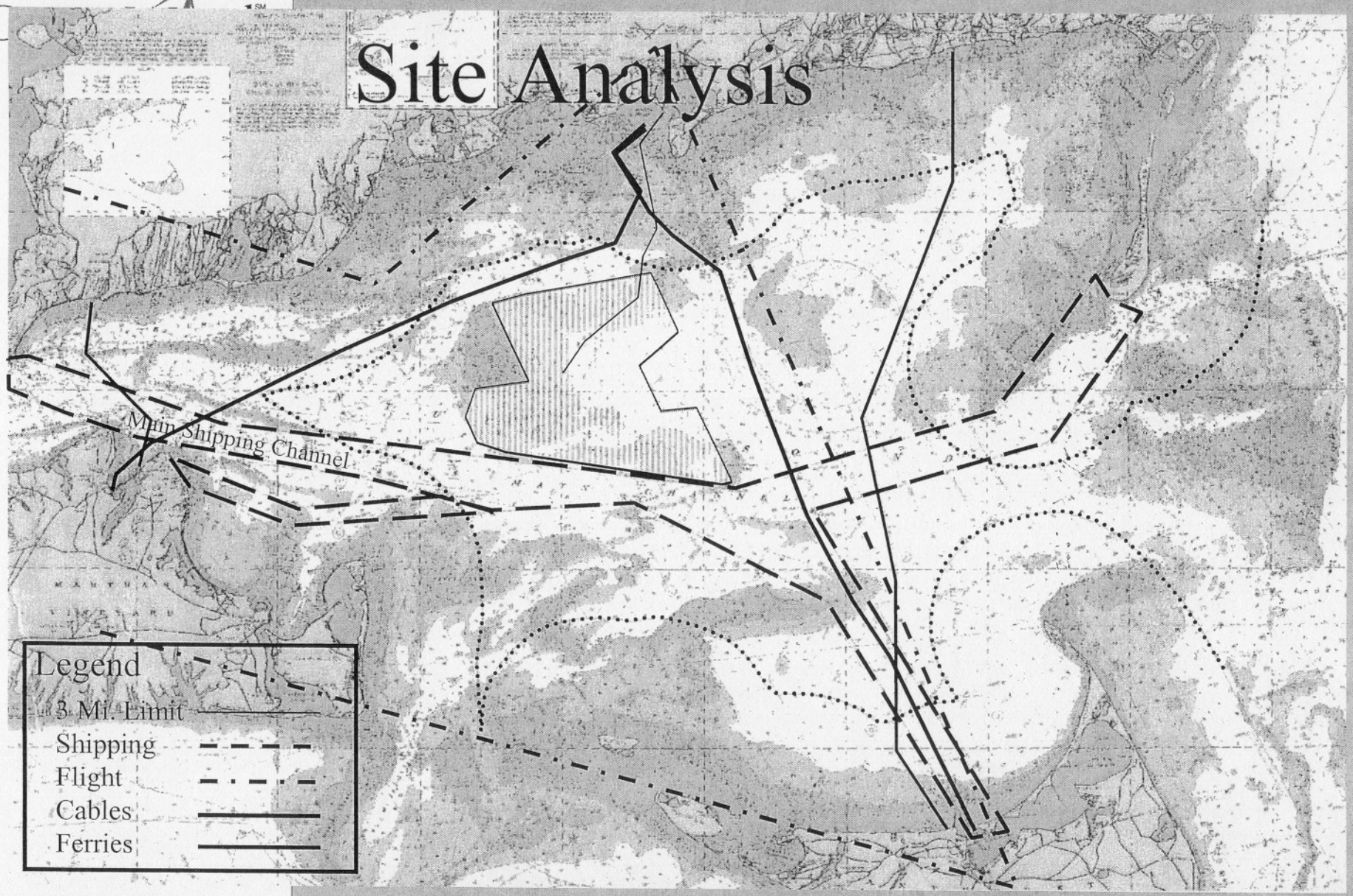
TrueWind Solutions

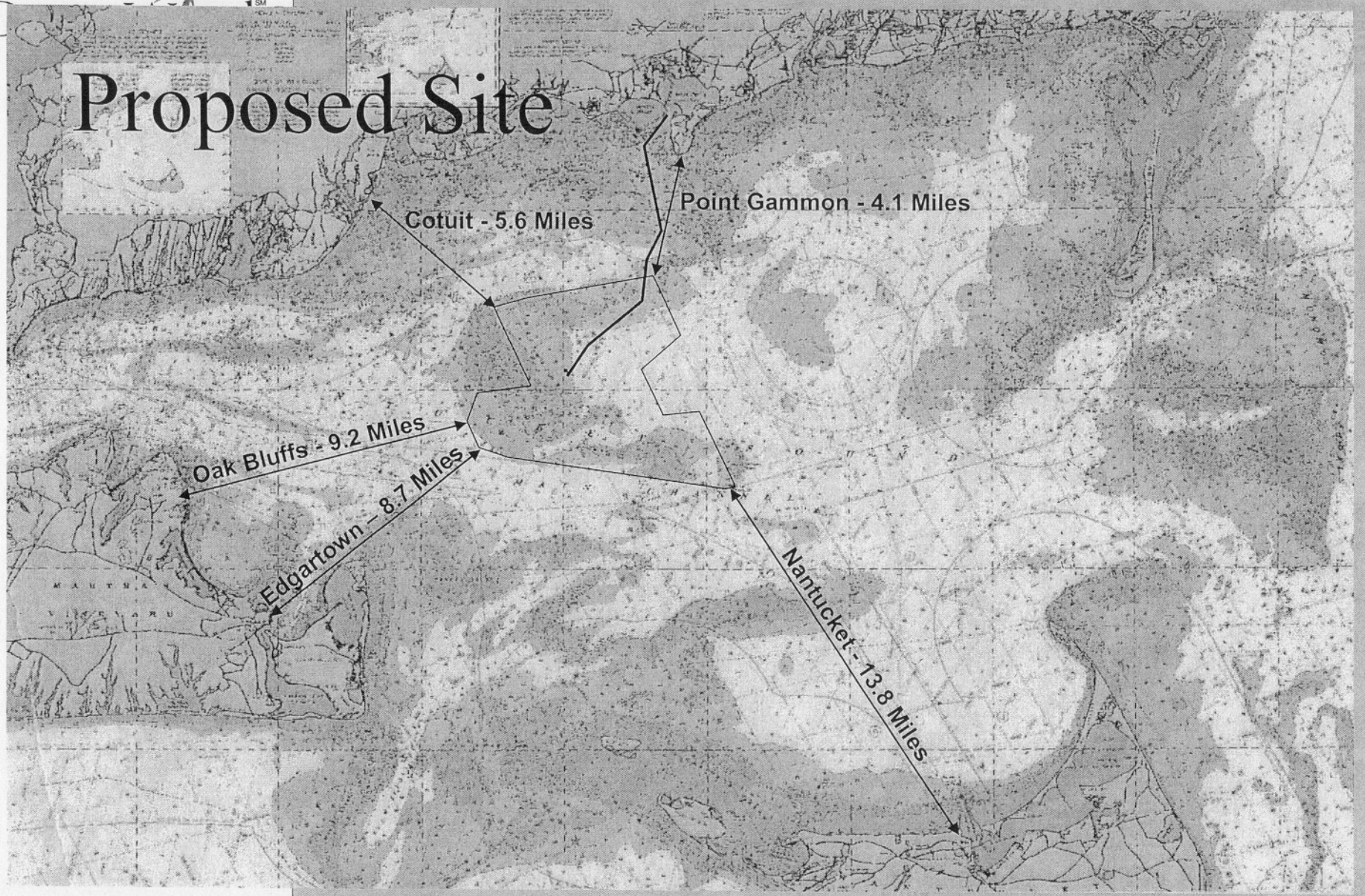
Connecticut Clean Energy Fund
Investing in the Power of Tomorrow

Massachusetts Technology Collaborative
RENEWABLE ENERGY TRUST

Northeast Utilities System

Site Analysis




Proposed Site
Cotuit - 5.6 Miles
Point Gammon - 4.1 Miles
Oak Bluffs - 9.2 Miles
Edgartown – 8.7 Miles
Nantucket - 13.8 Miles

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Preliminary Environmental Impact Assessments

- Surface and Subsurface Geological Conditions
- Wind, Tide and Wave Conditions
- Sediment Transport Patterns
- Benthic Infauna and Shellfish Resources
- Essential Fish Habitat Assessment
- Commercial and Recreational Fisheries
- Marine Mammals and T&E Species

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Preliminary Environmental Impact Assessments - continued

- Avian Autecology and Risk Assessment
- Preliminary Visual Impact Assessments
- Navigational Transit and Vessel Type Assessment
- Marine Archaeological/Cultural Resources
- Aviation Flight Patterns and Conditions
- Shoreline Landfall Conditions Assessments

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Project Description

- 170 Wind turbines, producing 420MW of emission free power
- Grid spacing of approximately 1/2 by 1/3 mile
- 260 feet hub height, 426 feet height (at the blade tip)
- No prohibition of watersheet uses
- Decommissioning Plan

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Preliminary Permitting Timeline

- Submit DEIS/DEIR - October 2002
- EFSB process complete - May 2003
- Submit FEIS/FEIR - July 2003
- MEPA Certificate of Adequacy and……
- ACOE Section 10 Permit - September 2003
- Other State and Local Permits - prior to September 2003

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Preliminary Construction Timeline

- On-shore ductbank installation - Winter '03/'04
- Off-shore Cable and Service Platform - Summer/Fall '04
- WTG installation - Fall '04 through '05

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Low Impact Installation Technology

- Driven monopile foundations to minimize seabed disturbance
- Jet-plow cable embedment of submarine transmission cables
- Horizontal directional drill at landfall transition
- Underground installation of overland cable

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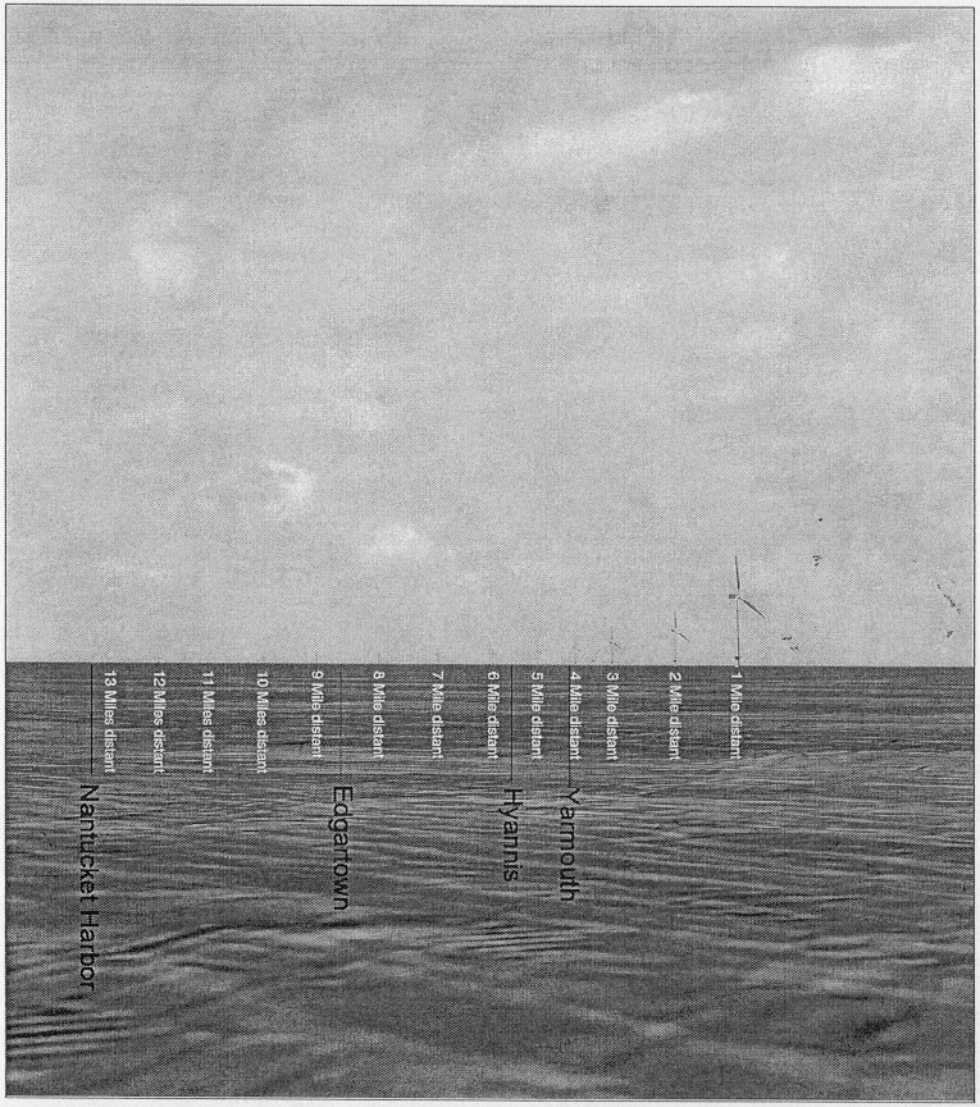
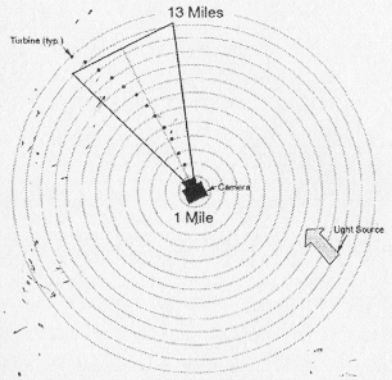


CAPE WIND ASSOCIATES

Turbine Visibility Study

Camera Lens: 50 mm
Viewer Position: 6' Above Grade



Circle Interval: 1 MILE

Prepared by:

EDR, P.C.

Janurary 20, 2002

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Summary of Cape & Islands Benefits

- Economic
  - Jobs
  - Tourism
  - Taxes to cable landfall community
- Environmental and Health Impacts
  - Air Quality
  - Water Quality
- Electrical
  - Downward pressure on cost
  - Grid reliability

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Utgrunden offshore project

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Summary

- Clean regional energy source
- Contributes to the reduction of air pollutants and greenhouse gases
- Design compatible with other uses of navigable waters and marine resources
- Promotes balanced, mindful and responsible use of renewable energy to insure a sustainable future.

CAPE WIND SUPPORTERS*

MASSPIRG

Conservation Law Foundation

Massachusetts Maritime Academy

Cape & Islands Self Reliance

Buzzards Bay Action Committee

Union of Concerned Scientists

Cape Clean Air

Coalition for Environmentally Responsible Economies

Greenpeace

American Lung Association-Massachusetts Chapter

Northeast Sustainable Energy Association

Toxics Action Center

Commonwealth of Massachusetts Climate Action Network

Massachusetts Energy Consumers Alliance

Clean Water Action

Healthlink

Woods Hole Group

Thompson Island Outward Bound Education Center

Competitive Power Coalition of New England, Inc.

Mystic Matters Community Taskforce

Full Circle Energy Project, Inc., Falmouth

Gil Newton, Coastal Ecology Professor-Cape Cod Community College

Harlyn O. Halverson, Director of Policy Center for Marine Bioscience and Technology-University of Massachusetts, Amherst

Dr. James Manwell, Renewable Energy Resource Laboratory-University of Massachusetts, Amherst

George Woodwell, Global Climate Expert-Woods Hole Research Center

Richard Payne, PhD, Oceanographer Emeritus-Woods Hole Oceanographic Institution

Rob Garrison-Nantucket Aquaculture

Daniel E. Bosley, Chair-Massachusetts House Committee on Government Regulations

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* Partial list based upon written comments filed in pending regulatory proceedings.

Michael W.Morrissey, Chair-Massachusetts Senate Committee on Government Regulations

John J. Binienda, Chair-Massachusetts House Committee on Energy

Susan C. Fargo, Chair-Massachusetts Senate Committee on Energy

Paul Demakis-Massachusetts State Representative, 8th Suffolk District

Matthew Patrick-Massachusetts State Representative, 3rd Barnstable District

Robert Koczera-Massachusetts State Representative, 11th Bristol District

Frank Smizik-Massachusetts State Representative, 15th Norfolk District

Reprinted from

The New York Times

Science

April 16, 2002

Offshore Harvest of Wind Is Proposed for Cape Cod

By KAREN LEE ZINER

If three wind-power proponents succeed, 170 slender turbines will one day appear in Nantucket Sound and, if the winds are right, generate nearly half the electrical supply for Cape Cod and the islands of Martha's Vineyard and Nantucket.

Brian Braginton-Smith, James S. Gordon and Brian Caffyn, partners in Cape Wind Associates, want to build a "wind farm" on Horseshoe Shoals, a protected shallows with powerful breezes off Cape Cod. They say their wind park will deliver clean electricity, protect the environment and ease dependency on foreign oil. Advocates call the wind farm the future of renewable energy.

But critics say the turbines will disturb birds, harm fisheries and scare away tourists. The result has been a debate about how and where to harvest the wind.

Though dozens of wind farms are generating electricity across the country and off the coast of Europe, no one in the United States has ever built one of this magnitude, or at sea.

Cape Wind Associates, a joint venture between Energy Management Inc. and Wind Management Inc. (a subsidiary of UPC, a European-based wind-energy company) of Boston, has submitted draft environmental plans for the wind park to state and federal agencies. A separate proposal for a single research tower is also under review.

"We've really only just begun what' s going to be a long, thorough and comprehensive permitting review," said Mark Rodgers, a Cape Wind spokesman. That began in last month, when the New England District Army Corps of Engineers started a "scoping" process, inviting public comment and asking Cape Wind questions about effects on the environment.

Will too many birds fly into the turbines? Will vibrations affect worms, clams and other animals on or below the seabed floor? Can the towers coexist with commercial fishing vessels and recreational boaters? Will they affect ocean currents or radio and television frequencies? Will they be ugly?

The turbines, as proposed, will be arrayed in a grid pattern roughly five miles long by five miles wide, a third to a half-mile apart. Each carbon-steel turbine column will rise 270 feet above the water line to a boxy hub where three blades are mounted. At the tallest blade tip, the turbines will reach nearly 40 stories.

When the blades spin, they will power a turbine generator in each tower hub. Submarine cables from each pole will join at a central platform station within the wind park; two parallel main cables will carry the power to landfall at Yarmouth. There they will link with an overland cable system and deliver up to 420 megawatts to the New England regional power grid — enough to power almost half a million homes and businesses.

Mr. Braginton-Smith, 49, who grew up on Cape Cod and has sailed Nantucket Sound all his life, says the wind park would help protect the environment for the next generation. As the original proponent, he joined Mr. Gordon, president of Energy Management Inc., which has built natural-gas-powered generating plants throughout New England, and Mr. Caffyn, who heads Wind Management Inc., which has built wind-power projects in Italy and the United States.

They formed Cape Wind Associates L.L.C. to back their project, which they estimate will cost at least $600 million. Mr. Gordon, the president of Cape Wind, said the partners would seek conventional, long-term loans through major financial institutions. They hope the wind farm will be operating by 2005.

"Clearly, after Sept. 11, the country has a national priority to expedite the development of domestic energy resources," Mr. Gordon said. "And five and a half miles off the coast of Hyannis, we have an awesome, inexhaustible supply of domestic energy resource — the wind."

But the wind farm proposal has provoked opposition from fishing interests, boaters and tourism representatives, the Massachusetts Marine Trades Association, the Town of Barnstable and Three Bays Preservation, an environmental advocacy group based in that town.

Among the opponents is Wayne Kurker, president of Hyannis Marina, who last summer formed the Alliance to Protect Nantucket Sound, to fight the wind farm proposal.

"A good portion of us who migrated to Cape Cod came to enjoy Nantucket Sound," he said. "And if Nantucket Sound becomes an industrial, electrical generation area, then it's no longer the national treasure that people currently feel it is. We look at this as our wilderness, our national park."

Mr. Kurker predicts several problems, among them the spinning turbines, which he says will kill so many birds that their bodies will litter the beaches and drive away the tourists.

In a letter to the Army Corps of Engineers, the Massachusetts Audubon Society outlined a number of concerns about the proposed project's effects on resident and migratory birds, including the roseate tern, an endangered species.

Jack Clarke, a society official, said the group worried that the birds migrating at night might be attracted to the turbine warning lights, or become disoriented by the towers during storms.

"At least half the population of East Coast seabirds spend at least six months on Nantucket Sound," Mr. Clarke said. "So it's a nationally significant area."

Still, he said, "we have to have an open mind when someone comes up with a credible, nonpolluting proposal," adding that the society would decide whether to support the plan after it had seen more information.

Mr. Braginton-Smith said, "According to all of the relevant evidence that we've been able to ascertain from the European models that have been operating for up to 10 years, there seems to be no significant threat to seabirds from the offshore towers."

Some environmental and advocacy organizations have offered conditional support, and Mr. Braginton-Smith said Greenpeace was "a very positive supporter of offshore wind."

Said Mr. Gordon: "There are a lot of people who look at wind turbines and see them as a study in power and grace and a visual testimony to us working with nature. So there are a lot of people who enjoy looking at wind turbines. For those who don't, we've significantly reduced the visual impact" by taking them offshore. He said they would hardly be visible from land.

As for noise, "These things are so far offshore you won't notice," said Brian Parsons, project manager for wind-energy applications at the Department of Energy's National Renewable Energy Laboratory. "Close up, you hear two things. You hear a swoosh, which is the aerodynamic noise of the wind going over the blades. And the second thing you hear is generator and gear-box noise — low-level mechanical stuff."

Although you wouldn't want to build a house directly underneath the turbines, Mr. Parsons said, a few hundred yards away, "it's hardly noticeable."

In Chilmark, a town on Martha's Vineyard, where a wind machine operated in the mid-1970's, people complained at first, said John Abrams, the contractor who installed it. "They said it was going to be visual pollution, and it was going to be noisy and interfere with television reception, and that machine, of course, did none of those things," he said.

But the Chilmark wind machine was early technology and kept breaking down, Mr. Abrams said. "We got tired of fixing it and took it down — and then, you should have heard the complaints. Everyone had grown to love it. We all remember the mesmerizing effect of pinwheels when we were kids. And that's what these are like. They're beautiful. There is an emotional connection."

The Department of Energy is watching the project with interest, Mr. Parsons said, because "it's the first serious offshore wind proposal in the United States."

"It's as simple as that," he said. "We'd like to see what happens."

Particularly in New England, "having something close offshore where it's not too far from the cities" would avoid some troublesome siting issues for land-based wind farms, like long, expensive transmission lines. "So if someone comes along and says, `We want to do 420 megawatts offshore,' " Mr. Parsons said, "that could have a real impact."

Tim Dugan, a spokesman for the United States Army Corps of Engineers New England District in Concord, Mass., said it would take 18 months and perhaps as much as three years to complete the scoping process and necessary environmental impact statement for federal scrutiny and an environmental impact review for the state.

John Saintcross, project manager for the New York State Energy Research and Development Authority, said, "Europeans have built these kinds of facilities and are operating them now." From an engineering perspective, he said, "they should be able to put these machines in the ocean floor" and build cabling systems.

A major problem, he said, is persuading the public that an offshore wind farm is a good idea. The Cape Wind Associates project would be a large installation, Mr. Saintcross said, "but the only way to go offshore is to put in a lot of machines."

Business

THE BOSTON GLOBE MONDAY, DECEMBER 17, 2001

SCOTT KIRSNER

@Large

Sound decisions

Should Massachusetts be home to America's first offshore windmill farm, which would also be the largest in the world?

Absolutely.

Should said windmill farm be located in Nantucket Sound, atop a 28-square mile patch of shallow water known as Horseshoe Shoal?

That's the question that's sparking one of the most emotionally charged and important technology debates in the state.

If you haven't heard about the project, you're not alone. Cape Wind Associates plans to spend $600 million to erect 170 windmills (they prefer the term "wind turbines") on Horseshoe Shoal, about five miles off the southern shore of the Cape, and even further from Nantucket and Martha's Vineyard. Each windmill would be 426 feet tall, from the surface of the water to the tip of the blade — taller than the Bunker Hill Monument in Charlestown, and roughly the height of the old John Hancock building in Back Bay.

Construction could start as soon as 2004, with the farm (again, here the developers opt for the friendlier term "wind park") fully operational by 2005, producing 420 megawatts of electricity at peak. That's about two-thirds of what the Pilgrim nuclear plant in Plymouth cranks out.

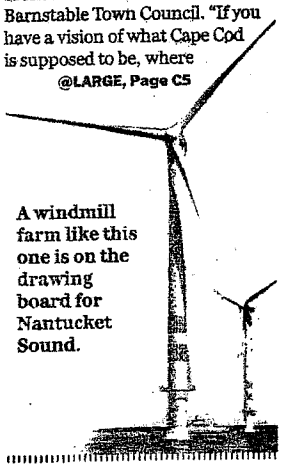
Even on a less-breezy day, the windmill farm's 175 megawatts would be enough to meet half the average electrical demand of the Cape and islands. Cape Wind's president, Jim Gordon, says the facility would bring huge environmental, economic, and health benefits to the region.

"It'll deliver $800 million in savings over 20 years to New England ratepayers," he claims. The farm also would offset a million tons of greenhouse gas emissions annually by producing energy that's cleaner than existing coal, natural gas, and oil-burning plants.

Right now, it's hard to argue with zero-emission electricity that's not reliant on Middle Eastern oil. That puts the opposition to the Cape Wind project in a tough spot. They stress that they're not opposed to renewable energy in general, but that they believe that Horseshoe Shoal isn't the right place for such a project.

"It'd make me sick [if it was built]," says Bob Jones, a boat broker who also serves on the Barnstable Town Council. "If you have a vision of what Cape Cod is supposed to be, where

@LARGE, Page C5



A windmill farm like this one is on the drawing board for Nantucket Sound.

does a windmill farm fit into it? If we turn this place into an industrial junkyard, what have we got?"

Opponents worry the windmills could serve as pole-mounted Cuisinarts for seabirds. They believe they'd be an eyesore for those on land, especially at night, when they'll be illuminated to warn off boats and aircraft. They're concerned about the windmill farm being abandoned if Cape Wind can't make money on it, or after the windmills' useful life ends in about 25 years. (Gordon says the windmills could be retrofitted with newer technology then.)

Those issues — and others — will likely be raised at a joint hearing of the Massachusetts Environmental Policy Agency and the Cape Cod Commission Wednesday night in West Yarmouth. Gordon and a Cape Wind vice president, Craig Olmstead, will be there. (See www.capecodcommission.org for info.)

"The challenges [facing Cape Wind] are huge," says Richard Kennelly, an attorney at the Conservation Law Foundation in Boston who supports the project. "And they're unpredictable challenges — political and public acceptance challenges. But this will be a very good debate to have. Do the various benefits of wind power outweigh the various downsides?"

My initial assessment is that they do. An offshore windmill farm in Massachusetts would be not just a symbol of the way we ought to be generating electricity in the 21st century, but it would also do measurable good for the environment. School groups would hop on boats to go see the farm, and tourists would snap pictures on their way to and from the islands. And as Deborah Donovan of the Union of Concerned Scientists puts it: "Wind turbines on the horizon are better than a sea level rise [caused by the greenhouse effect] that would wash away the homes of the people who are so upset about this project."

My biggest concern is what happens if the project isn't economically sustainable. We could end up with a copse of defunct windmills dotting Nantucket Sound, which would prove more of a nuisance and an eyesore than an abandoned power plant on the outskirts of a city. Cape Wind should supply a guarantee — perhaps in the form of a bond or a decommissioning fund — that in the event its wind park goes dark, the company will pay to dismantle it.

Cape Wind has a Web site at www.capewind.org. A group of opponents, Cape Codders for Sensible Windmill Placement, has a site at www.windmillscapecod.org.