

WIND ENERGY



Off the Massachusetts Coast

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"The Mission of the Alliance to Protect Nantucket Sound is the long-range preservation of the natural resources and beauty of Nantucket Sound"

Main Actors

- Cape Wind – private company that is building turbines for financial gain
- Save Our Sound – public interest group that is against construction of turbines

Permitting:
Now through early 2004

Turbine Manufacturing:
Through early 2005

Construction:
Construction in 2005



Nantucket Sound - A Public Treasure

Who Else is Involved?

- Cape and Islands Offshore Wind Stakeholders
- Beacon Hill Institute
- Cape Cod Times
- Federal and Massachusetts Government



Cape Wind's Plans

- Wind farm on Atlantic Ocean – 5 miles off coast of Cape Cod
- 130 wind turbines, ~400 ft tall, blade diameter ~100 yrds.
- Turbines will produce 420 megawatts of energy/day (providing 75% of Cape's energy)
- Government subsidies ~33% of project (about \$250 million of the \$900 million project)

Cape Wind's Plans



STATUE OF LIBERTY

417'

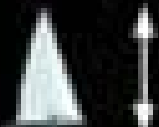
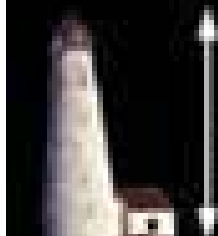
305'

GREAT POINT LIGHT HOUSE

73'

30' SAIL BOAT

40'

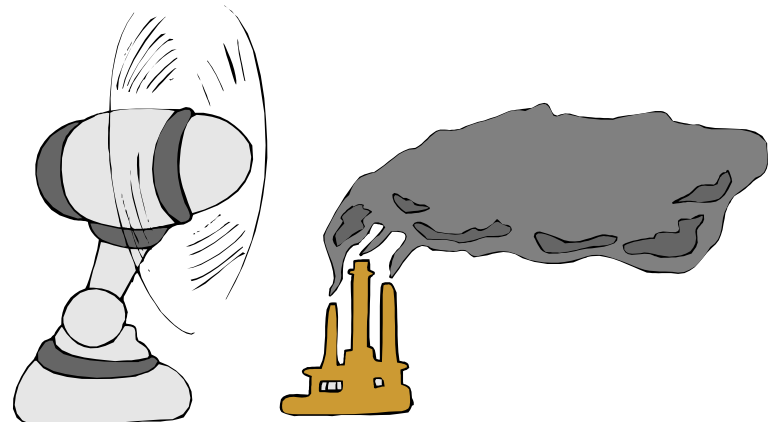


Arguments for the Project

Provides clean energy to help reduce dependence on foreign oil

Will provide lots of jobs for Cape Cod region

Costs are fixed: wind fuel will always be available



Arguments against the Project

Wrong for private company to benefit from public land (oceans)

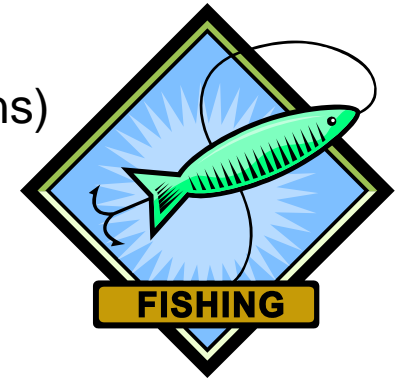
Will ruin aesthetic beauty of the Cape Cod region

Will economically hurt Cape Cod from loss of tourism

Will interfere with recreational opportunities such as fishing and boating

Impacts on Wildlife

No regulatory framework allows construction of the wind farm



WILDLIFE

•“KILLER TURBINES”

- Golden Eagles, Red-tailed Hawks, Burrowing Owls in California
- Roseate Tern, Piping Plover in Nantucket

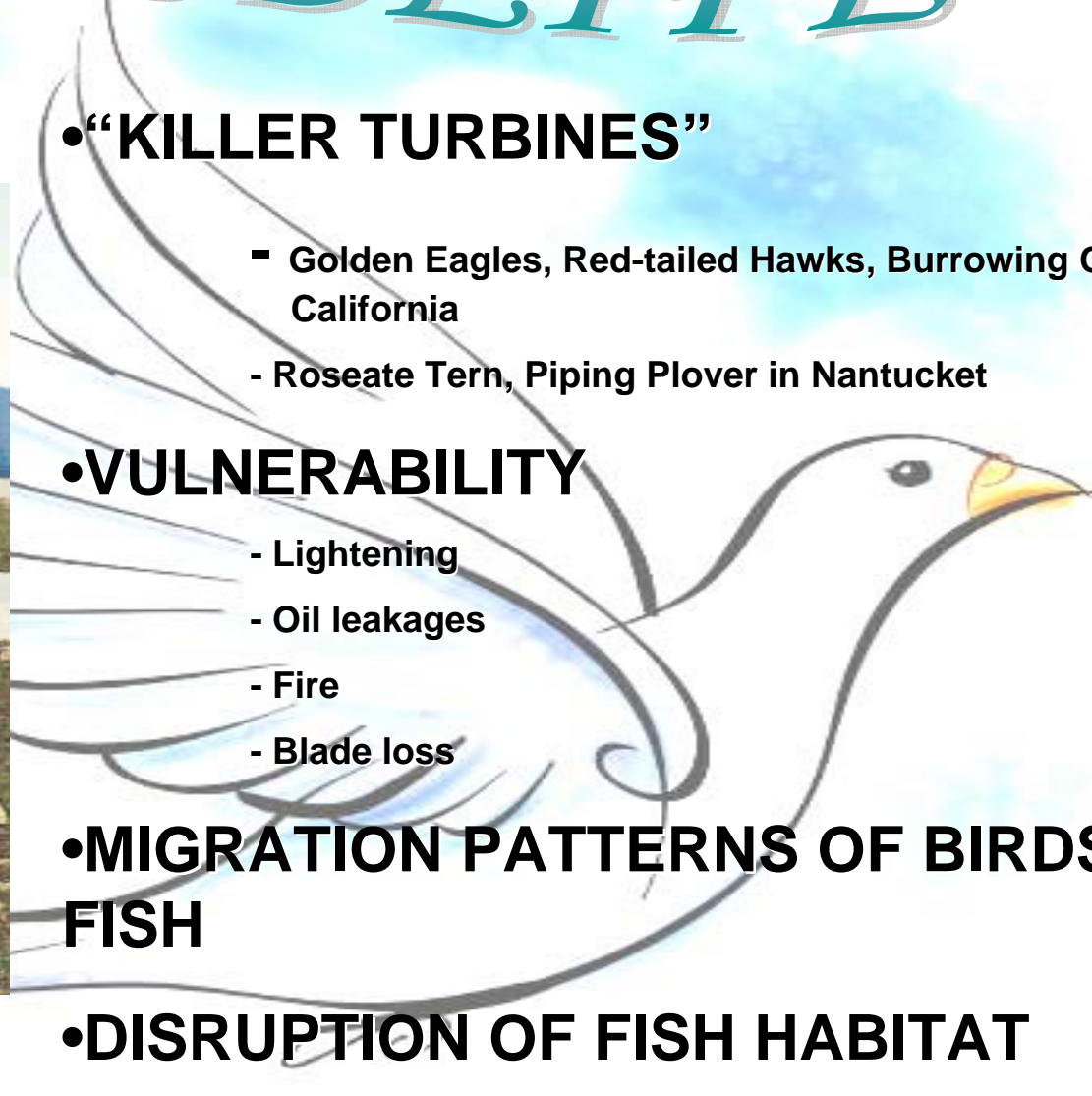
•VULNERABILITY

- Lightning
- Oil leakages
- Fire
- Blade loss

•MIGRATION PATTERNS OF BIRDS AND FISH

•DISRUPTION OF FISH HABITAT

- ABILITY TO FIND FOOD, MATES, HABITAT



ECONOMY

- Bird watching attraction
- Cape Cod Commercial Hook Fisherman's Association
- Increased mortality rate of juvenile fish
- Cape Wind's response:
 - Windmills not devastating to local wildlife
 - Instead, windmills are safer for birds than alternative energy sources (ie: fossil fuels)

New Design Mechanisms

- ◆ Loss of guide wires
- ◆ No feasible nesting places
- ◆ Blades rotate slowly (4-5 min/rotation)



Recreation

- Loss of Tourists according to Cape Wind Opponents
 - Boating
 - Fishing
 - Bird Watching
 - Whale Watching
- Cape Wind Believes...
 - Windmills = ecotourism attraction



Public Opinion

■ Economic, Environmental, & Aesthetic Concerns

Sponsor	Favor	Oppose	Don't Know	Sample Size
Beacon Hill Institute (BHI)	45	47	8	499
Cape Cod Times	45	55	--	588
Cape Wind	55	35	10	400

Favorability ratings of local residents on the Cape Wind proposal (Cape Cod Times 2004, BHI 2003, ODC 2002)



MAYDAY!! MAYDAY!!



CALLING ALL CONCERNED CITIZENS!!

JOIN
WINDSTOP
ON A
MAY DAY CRUISE ABOARD THE
HY-LINE FERRY BOAT
GREAT POINT

HELP SAVE NANTUCKET SOUND FROM
INDUSTRIALIZATION

Live Entertainment Food & Cash Bar

DATE: MAY 1, 2004
TIME: 4 PM TO 7PM
WHERE: HY-LINE DOCK, OCEAN ST. HYANNIS, MA
COST: \$10.00 PER PERSON
(LIMITED TO 400 PASSENGERS)

TICKET LOCATIONS
IN HYANNIS, CONNECTING POINT COMPUTER, HYANNIS MARINE, PURLEIGH CLOTHING, COLLUCCI BROTHERS DINER, WWW.WINDSTOP.ORG, ALLIANCE TO PROTECT NANTUCKET SOUND, KEITLE-HO-COULI, BOSUNS MARINE-MASHEE

SPONSORED BY: WINDSTOP.ORG
BOAT CHARTER DONATED BY HY-LINE CHARTERS
FOOD BY COLLUCCI BROTHERS DINER, THE PADDOCK RESTAURANT, 5 DAYS ESTRO, WYFIP'S

WINDSTOP.ORG



Tourism, Business & Jobs

- Tourism (due to aesthetic affects of windmills)
 - ~21% Cape Cods employment directly
 - ~40% including indirect and induced spending
- Business
 - High costs for paltry benefits
 - BHI concludes: average spending would drop \$75.15 per tourist per year if windmills built
 - Estimated Total drop of \$57-\$123 million for area
 - Secondary effects:
 - Loss of 1,200 – 2,500 jobs
 - Loss of \$28 - \$61 million in earnings annually
 - Loss of \$94 - \$203 million per year in local output
- Jobs
 - Global Insight reports 50 permanent jobs will be created
 - Will result in 154 new jobs (multiplier effects)
 - Compared to BHI figures, net loss of at least 1,000 workers

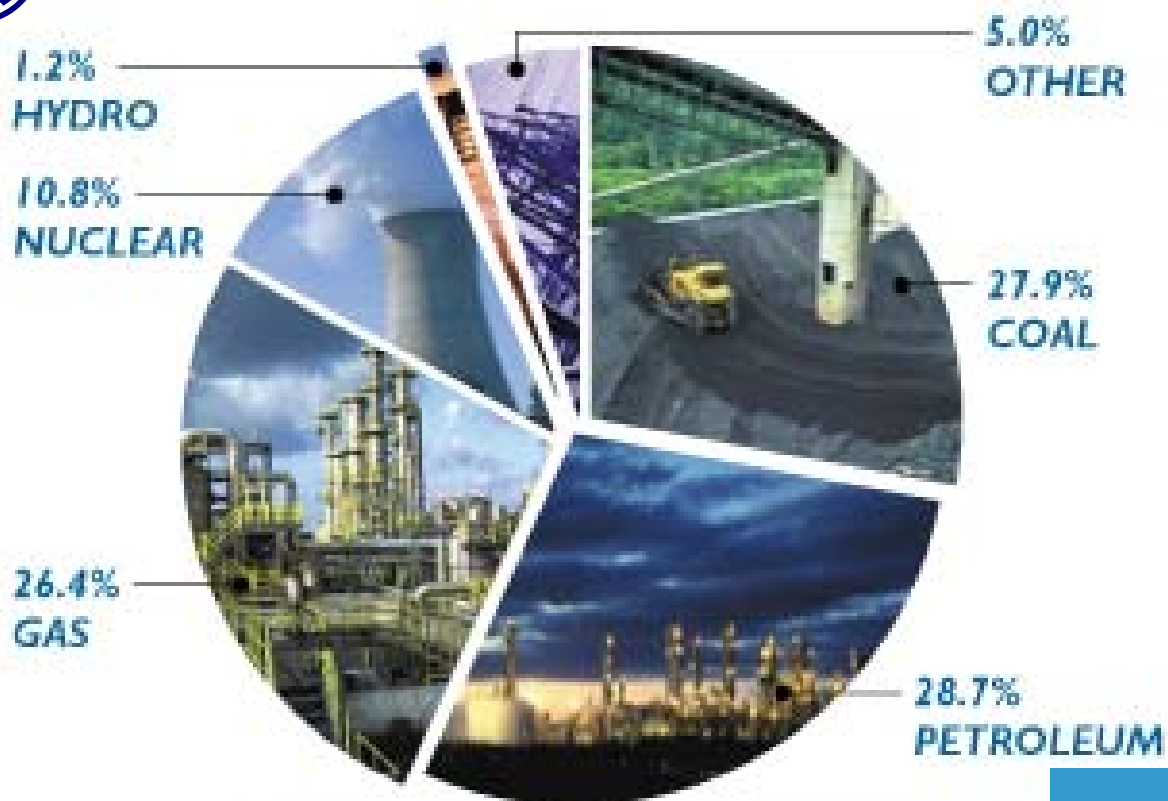
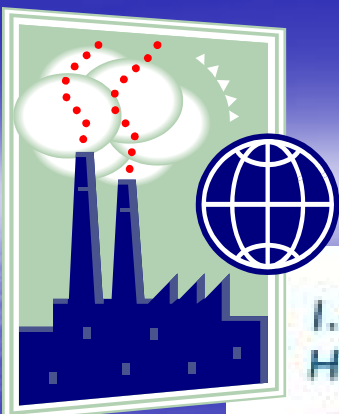


Local, State & National Politics

- ◆ Certain people have been in favor of renewable energy in the past, but now argue that the sound is no place to experiment with untested technology
 - Senator Ted Kennedy – federal gov't doesn't have appropriate regulatory/zoning safeguards to protect outer continental shelf from overzealous developers
 - Representative William Delahunt – Horseshoe Shoals merits a National Marine Sanctuary status
- Governor Mitt Romney – created a task force advisory
 - Will give advice concerning creation of new zoning restriction for the 3 miles of state-controlled ocean
- Attorney General Tom Reilly
 - Cape Wind proposal = “industrialization” of a treasure
- State Legislature supporting project – tax incentives
 - Will bring Cape Wind \$157 million
- Rhode Island Governor Donald Carcieri - supporter



ENERGY



Sources of electricity for Massachusetts
(Dept. of Energy, 1999 Massachusetts State Profile)



ENERGY



- Proposal aimed at reducing Cape Cod's dependence on foreign oil
 - Will protect the environment by offsetting over 1 million tons of greenhouse gases/year
- Epoch I: Gov't initiatives in 1980 lead to wind energy development following the energy crisis of 1973
 - Executive Order 13123
- State Regulation
 - Commonwealth's Electric Utility Industry Restructuring Act
- Market incentives
 - Renewable Production Tax Credit
- Reviews:
 - Massachusetts Technology Collaborative (MTC)
 - ISO New England – 54% power surplus by 2006
 - Beacon Hill Institute – cost-benefit analysis failed by Cape Wind Associates

SAFETY



- Environmental and Wildlife Concerns

- Birds, endangered turtles, whales

- Need to perform in-depth analyses of wind farm impact

- Mass Audubon, U.S. Fish and Wildlife Service, Massachusetts Division of Fisheries and Wildlife, Earth Island Institute



SAFETY



- Environmental Impact assessments led by US Army Corps

- Ex: A marine habitat impact assessment including:

- vibration
- wave disturbance
- water quality
- Sediment transport
- structural habitat alteration
- sound
- alterations to currents and circulation
- shading
- scouring
- shoreline erosion (landfall)



SAFETY



- Lightening hazards
- Aviation and navigation
 - Safety lights to be installed (FAA and USCG requirements)
- Electric and magnetic fields
- Air and climate
- Public and employee safety through construction, operation and decommissioning





VIEW

(The issue that "hits home")

- Ocean View

- Property Values

- Homeowners along shore believe they will experience a loss of 10.9% of property values, and those inshore 4%

- Total property value loss > \$1.3 billion, tax loss of \$8 million

- Introducing ways to reduce visibility of windmills



ALTERNATE SITES

- ~10% of party opposing construction says it's due to location
- Alternate sites: those on land/in water
 - Sites on land : landfills, towns, a military outpost
 - Sites offshore: 3 alternates in Horseshoe Shoal, sites nearby sounds and islands
- However, much land is needed for wind power (20 acres of land for one megawatt of energy)
- Unfortunately, Cape Wind refuses to build on any other site

REGULATIONS

- No clear regulatory framework
 - Who is in charge?
 - Different possibilities: Massachusetts, Army Corps of Engineers (ACE), the Mineral Management Service (MMS)
 - Government intervention inevitable??
-

CONCLUSION!

DON'T OPEN A PANDORA'S BOX OF POTENTIAL PROBLEMS!



- **Must resolve environmental issues**
- **Economic issues, renewable energy policies**
- **Trust fund should be created**
- **Supervisory agency needed**
- **Windmills ≠ eyesore during day, night lighting needs to be resolved for aesthetic purposes (angle lights?)**
- **A more participatory system (as in Long Island)**

INVESTIGATION NEEDED AND THEN IMPLEMENTATION