

Minutes of a Conservation Commission Meeting on Vineyard Wind
27 June 2019

Members present: Peter Vincent – Chairman, Christina Brown, Stuart Lollis, Jeff Carlson, Lil Province, Geoffrey Kontje

Absent: Bob Avakian

Staff: Jane Varkonda, Lisa Morrison

For Vineyard Wind: Rachel Pachter, VP Permitting Affairs; Holly Carlson-Johnston of Epsilon Associates; Ted Barten of Epsilon Associates; Adam Kahn, attorney for Vineyard Wind; Elizabeth Hansel of Vineyard Wind; Richard Andrade and Erik Peckar of Vineyard Power.

Chairman Vincent opened the hearing and read the notice.

Mr. Kahn, an environmental attorney for Vineyard Wind, began the presentation noting that the project would remove the equivalent carbon emissions from 325,000 cars, which amounts to removing the carbon footprint of the entire island five times over. He hoped the discussion could focus on the geographic areas that the Commission has jurisdiction over. He noted that more than 10,000 pages of documents have been reviewed by over twenty state and federal agencies, such as Mass DEP, Natural Heritage, Mass Environmental Protection Agency, Coastal Zone Management, the Martha's Vineyard Commission, the Nantucket Conservation Commission, and the Barnstable Conservation Commission.

Kahn said that Vineyard Wind filed a new notice of intent under just the Commonwealth's Wetlands Protection Act. He noted that the Commission continues to have jurisdiction under the act, just not under the Edgartown Wetlands Protection Bylaw. The jurisdiction of the bylaw does not include 'Land Under the Ocean' beyond 300 feet offshore. The cables, which are the subject of this hearing, will be located more than a mile offshore. The decision to refile was also prompted by the fact that only four members of the Commission were able to vote – because only those members had been able to attend both the previous

two hearings. The new filling would enable more Commissioners to vote and lessen the likelihood of losing the quorum.

Vincent asked why the 'view and vistas' component of the bylaw did not apply. The Commission's assistant replied that town counsel had reviewed the bylaw and determined that while 'preservation of natural and historic views and vistas' is protected under the bylaw the Commission's jurisdiction does not extend beyond the five specific areas listed in the bylaw. Otherwise, the Commission's jurisdiction would extend over the entire town.

Carlson asked if Natural Heritage had determined whether or not the cable installation consisted of a 'take.' Kahn replied that even though the entire area is priority habitat, Natural Heritage decided that it was not a 'take' as the effect on rare species and habitat was determined to be temporary and contained.

[Vincent asked the camera operator who she was filming for and asked the assistant if they had asked for permission. The assistant replied that she assumed it was for MMTV. The camera operator said that she was filming at the direction of Helen Parker. She asked if she should stop. Vincent said he had no objection to her filming, he was just surprised that they had not asked permission as a courtesy.]

Holly Carlson-Johnson introduced herself as a senior consultant for Epsilon. She said she has been managing state and regional permitting for Vineyard Wind for the past two plus years. She noted that the corridor where the electric cables are to be buried have been fully surveyed. She said that even though the map - projected on the town's Smart Screen [Figure 1 – Project Overview USGS Locus] – shows two corridors plotted out, it is likely that only the eastern corridor will be utilized. The corridors will be between 2600 and 3300 feet wide and will run for between 12.4 and 13.7 miles in Edgartown waters. The actual footprint of the disturbance will be narrow. The corridors are designed to be wide enough to allow for the flexibility to avoid unnecessary impacts in a dynamic area.

Susan McHugh, who identified herself as a long time Edgartown fisherman, urged the board to vote that the project was applicable under the wetlands bylaw. Vincent asked if she had read the bylaw. She said she had not.

Preston Butler, Vineyard Fisherman, said that he believes the bylaw would apply as there will be an incredible amount of sediment coming ashore. He also noted that repairs to the cable will be necessary, which will require boats to work off East Beach.

Helen Parker introduced herself as an expert in infrasound with a PhD in Clinical Psychology. She said that the turbines will create toxic atmospheric conditions that can have severe neuropsychological effects. She commented that the Danish equivalent of the EPA has tightened their regulations based on infrasound and mandated that turbines be located further off shore.

Arno Ewing, Edgartown fisherman, was also concerned that sediments from the dredging would find their way into the wetlands.

Vincent commented that the Commission had been advised by town counsel that the bylaw does not apply for the cable installation.

Gary Harcourt identified himself as a proponent of renewable energy and said that he believed the discussion should be limited to the installation of the undersea cables, not the turbines.

Carlson made a motion to issue a positive determination relative to the bylaw's applicability to the project. Lollis seconded the motion and also voted to issue a positive determination. Province also voted in the affirmative. Brown and Vincent voted to issue a negative determination. Commission voted 4 to 2 that the bylaw does apply to the project.

Carlson-Johnston continued with her presentation by describing how the cables would be installed by a jet plow that will create enough pressure to drop the cables to the desired burial depth of 5 to 8 feet. The survey has identified areas of sand waves, and the intent is to avoid these areas wherever possible. In cases

where they cannot be avoided, a notch will be cut in the sand wave and the cables buried beneath the sand wave in the stable seabed below.

Preston Butler asked for a definition of 'sand wave.' Carlson-Johnston replied that sand waves are areas of mobile sand that migrate along the stable seabed. Butler said, "Oh, you mean shoals."

The burial depth of between 5 to 8 feet was determined to be ideal because it is deep enough to avoid interference with anchors or fishing gear but not so deep as to cause excessive heat build-up or difficulty in carrying out repairs.

Carlson-Johnston reiterated that the corridors have been extensively and exhaustively surveyed over a period of years; they know where the dynamic areas are located.

In areas of hard bottom the cables will be covered with concrete mattresses. The mattresses will be no wider than ten-feet and approximately 1.5 feet deep.

Ideally the jet plow will not encounter any boulders as the survey will have identified them in advance. If necessary, boulders will be relocated in the same general area.

Carlson-Johnston said much has been learned from prior cable installations - many of them were not buried deep enough.

Carlson-Johnston noted that in addition to the prior surveys, additional surveys will be taken to document the recovery of the benthic habitat beginning six weeks after the installation. Vineyard Wind has also committed to larger surveys after one and three years with the option of an additional survey at five years.

Kontje asked how Vineyard Wind would know if a section of cable becomes exposed. Carlson-Johnston replied that the cables are monitored by sensors 24/7.

Vincent asked what kind of safeguards are in place should the project fail. Carlson-Johnston said that there are decommissioning obligations built into the federal contract and Vineyard Wind is required to put up money for removal.

Lollis asked about the life expectancy of the project. Carlson-Johnston said that the estimated life expectancy is 30 years. There are currently turbines in Europe that have been running successfully for over 20 years.

Kontje said that splices are generally the weakest point in any cable and asked how many splices each cable will have. Carlson-Johnston replied that each cable will have two splices.

Kontje asked about the anticipated impact from the jet plow. Carlson-Johnston replied that plow will temporarily impact an area just 3.3-feet wide. Two skids are sometimes attached to the plow for lateral stability but their impact is considered negligible as they ride along the surface.

Carlson asked how much turbidity could be expected from the installation and dredging and over what length of time. Carlson-Johnston replied that they hope little dredging will be necessary; it depends on whether or not they encounter any sand waves. Any boulders encountered along the route would be moved within 3 weeks of the cable installation.

Carlson-Johnston said that she estimates that the installation time will about a week per cable for the portion within Edgartown waters.

Lollis asked whether that estimate includes the moving of boulders and sand wave dredging. Carlson-Johnston said that the week would be just for cable installation. In a worst case scenario, she estimated that there could be disruption for a maximum of six weeks. The estimated time of installation is early spring of 2021.

Brown asked about the effect on rare species, especially the North American Right Whale. Rachel Pachter replied that the Right Whale has been in the forefront of much of their planning, and Vineyard Wind has worked with and consulted with Natural Heritage since the beginning of the project. Several state agencies initiated a 7-year study on Right Whales and developed an extensive list of measures to mitigate and limit any impacts of the project on the Right Whale population. Vineyard Wind has a ten page agreement with several Conservation Groups to ensure that these measures are adhered to. The measures themselves

are the result of extensive coastal study, and include provisions for lookouts by air and sea, acoustic sensors, and time-of-year constraints. These measures will be in effect not only during construction but for the lifetime of the project and are a matter of public record. Pachter noted that although the regulations are specific to Right Whales, they address all species tangentially. Vincent asked that a copy of the agreement be submitted to the Commission.

Kontje noted that Vineyard Wind is developing roughly 40 percent of lease area. He asked if the town could expect more cables and perhaps even different lessees in the future. Pachter said that it is likely that there will be other potential lessees, but all new development of the lease area – including by Vineyard Wind – will require a new filing beginning at square one.

Lollis noted that this project – if allowed - would be cited as precedent. Pachter said that there is no doubt that potential future lessees will learn from this project, just as Vineyard Wind learned from the Block Island project.

Carlson asked how Vineyard Wind can be sure that the cable is actually being buried to the desired depth when they will burying the cable in what is essentially a slurry of sand. Pachter said that successful burial will be confirmed by underwater video and sonar mapping.

Pachter noted for the record that changes had been made to table 4.1 in the Project Narrative. Calculations had been entered for impacts of one cable instead of two. This correction was sent to the Commission on May 1st and included as an addendum to all additional copies of the Notice of Intent.

Carlson asked about the thickness and construction of the concrete mattresses. Pachter replied that they will be a foot-and-a-half thick and no more than ten-feet wide. They will be constructed on shore and held together with stainless steel wire. Pachter reiterated that they are hoping they will not need to utilize any cable protection.

Carlson asked how long the mattresses will last. Pachter said they are used quite commonly and she believes that they will last the lifetime of the project. She will

check with the engineer for their life expectancy. She also noted that their condition will be monitored regularly.

Province asked if the mattresses will move. Pachter said she has heard of some instances of movement as a result of being snagged in fishing gear.

Vincent then opened the meeting to public comment.

Clay Merrill said that he has been fishing in the area for 50 years. He said he has watched Skiffs Island come and go: you can come back in one day and find 16 feet of sand where the day before there was none. Merrill said that once the area is disturbed there is no guarantee that it will return to the way it was. He also questioned how the cable will stay buried considering the currents in the channel. He was also concerned that the constant pounding from the installation of the cables and the turbines will interfere with fish being able to communicate. He said that all the herring and mackerel that come to the Vineyard come through that channel. He is convinced that the industry will be destroyed.

Alex Friedman, oyster farmer and commercial fisherman, said that although he supports alternative energy, he is concerned about the effects of the electromagnetic field (EMF) that will be generated by the cables. He said that EMF could disrupt the ability of many marine species to navigate. He said that he believed the effects of EMF on migrating fish is poorly understood and could have dire consequences. He noted that the proposed cables will be carrying many megawatts more than the existing Falmouth to the Vineyard cable. He said he did not believe there was adequate science behind the proposal.

Wesley Brighton said that he estimates that at least 20 representatives of the Vineyard fishing community are in attendance, because this is a vitally important issue to them. He said that he believes fishermen are more aware than many of the impacts of environmental changes on the marine environment. He said he believes in alternative energy but doesn't want it to decimate the Vineyard fishing industry. He said he thinks the project is being rushed through without adequate science. He cited a letter from the National Oceanic and Atmospheric Agency (NOAA) to the Bureau of Ocean Energy Management (BOEM) that questions the

science. He asked who would be responsible for monitoring the impacts of the EMF.

Ron Dagostino of West Tisbury said he has read much of the research and is confident that the science behind Vineyard Wind is strong. He said that the type of cable they plan to use, as well as its placement, would limit the EMF to levels of negligible or minor impact. He said that these statements are based on evidence not conjecture.

Gary Harcourt, renewable energy proponent, mentioned his participation in recent community resilience workshops where it was determined that rising sea levels and coastal flooding are the number one danger to the island. He said that efforts must be undertaken to stave off the effects of global warming. He said that he knows many of the fishermen present and many of them are his friends, but said that this project has been thoroughly vetted by the National Marine Fisheries, the Coast Guard, CZM and many others.

John Keene of the MV Fishermen's Preservation Trust (MVFPT) was concerned that removing 4000 truckloads of sand from one area could cause scouring in other areas.

Richard Toole, a 40-year resident, Chairman of the Oak Bluffs Energy Commission, and a member of the Martha's Vineyard Commission, commented that the 14 out of 15 comments heard by the MVC were favorable to Vineyard Wind. He said that climate change is a serious problem and we need to phase out fossil fuels as soon as possible and find new sources of energy. He said that global warming is helping to acidify the ocean, which will have a profound effect on the fishing industry. He urged the Commission to move forward on the proposal.

Norman Willard said that he has been in the environmental industry for over 20 years. He has worked in energy for the EPA in Boston, been a climate advisor for EPA, and worked with many local, state, and regional agencies concerned with climate issues. He currently advises the MVC on climate change. He said that we are in a climate crisis and need to find solutions. He said Vineyard Wind is one of

those solutions. He said that this is a piece of a much larger policy issue and he urged the Commission to take a stand and vote in favor of the proposal.

Susan McHugh said that she has fished for many years. She said that the community needs to pull the plug on this project before the fishing industry is decimated. She said the project will rip up the ocean floor and ruin the conch fishery and many livelihoods. She said that the reason people come to the island is because we care about our marine life.

John Osmer said he doesn't really believe the science behind the project and thinks it will have more impact than what has been presented.

Bridget Condlin commented that the hearing sounds like debates she heard in college. She asked where the engineer was and urged the Commission not to vote on the proposal today.

Fisherman Preston Butler said that he is 100% opposed. He said he has attended many meetings with Vineyard Wind and it is like talking to a wall. He said he believes that the project is really about someone making money. He said he was about to take out a loan for his fishing business, but is now afraid to pull the trigger. He wondered if anyone from Vineyard Wind was aware of the conditions in the channel in the middle of winter. He said if something goes wrong, they will have a very hard time fixing anything in those conditions. He said that turbines are made in Germany, Vineyard Wind is financed by a Danish company, and will hire foreign companies to service the turbines.

He said they are planning to pile drive the crap out of the ocean floor. He said that the turbines can't even run when the wind exceeds 25 mph. He said they will likely be shut off most of the winter. He said they should be put on the side of a highway, not in the middle of a pristine ocean. He said he understands that climate change is a problem, but so is starvation.

Wesley Look, researcher at the nonpartisan environmental 'think tank' Resources for the Future and a Vineyard Vision fellow, said he understood that this is an emotional issue. He said he supports the project and believes in the science behind climate change. He said that living on the Vineyard there is not a lot one

can do to alleviate climate change. He said that this is something we can do as a community and it will have a huge impact.

He took issue with those who said that the project is moving too fast. He said that it has been a 16-year effort. He said what is moving fast is the pace of climate change. He said that a good deal of Edgartown may well be underwater in the not too distant future. He said that Massachusetts is one of the most educated states and needs to lead this fight as they have led so many others. He said that the whole country is watching and if it doesn't happen here, where will it happen? He said that he believes Vineyard Wind will follow the best environmental practices and the community will hold them to it.

Judi Worthington said she believed we should not mess with nature. She asked if solar had been considered as it would seem to be less complicated with fewer unknowns. She said she had not heard much testimony on how the turbines would affect the bird population. She said she is in favor of making solar panels more affordable.

Kate Warner, energy activist, said that in 1998 she put in the first solar array on Martha's Vineyard. She said that the total solar energy output on the island is just 14.2 megawatts, a very small percentage of our power. She said that the Vineyard needs to take responsibility for how our energy is made. She said that while she sympathizes with the plight of the fishermen, they have a larger problem: climate change is warming the ocean and decreasing the oxygen available to all marine life. She said that the world is changing and we need to learn to adapt. She urged the board to keep their eyes on the larger issues and move the project forward.

Noli Taylor, Aquinnah Energy & Climate Committee member, said she believed that we are already out of time. She said that this project has been studied, debated, and vetted by some of the best scientists in the field. She said that while there may be risks, if steps are noted taken soon there will be no fishing or farming. She said she is afraid for her children's future. She said we have to unite as a community and stand up for this project.

Sara Dingley, MVRHS Principal, spoke about the collaboration between Vineyard Power and the high school for workforce development. She said that the high school will be partnering with Mass Maritime and Bristol Community College to create opportunities for students. She says she believes the project will have a huge impact on local kids' ability to see a path to their future. She said the program will start in 9th grade and students can earn certificates at age 17. She said that this will enable students who want to stay on the island find employment.

Richard Andrade of Vineyard Power, noted that Packer has already begun construction on a service facility in Vineyard Haven. Andrade said that they intend to hire 50 employees. They are hoping to employ 100% Vineyard residents and the high school and other institutions are already developing programs to help them earn the necessary technical degrees.

He noted that the project didn't happen overnight – there has been extensive research done on all aspects of the proposal. He said that the Selectmen of all six towns support the project.

Arno Ewing, local fisherman, said that he too supports renewable energy as well as a sustainable fishery. He said that as a fisherman he is concerned about the Vineyard ecosystem and noted that the ocean is one of the last wild places on the planet. He said he did not think this project will have enough of an impact on climate change to warrant destruction of the ecosystem. He said he sees it as an industrial development in a wild place.

Retired BU professor Alan Strahler spoke in favor of the project. He said he has had a long career as a scientist and has read all the impact reports related to Vineyard Wind. He said that he believes in the science and believes it is correct. He said the science says there will be little or no impact on the marine environment from the cable. He said that the information can be relied on because the science is correct. He said that the science on climate change is also correct. He said it is time to act.

Tom Hodgson, long time Vineyard resident, said that he is in favor of the project moving forward. He said that he is also speaking on behalf of his wife, Christine, who was unable to attend the meeting because of illness. He said that she works in the environmental field and is an advocate of this project.

At approximately 12:45 p.m. Vincent stopped the hearing for a 45 minute break.

At 1:30 p.m. the hearing reconvened.

Geoffrey Kontje made a motion to reconsider a previous vote that the Edgartown Bylaw is applicable in this project. Lil Province seconded the motion. Stuart Lollis, Peter Vincent, Christina Brown and Jeffrey Carlson all voted in favor of reconsidering the earlier vote.

Kontje made a motion to find a negative determination under the bylaw. Province seconded the motion and voted to find a negative determination. Lollis, Vincent, Carlson, and Brown also voted to find a negative determination. Unanimous.

Helen Parker, Chilmark resident and clinical psychologist, commended the board for their willingness to listen. She said that the issue has had a lot of attention globally. [See file for materials submitted to the Commission by Ms. Parker].

Parker said that she too is concerned about climate change and fossil fuel use, but does not believe that turbines are our friends. She said we have been hoodwinked since the Arab oil embargo into thinking wind farms were the answer. She said that turbines, even small 2 megawatt turbines, can have a disastrous effect on people who live around them. She has heard complaints from people living miles away from turbines. She said that the impact is caused by infrasound that is emitted by the turbines. Infrasound can make some people sick and cause them irreparable harm.

She said that the MVC refused to recognize that infrasound exists. She said the symptoms caused by infrasound include depression, PTSD, and panic attacks. She said that vibrations from the turbines create a resonance in the human body that

can cause nausea, ringing in the ears, anxiety, and confusion. She said it is especially difficult for people with autism.

Robert Hannemann, former Tufts professor and chairman of the Vineyard Sustainable Energy Committee, interjected that Ms. Parker did not know what she was talking about.

Parker continued and said that Vietnam Vet Jack Alexander killed himself under a 1.6 megawatt turbine in Florida, Ma. She said she understands that what she is saying is hard to believe, but said it is easy to understand. She said that not everyone is susceptible to infrasound and symptoms can range from minor to major.

Vincent reminded Ms. Parker that the issue before the board is the cable installation, not the turbines.

Parker responded that without the cables there would be no turbines. She said that if these cables go in, they will destroy the island.

She said that Block Island installed a cable in 2016 that was never buried properly. She said it will cost 10 million dollars to repair.

Zoe Turcotte said that she and her husband Timothy Penicaud own a home on Wasque. She said they were super excited about the project even though it will likely be visible from their home. She said that it will give her hope for the future every time she looks at it. She urged the Commission to act as a model for the rest of the country.

Todd Goodell introduced himself as a lifelong resident of Chappy and a commercial fisherman. He said he finds the whole project scary. He said it either needs to be put on hold or downscaled. He said that the science is usually paid for by the proponents. He said he feels the island is being strong-armed.

Preston Butler agreed and said that he thinks Vineyard Wind has strong-armed their way through every presentation. He asked how much fossil fuel has been expended by the large boats that have been going back and forth along the channel for months. He said that if more cables go in the whole island could be

cut off by its own electromagnetic field. He said that with the amount of energy they will be expending to construct the turbines it could take 15 years before they reach carbon neutrality. He said he thinks there are better options.

Finn Robinson, Vineyard middle-school student, urged to the board to look at the facts. He said we are running out of time and we need to do something now. He said that the project may have an effect on fisherman, but fisheries are going to change regardless.

Terry Dangel introduced himself as a recovering attorney living on Chappy. He said that this is too important a problem to cite NIMBY concerns. He said that he has been involved in EMF lawsuits and, try as he might, he was unable to win any settlements for people who said they were harmed by EMFs. He said there was no science behind it.

He said that there are powerful corporate forces at play who would like to see this project defeated. He said that non-profit organizations funded by the Koch brothers were instrumental in defeating Cape Wind.

He wondered if similar forces were trying to defeat this project. He said that printed pamphlets and other materials had a professional look about them.

Riggs Parker said that he was a fully recovered attorney. He said that investors in this project are getting massive government subsidies. He said that he believes wind farms to be financially unstable yet they are financially encouraged. He said that investors like the free money and the subsequent revenues go to them rather than to the communities.

Bonnie Widdoes commented that the fossil fuel industry is the recipient of massive government subsidies.

Tubby Medeiros introduced himself as a 7th generation islander. He said that he is out in the channel 9 months of the year. He said he makes a living on sand waves. He said that the dredging and resultant silt will torpedo the scallop industry in Edgartown. He said Vineyard Haven Lagoon is dead thanks to a 30 million dollar piling project. He said the wind farm does not belong in pristine waters. He said

the project will disrupt a multi-million dollar squid and clam industry. There will be no more Bass & Bluefish Derby. He urged the audience to remember this meeting when they go to the fish market down the line and find there are no bay scallops to be had.

Odin Robinson, Vineyard middle-school student, urged the board to vote for the project. He said that if something is not done about global warming, the ocean will become unlivable.

Ben Robinson - MV Commissioner, Tisbury Planning Board member, and climate activist – said that this is the Vineyard's most important decision in years. He said that as citizens we must recognize that it is time to change the way we do business. He said that in many ways, fishermen are the modern equivalent of the canary in the coal mine. He said that the irrefutable fact is that our oceans are collapsing as a result of man-made issues. We are our own worst enemy.

He said that the one natural resource the east coast has in abundance is wind and we need to harness it. He said that Massachusetts has been a leader in many national efforts such as gay marriage and healthcare and we need to show leadership in this area as well. He urged the board not to be swayed by science-deniers. He said that some of the research cited by Ms. Parker comes from a think-tank in Copenhagen that is run by the Koch brothers. He said that there is a ton of money being used to sabotage wind projects.

He said that reports, even from Trump-led agencies such as NASA and the Department of Defense have said unequivocally that climate change is the result of human actions. He said he has immense empathy for the fishermen, but that all of us will be tasked with some level of sacrifice.

Shelley Edmondson, executive director of the MVFPT and a PhD in marine environmental science, urged the Commission to act with caution. She said she thinks there are still too many unknowns. She said she is caught between concern for the fishing industry and concern about the acidification of the ocean.

Rich Saltzberg from the MV Times had questions about the decommissioning process.

Paul Bagnall, Edgartown shellfish warden, said that we don't really know what is out there so it's hard to judge the effects of the project.

Helen Parker objected to being shut down earlier. She said she took offence with Mr. Dangel's characterization and said that she is not working for any entities other than herself.

Mr. Dangel apologized and said that in his past experience there is often more going on behind the scenes. He said that the issues raised in this hearing are huge and that big money is being spent. He said he believed it was fair on his part to ask where people are coming from when they make very professional presentations.

Kristi Strahler said that she has attended many of the hearings on Vineyard Wind and other climate issues. She is concerned because she has grandchildren and is afraid that if we do not do something soon there will be no more time.

Judi Worthington asked why we can't just shut off the lights and ride our bikes more.

Preston Butler said that he was convinced that sediment will make its way into Edgartown harbor and the surrounding wetlands.

Vincent said that all the sand from Bend in the Road and Cow Bay end up at Edgartown Lighthouse; he said he thinks that the sand actually goes towards Nantucket.

Bridget Condlon said that she has been extremely moved by people from both sides. She said she now stands in the middle and urged the board to be sure about their decision. She said she hopes they know what they are doing.

Holly Carlson Johnston said that she will address some of the questions raised by the public but that she will confine her comments to jurisdictional issues.

As far as the concrete mattresses are concerned, they are specifically designed not to move. Their lifespan is the same as that of the project: 30 years. They will be subject to the same post-construction monitoring as other aspects of the

project. She said that the stainless steel wire that connects the mattresses is embedded in polypropylene rope.

Carlson Johnston said that the sand wave dredging process has been thoroughly vetted. If they need to dredge at all, material collected will be deposited within the surveyed corridor. They will only be dredging in sand waves and the dredged material will be deposited in adjacent sand waves – like feature to like feature.

She said they have done detailed modeling and turbidity studies of the project. She said that greater turbidity than what the project will produce can occur naturally and is well below what shellfish can tolerate. Generally turbidity of the amount expected to be generated settles out within 4 to 6 hours.

Pachter addressed the questions regarding decommissioning. She said that the Bureau of Energy Management has a third party assess the amount of money needed for decommissioning at the start of a project and those funds are then set aside and held by the federal government. Pachter said she will submit details of their decommissioning plan to the Commission.

Lollis commented that expenses could double in 30 years. Pachter said that is taken into consideration in the assessment.

Vincent said that he would like to see the decommissioning plan so the board knows that there is an alternative to the Commission requesting a performance bond.

Ted Barten of Epsilon Associates said that he has been involved with the project for over three years as the environmental engineer. He said that EMF occur in nature as well as in man's use and transport of electricity. He said it is a well understood phenomenon which, in this case, is simplified by the fact that the cables will be underground effectively blocking EMF. Only a magnetic field will be occurring. He said that the effect of the magnetic field on the marine ecology has been extensively reviewed and scrutinized by many agencies tasked with protecting the marine environment.

Natural magnetic fields can generate 550 milligauss, refrigerator magnets 100,000 milligauss, and an MRI 20,000,000 milligauss. He said that the 50 to 100 milligauss is what is expected to be produced by Vineyard Wind. He said that they don't expect the cables to carry the full 800 megawatts, on average they will be carrying about 400 megawatts. He said that there will be 44 milligauss generated directly over the cables and significantly less further away. He said that the levels drop off very quickly. He said that existing cables typically generate levels between 10 to 30 milligauss.

He said that cables have been operating in Nantucket Sound for over 15 years with no ill effects.

He noted that BOEM began studying the effects of EMF on lobsters and skates 8 or 9 years ago. Lobsters and skates were chosen because they are known to be electrosensitive species. Millions of dollars worth of research was done at URI, which tested the cross-sound cable in Long Island Sound. The study concluded that energized electrical cables have no appreciable effect on the movement of those species, though they did detect some subtle temporary effects on behavior.

Kontje asked what mechanisms were in place to shut off the cables in the case of damage or other emergency. Barten replied that the cables can be shut down in seconds at either end.

Attorney Adam Kahn thanked the board for their time and comments. He said he hoped the board would be able to vote as soon as possible and join all the other approvals Vineyard Wind has received. He reiterated that the research referred to was independent and not paid for by Vineyard Wind. He said that the science behind the project does not bear out many of the concerns voiced. He said that by issuing an Order of Conditions the board has the opportunity to exert some control over the project. He said that the board can be assured that Vineyard Wind will comply with those conditions.

There were no further comments. Vincent then closed the public portion of the hearing.

Brown made a motion to continue the hearing to 4 p.m. on July 10th and to leave the record open until July 5th so that material requested can be submitted. Province seconded the motion. Unanimously approved.

Kontje thanked everyone for showing up. He thanked Vineyard Wind for their presentation and thanked his fellow Commissioners for taking part. He said that everyone was present because we are at a tipping point that started with the Industrial Revolution. He said at the center of the debate is the question of whether the impact of the project on the local environment is worth the benefit to the climate. He said he would like to think that the two are not mutually exclusive. He said he sees the project as a test case for what will come next. He said that we need to do everything in our power to ensure that the local ecology can flourish alongside sustainable energy. He said it is not an easy decision to make.

Meeting was adjourned at approximately 4:00 p.m.