

New England Wind Project

MIT Renewable Energy Facility Siting Clinic
December 2024

Status Update prepared by students enrolled in [11.592 Renewable Energy Facility Siting Clinic](#)

Iman Aziz

Teresa He

Ariel Higuchi

Aruni Ranaweera

Archer Thomas

TA: Sanjana Paul



1.0 Introduction

1.1 Introduction to the MIT Renewable Energy Facility Siting Clinic

1.2 Objectives of the Clinic

1.3 Offshore Wind

1.3.1 Offshore Infrastructure

1.3.2 Onshore Infrastructure

2.0 Offshore Wind Infrastructure in Barnstable, Massachusetts

2.1 Background & Context

2.1.1 Vineyard Wind

2.1.2 New England Wind I

2.1.3 New England Wind II

2.1.4 About the developers

2.2 Understanding the facility in the stakeholder context

3.0 Stakeholder Analysis

3.1 Outreach

3.2 Themes in Stakeholder Input

3.2.1 Health and Safety

3.2.2 Climate, Energy, and Environment

3.2.3 Finances and the Host Community Agreements (HCAs)

3.2.4 Politics and Previous Community Engagement

4.0 Conclusion

4.1 Takeaways

4.2 Next Steps

Background

This status update summarizes student work completed during one semester for the MIT Renewable Energy Facility Siting Clinic practicum, offered by the MIT Department of Urban Studies and Planning. It compiles discussions, both virtual and in-person, regarding stakeholder concerns related to the onshore components of the New England Wind II offshore wind project.

The stakeholders interviewed do not represent a comprehensive list, nor do they necessarily reflect the overall opinions or sentiments of the residents of the Town of Barnstable. Concerns were summarised as presented by the interviewed stakeholders and do not reflect the views of the authors, students, or the teaching team of the clinic.

The term “stakeholder(s)” is used interchangeably throughout this update and may refer to concerns raised by one or more individual(s) or group(s).

1.0 Introduction

1.1 Introduction to the MIT Renewable Energy Facility Siting Clinic

The MIT Renewable Energy Facility Siting Clinic is a public service center at the Massachusetts Institute of Technology’s Department of Urban Studies and Planning (MIT DUSP). Led by Prof. Larry Susskind and Dr. Jungwoo Chun, the Clinic connects university experts with industry stakeholders, regulators, and citizen advocates to resolve disputes over new renewable energy projects. By identifying the sources of conflict and controversy surrounding the siting of renewable energy facilities and creating venues for communication and collaboration, the Clinic aims to help stakeholders resolve some of their differences.¹

Generally, the Clinic’s interventions have taken place within the context of a course offered every semester (11.592 Renewable Energy Facility Siting Clinic). Fulfilling the practicum requirement for the Master in City Planning (MCP) track, the course selects locations (mostly in Massachusetts) where renewable energy facility siting issues are especially pertinent. Students identify and interview stakeholders, assess interests and concerns, and hold multi-stakeholder meetings which (with the help of Clinic staff facilitators) bring individuals and groups with different perspectives to the table.

¹ [MIT Renewable Energy Clinic](#)

In Fall 2024, a subset of the students enrolled in the course were selected to explore the onshore impacts of a forthcoming wind project off the coast of Cape Cod, Massachusetts (New England Wind Project II), and more specifically transmission infrastructure in the town of Barnstable, to understand the multifaceted controversies which have sprung up around the project in recent months/years. The team, composed of graduate students from MIT and Harvard with urban planning, public policy, and engineering backgrounds, engaged in conversations with various stakeholders and produced this status update document. As we wrap up the semester and prepare to hand off this project to next semester's students, the purpose of this document is to provide an update on what we have heard from stakeholders thus far. This update is based on 13 interviews; we recognize that the stakeholders interviewed do not constitute a comprehensive set of views and backgrounds and therefore the stakeholder analysis presented in this document is preliminary and incomplete.

This semester the team has decided not to hold a multistakeholder meeting, judging that (this being the first semester of the Clinic's intervention in Barnstable) there needed to be more information collected and connections made with stakeholders. In place of such a meeting, the team is presenting updates to key stakeholders on its findings thus far with an eye toward further fact-finding and collaboration in future semesters.

1.2 Objectives of the Clinic

- To learn more about the onshore infrastructure associated with New England Wind Project II in Barnstable.
- To pinpoint the sources of concern surrounding the siting of this infrastructure, connecting them to specific stakeholder groups.
- To create a safe space for civil, productive discussion between stakeholders.
- To carry out these functions in a manner that is nonpartisan (neither pro- or anti-development), neutral, and mutually beneficial.

1.3 Offshore Wind

Offshore wind has been central to conversations regarding a green energy transition in Massachusetts. According to the Commonwealth's Executive Office of Energy and Environmental Affairs, "Offshore wind will be a cornerstone of the Massachusetts energy supply in the next three decades, enabling the Commonwealth to meet its decarbonized energy demand while sustaining economic growth."²

1.3.1 Offshore Infrastructure

² [Offshore Wind | Mass.gov](#)

The offshore infrastructure associated with wind power consists primarily of turbines and undersea cables which transmit the electricity generated ashore. Turbines can be hundreds of feet tall and are topped by fiberglass blades that catch the wind and turn a generator, thus producing electricity.³

1.3.2 Onshore Infrastructure

The onshore infrastructure associated with wind power consists of the kinds of structures commonly used to connect large power plants to the grid: transmission lines and substations. Given that the turbines are offshore, however, the transmission lines must make landfall along the coast. On Cape Cod, some of these landfalls have been buried beneath beaches. The lines are then routed underneath local streets and right-of-ways towards substations which connect to the higher-capacity lines that serve the region as a whole. At substations, the current is modulated to align with the needs of the regional grid. Dielectric fluids are used throughout to insulate the current and ensure that electricity is not discharged into the surrounding environment.

2.0 Offshore Wind Infrastructure in Barnstable, Massachusetts

2.1 Background & Context

The project under study is one of the three offshore wind projects in the Commonwealth of Massachusetts. Sometimes stakeholders referred to these three projects under the broader umbrella of “offshore development” or referred to phases of development using terms like “the first project.” For this reason, we have outlined the three projects in this section and for the sake of clarity tried to add the names used. This section is based on published information on these projects with no analysis on our part or reflection of the authors’ opinions individually or the clinic as a whole.

2.1.1 Vineyard Wind

Also referred to as Vineyard Wind 1, this offshore wind energy project is planned to consist of 62 General Electric Haliade-X turbines positioned 1 nautical mile apart in both east-west and north-south orientations. According to a February 2024 press release from the Office of Governor Maura Healey, the 806-megawatt project “will generate electricity for more than 400,000 homes and businesses in Massachusetts, create 3,600 Full-Time Equivalent job years, save customers \$1.4 billion over the first 20 years of operation, and

³ [How a Wind Turbine Works - Text Version | Department of Energy](#)

is expected to reduce carbon emissions by more than 1.6 million metric tons per year, the equivalent of taking 325,000 cars off the road annually.”⁴ The project was negotiated with the City of Barnstable through a community host agreement to address local priorities and concerns.⁵

An offshore substation collects the electricity these turbines generate before being transmitted to the shore. Two submarine cables were laid along a route from the offshore substation to the landing point onshore at Covell’s Beach in Barnstable to facilitate this process. The project descriptions state that submarine cables were buried up to six feet below the seafloor using a jet plow. Additionally, the onshore cables will be buried beneath public roadways in Barnstable leading to an onshore substation in the village of Hyannis. The Vineyard Wind 1 onshore substation is located adjacent to an existing Eversource substation.

This project saw a recent complication in the Summer of 2024, when a blade from one of the offshore turbines, AW-38, broke off. The incident has sparked speculation and uncertainties. GE Vernova, the manufacturer of the turbine blades, has removed many blades for testing purposes⁶. Once stringent safety and operational conditions are met, the relevant companies are granted approval to return to installing new blades on turbines.

2.1.2 New England Wind I

An offshore wind development located in federal lease area OCS-A-0534, approximately 30 miles south of Barnstable, Massachusetts, part of this project’s transmission infrastructure is planned to make landfall near the Craigville Beach parking lot in Barnstable. The project will share a border with Vineyard Wind 1. The project is said to generate 791 MW⁷. The development is expected to create over 4,400 full-time equivalent jobs and involve \$3 billion in local investment. This investment includes plans for a marshaling port in Salem, MA, and an offshore wind manufacturing facility in New Bedford, MA. If a power purchase agreement is finalized and approved, construction could begin in 2025, with the majority of investment, approximately \$2 billion, occurring between 2027 and 2029. The project is anticipated to achieve full commercial operation in 2029. A community benefits agreement was also negotiated for this project.

⁴ [Vineyard Wind, America’s First Large-Scale Offshore Wind Farm, Delivers Full Power from 5 Turbines to the New England Grid | Mass.gov](#)

⁵ [Vineyard Wind LLC Host Community Agreement Fully Executed Agreement](#)

⁶ [GE Vernova and Vineyard Wind Provide Update on Incident and Response Action Plan](#)

⁷ [Avangrid’s New England Wind 1 Project Selected by Massachusetts In Offshore Wind Solicitation](#)

2.1.3 New England Wind II

Our work this semester focused on the New England Wind II Project. This project involves installing three cables spanning approximately 23 miles through state waters and about 6.7 miles of underground utility infrastructure, connecting a proposed landfall site to a substation. The substation is planned to be located on private property north of Route 6, near Oak Street. Additionally, the project includes approximately 0.4 miles of underground utility infrastructure connecting the proposed substation to the existing West Barnstable Substation, owned by Eversource. New equipment will also be installed at the West Barnstable Substation on Oak Street to enable interconnection with the ISO-NE electrical grid.

During stakeholder interviews, it was found that communication between the project developer and the Barnstable Town council has decreased. As of October 27 the Cape Cod Times reported that the Town Council voted against the project. The future of the project, including whether a different landfall site will be considered, remains uncertain.

2.1.4 About the developers

Vineyard Wind LLC, an offshore wind development company, constructed Vineyard Wind 1, known as the first commercial-scale offshore wind energy project in the United States. The company is a joint venture, with 50% ownership each from funds of Copenhagen Infrastructure Partners (CIP) and Avangrid Renewables, LLC.

Avangrid Renewables, LLC is a subsidiary of AVANGRID, Inc. and a part of the IBERDROLA Group. Avangrid owns and operates a portfolio of renewable energy generation facilities, primarily utilizing wind power. Avangrid Renewables is headquartered in Portland, Oregon.⁸

2.2 Understanding the facility in the stakeholder context

The New England Wind II project consists of two components: an offshore component, which is outside the scope of this work, and an onshore component divided into three key areas. These include the utility infrastructure near Dowses Beach (currently unconfirmed per recent updates), the cables within the City of Barnstable, and the onshore substation needed for power transmission. Each area involves distinct stakeholder groups with

⁸ [About Us - Avangrid](#)

concerns specific to that component, though some concerns overlap across multiple areas of the project.

3.0 Stakeholder Analysis

3.1 Outreach

The team reached out to 17 individuals representing a broad spectrum of stakeholder groups, including those in favor of and in opposition to the project as it stands. We undertook 13 unstructured interviews and working off of the notes we took, we have identified the concerns and interests of 8 distinct stakeholder groupings to date. This is by no means exhaustive, and in the coming semester, we hope that the Clinic will be able to identify and interview more stakeholder groupings.

3.2 Themes in Stakeholder Input

3.2.1 Health and Safety

Some stakeholders raised health and safety concerns related to radiation and exposure to the transmission infrastructure including EMF radiation, proximity to high voltage, and explosions or fires at substations or transmission cable landings. These stakeholders also raised concerns regarding ADA accessibility of the beach during or after construction and health and safety concerns regarding the potential for failed blade infrastructure.

Other stakeholders raised the issue of the need for upgrades to wastewater infrastructure to address groundwater contamination. These upgrades were discussed in the context of the New England Wind II project because the Host Community Agreement for New England Wind I includes \$2.4 million to help defray the Town's sewer construction costs and also saves the Town the cost of repaving the newly sewered roadway that instead will be repaved by the wind project following Avangrid's work.⁹

3.2.2 Climate, Energy, and Environment

Some stakeholders stressed the importance of investing in renewable energy to reduce greenhouse gas emissions from the use of fossil fuels. These stakeholders also saw renewable energy as supplementing energy demand due to concerns that gas infrastructure will not be able to sustain home heating needs. Other stakeholders were

⁹ [1 SIDE AGREEMENT RELATING TO THE HOST COMMUNITY AGREEMENT BY AND BETWEEN THE TOWN OF BARNSTABLE AND PARK CITY WIND LLC This Side](#)

concerned that fiberglass released from blade failures and development more broadly could threaten marine life.

3.2.3 Finances and the Host Community Agreements (HCAs)

Finances and the host community agreements (HCA) were a consistent theme in stakeholder concerns. Some questioned whether a limited liability company (LLC) would have a sufficient enough stake in the project and local community to execute the project with due diligence. They worried that homeowners would be left liable for financial costs and abandoned assets should Avangrid or its subsidiaries fail. Some stakeholders are concerned that the existence of different LLC names for different offshore wind projects, e.g. Park City Wind LLC for New England Wind I Project vs Commonwealth Wind LLC for New England Wind II Project may cause confusion or legal concerns.

Some stakeholders have also expressed concern that Barnstable was not compensated enough through HCAs, especially in comparison to the expenses associated with necessary sewer renovations and costs to aesthetics, convenience, and property values.

New England Wind II has also been discussed in relation to affordable housing, with some residents claiming that other residents are concerned that sewer renovations through the HCA will be a precursor to further development such as scaling up multifamily affordable housing in Cape Cod under the Commonwealth's 403b program.

3.2.4 Politics and Previous Community Engagement

Offshore wind infrastructure has become a salient political issue in Barnstable. While a majority of the town's electorate supported Governor Maura Healey in 2022,¹⁰ Barnstable is far from politically uniform. Many residents with significant concerns regarding New England Wind II emphasized that they were not against renewable energy in general. Some stakeholders opposed offshore wind energy specifically while advocating for other modes of renewable energy. Other stakeholders recognized the critical role offshore wind could play in decarbonizing Massachusetts's grid but objected to this particular plan. Meanwhile, some stakeholders were steadfast in their support for the project, believing that many of the concerns raised by opposition groups were exaggerated.

The diversity of opinions on offshore wind has made it an increasingly significant issue in Town Council elections, leading to a reshuffling of its membership. Combined with attrition and retirements, this has resulted in a town council that is markedly different from the one that negotiated the first host community agreement. Some stakeholders have

¹⁰

<https://uselectionatlas.org/RESULTS/town.php?year=2022&fips=25&f=1&off=5&elect=0&datatype=town>

expressed concerns that negotiations lack the stability of consistent political leadership and the clarity and transparency that they expect

We also spoke with residents who were critical of Avangrid's community engagement efforts. They believe that Avangrid, especially since the pandemic, has been inconsistent in their community engagement programming and that the company has been slow to answer their questions regarding the proposed infrastructure and the materials used. Other residents expressed concern that misinformation and disinformation was complicating engagement efforts, i.e. that even when experts were brought in to answer questions, stakeholders could not agree on what the facts were. Some residents claimed that certain opponents of the project objected to Avangrid's parent company Iberdrola being foreign (based in Spain).

4.0 Conclusion

4.1 Takeaways

There were many takeaways from our discussions in Barnstable, but some of the key insights from these preliminary interviews were:

- For the Developer: Communication is key to any progress. It is important to dedicate time, people, and resources to ensure transparent communication.
- Barnstable Town: It is a good starting point for the town council to set its own ground rules for this or any other project in its town. Lack of internal discussion may escalate disputes into unsaid conflicts.

4.2 Next Steps

We believe that the focus of next semester's work should be continuing stakeholder interviews. We also suggest continued communication with the town council at Barnstable to assist with creating a process to approach communication and decision making regarding new projects and/or emerging technologies. Depending on the future of this project, one or more joint fact-finding sessions can be organized. These sessions can be led by student participants in the Renewable Energy Facility Siting Clinic's Barnstable Team and professional facilitators (either from the Clinic's teaching staff or an outside organization, like the Consensus Building Institute). These sessions should involve representatives of the major stakeholders involved and may include cooperatively identifying the public's most pressing questions as well as agreeing on outside experts who can be called upon to advise on them.