Clean Link
New Jersey

New Jersey Board of Public Utilities

Offshore Wind Transmission Proposal Data Collection Form

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Clean Link New Jersey

Con Edison Transmission, Inc.
4 Irving Place,
New York, NY 10003

September 17, 2021

Re: 2021 New Jersey Board of Public Utilities (NJBPU) offshore wind state agreement approach transmission proposal

Dear Review Committee,

New Jersey's clean energy goals place it at the forefront of the nation's transition to renewable energy. By developing offshore wind farms to generate power for the people of New Jersey, the state will lower CO_2 emissions, generate thousands of jobs, stimulate the economy, and attract clean energy development.

Con Edison Transmission, Inc. is proud to present **Clean Link New Jersey**, our solution to facilitate the transmission of power generated by New Jersey's offshore wind farms. It provides a unique combination of benefits and advantages for the state of New Jersey. Our proposed solution offers flexibility and modularity to facilitate reliable, cost-effective delivery of offshore wind energy to New Jersey consumers using state of the art technology.

Our solution embraces the power corridor concept to provide a cost-effective opportunity to install multiple power import links at the same time. It maximizes capacity transfer and minimizes disruption to the shore communities hosting the infrastructure.

We believe that our project is the best choice for New Jersey for the following reasons, among numerous others:

Offers flexibility, modularity, and option value. Clean Link New Jersey will offer two high-voltage direct current (HVDC) cables to three different potential Points of Interconnect within one power corridor. Further, two offshore platforms can be positioned to optimize the costs to serve specific offshore leaseholds.

Clean Link
New Jersey

Reliability and resiliency. Clean Link New Jersey is prepared to connect these platforms or potentially other nearby platforms by AC connections to create an affordable network connection. Further, use of HVDC creates reliability features that enhances the reliability for the existing grid through the operator's use of the HVDC converters to provide voltage support and provide blackstart capability.

Minimal community and beach impact. Clean Link New Jersey has minimal impact to the shoreline and land right-of-way (ROW), minimal impact on plants and wildlife, and preservation of the viewscape. We have selected HVDC, which is less risky and less intrusive than AC and can be placed underground using a smaller footprint. Most of our proposed route uses the existing power corridor, therefore minimizing greenfield construction.

We look forward to working with NJBPU and its staff to develop this project and are proud to submit this bid solution. Thank you for your consideration.

Sincerely,

[redacted]

Timothy Frost
Vice President
[redacted]

ACRONYMS AND ABBREVIATIONS

Acronym/ abbreviation	Meaning
AACE	American Association of Cost Engineers
AC	Alternating current
AFUDC	Allowance for funds used during construction
APE	Area of potential effect
AWOIS	Automated Wreck and Obstruction Information System
BLSS	Bureau of Legal Services and Stewardship
BMP	Best Management Practices
BOEM	Bureau of Ocean Energy Management
BPU	Board of Public Utilities
CAA	Clean Air Act
CAFRA	Coastal Area Facility Review Act
CAPEX	Capital expenditure
CBRS	Coastal Barrier Resources System
CEQ	White House Council on Environmental Quality
CES	Critical Environmental Site
CET	Con Edison Transmission
CETL	Capacity Emergency Transfer Limit
CETO	Capacity Emergency Transfer Objective
CFR	Code of Federal Regulations

Acronym/ abbreviation	Meaning
CMP	Coastal Management Program
COD	Commercial operation date
COLREGS	Convention on the International Regulations for Preventing Collisions at Sea
COP	Construction and Operations Plan
Cost Cap	Cost containment provision
CRIGRIS	Cultural Resource Geographic Information System
CRIS	Cultural Resource Information System
Cu	Copper
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DLRP	Division of Land Resource Protection
EA	Environmental Assessment
ECR	Export cable routes
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
ELCC	Effective Load Carrying Capability
EMF	Electromagnetic field
ENC	Electronic Navigational Charts

Acronym/ abbreviation	Meaning
EPA	US Environmental Protection Agency
ESA	Environmental Species Act
FAQ	Frequently asked questions
FERC	Federal Energy Regulatory Commission
FIDWC	Federal Manual for Identifying and Delineating Jurisdictional Wetlands
FIPS	Federal Information Processing Standards
FLO	Fisheries Liaison Officer
FMP	Fisheries Management Plan
FPA	Federal Power Act
FWPA	Freshwater Wetlands Protection Act
GAP	General Activities Plan
GARFO	Greater Atlantic Regional Fisheries Office
GBS	Gravity-based substructure
GIS	Geographic Information System
GW	Gigawatt
HDD	Horizontal directional drilling
HDPE	High-density polyethylene
HPO	Historic Preservation Office
HVDC	High-voltage direct current
IHA	Incidental Harrassment Authorization
IPaC	Information for Planning and Consulting
JCP&L	Jersey Central Power & Light Company
KV	Kilovolt
LCP	Linear Construction Project

Acronym/ abbreviation	Meaning
LDA	Location Deliverability Areas
LOA	Letter of Authorization
MARCO	Mid-Atlantic Regional Council on the Ocean
MBTA	Migratory Bird Treaty Act
MHWL	Mean High-Water Line
MMPA	Marine Mammal Protection Act
MOA	Memorandum of Agreement
MS4	Municipal Separate Storm Sewer System
MSAP	Master Survey and Assessment Plan
MW	Megawatt
N/A	Not applicable
NAAQS	National Ambient Air Quality Standards
NAD 1983	North American Datum of 1983
NEPA	National Environmental Policy Act
NGO	Non-governmental organizations
NJAC	New Jersey Administrative Code
NJBPU	New Jersey Board of Public Utilities
NJDEP	New Jersey Department of Environmental Protection
NJDFW	New Jersey Department of Fish and Wildlife
NJDOT	New Jersey Deparment of Transportation
NJGIN	New Jersey Geographic Information Network
NJMVC	New Jersey Motor Vehicle Commission
NJPDES	New Jersey Pollutant Discharge Elimination System
NJSA	New Jersey Statutes Annotated
NJTA	New Jersey Turnpike Authority

Acronym/ abbreviation	Meaning
NLAA	"Not Likely to Adversely Affect"
NLP	Net Load Payments
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOx	Nitrogen oxides
NSRA	Navigation Safety Risk Assessment
NTM	Notice to Mariners
NVIS	Navigation and Vessel Inspection Circulars
NWPR	Navigable Waters Protection Rule
NYISO	New York Independent System Operator
NYSERDA	New York State Research and Development Authority
O&M	Operations and maintenance
OBC	Overburdened Community
OCRM	Office of Ocean and Coastal Resource Management
OCS	Outer Continental Shelf
OCSLA	Outer Continental Shelf Lands Act
OEM	Original equipment manufacturer
OFLR	Offshore Fisheries Liaison Representative
OSRP	Oil Spill Response Plan
OSW	Offshore wind
PATONS	Private Aids to Navigations
PCER	Permit Coordination and Environmental Review
PDC	Project Design Criteria
POI	Point of interconnection
RHA	Rivers and Harbors Appropriation Act

Acronym/ abbreviation	Meaning
ROD	Record of Decision
ROE	Return on equity
ROW	Right-of-way
RTEP	Regional Transmission Expansion Plan
RUE	Right-of-use and easement
SAA	State Agreement Approach
SAP	Site Assessment Plan
SAV	Submerged aquatic vegetation
SESC	Soil Erosion and Sediment Control Plan
SHPO	State Historic Preservation Office
SOx	Sulphur oxides
TBD	To be determined
THPO	Tribal Historic Preservation Offices
TJB	Transition junction boxes
TOYR	Time-of-Year restrictions
TWh	Terawatt hour
USACE	United States Army Corps of Engineers
USC	United States Code
USCG	US Coast Guard
USDOI	US Department of Interior
USFWS	US Fish and Wildlife Service
USGS	United States Geological Survey
VMS	Vessel Monitoring System
WFDIP	Waterfront Development Individual Permit
WQC	Water Quality Certification

01.

EXECUTIVE SUMMARY

01.

EXECUTIVE SUMMARY

1.1. Reliable, cost-effective offshore wind for New Jersey

New Jersey's transformative public policy places it at the forefront of the nation's transition to renewable energy. Through its ambitious offshore wind goals, as established by Governor Murphy's Energy Master Plan and the New Jersey legislature and implemented by the ongoing solicitations by the New Jersey Board of Public Utilities (NJBPU), New Jersey will integrate over 7.5 GW of offshore wind by 2035, and it is projected to fully decarbonize power generation by 2050.

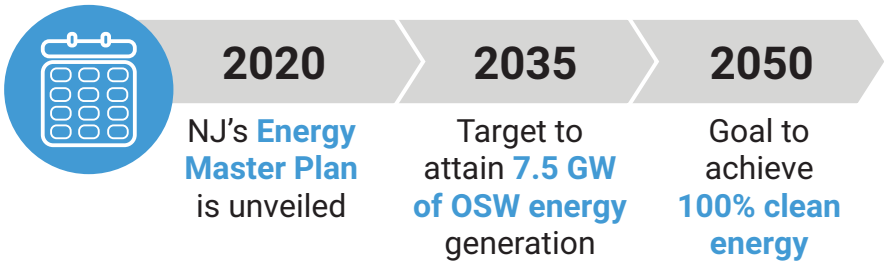


Figure 1-1. Clean Link New Jersey will progress New Jersey's goal to achieve 100% clean energy by 2050.

Recognizing the limits on the existing transmission system, and the associated challenges facing the public policy goals, the NJBPU proactively engaged with PJM, through the utilization of a State Agreement Approach, to accomplish these public policy goals.

The commitments by the federal government to vastly expand the use of offshore wind power along the East Coast, including specifically the State of New Jersey's plans for an offshore open access transmission system, puts the region on track to tap a potentially enormous source of renewable energy and to drive new green infrastructure, jobs, and economic opportunity.

Con Edison Transmission (CET) is proposing **Clean Link New Jersey**, a flexible and modular power corridor solution that will facilitate the reliable and cost-effective delivery of offshore wind energy to New Jersey consumers with minimal disruption to host communities during the construction period.

Figure 1-2. Clean Link New Jersey will establish New Jersey as a leader in clean energy, paving the way for a cleaner, better tomorrow.

Clean Link New Jersey is privileged to support NJBPU in tackling the challenges associated with the timely, reliable, and cost-effective delivery of offshore wind and its associated benefits to New Jersey consumers.

Clean Link New Jersey undertook state-of–the-art analysis to identify the major drivers of uncertainty and validate the benefits associated with the power corridor solution. Our proposed power corridor will utilize high-voltage direct current (HVDC) technology, a proven system, in support of New Jersey's public policy and offshore wind generation goals.

1.2. Project overview

Clean Link New Jersey's power corridor solution proposes new transmission facilities linking 2.4 GW of the anticipated offshore wind generation to the default points of interconnection (POI) [redacted]

Clean Link New Jersey proposes new transmission facilities in response to Option 2 of PJM's Proposal Window. **Our solution embraces the power corridor concept, which provides a cost-effective opportunity to install multiple power lines at the same time.** It also enables a solution that provides minimum disruption for the shore communities hosting the infrastructure by incorporating state-of-the art HVDC technology.

> By providing a flexible solution that would optimize the coordinated delivery of clean energy, Clean Link New Jersey supports NJBPU and PJM in solving their most vexing challenges. Clean Link New Jersey enables the state's transformative energy policy and supports the delivery of environmental and social equity, without overburdening New Jersey's ratepayers and communities.

Figure 1-3. Clean Link New Jersey is proposing a modular HVDC power corridor development to support the reliable and cost-effective delivery of OSW resources to New Jersey consumers.

Clean Link New Jersey believes that the [redacted] power corridor has the ability to accommodate four HVDC lines. **The power corridor would further minimize disruption to the communities hosting the corridor and enable savings from installing the lines together.** Clean Link New Jersey is willing to construct two of the HVDC lines and to interconnect [redacted]. Clean Link New Jersey would also be willing to team with others for a joint installation of all four lines along the power corridor.

Clean Link New Jersey offers the option of connecting its offshore platforms and nearby platforms via AC links to create a mesh-style offshore grid. This would provide a limited cost-effective solution in response to Option 3 of PJM's Proposal Window and provide an efficient approach for creating the reliability and resilience that we think is vital for New Jersey in an affordable and sensible way.

Figure 1-4. Clean Link New Jersey will support and benefit all New Jerseyans regardless of race, age, or socioeconomic status.

1.3. Compelling advantages of Clean Link New Jersey

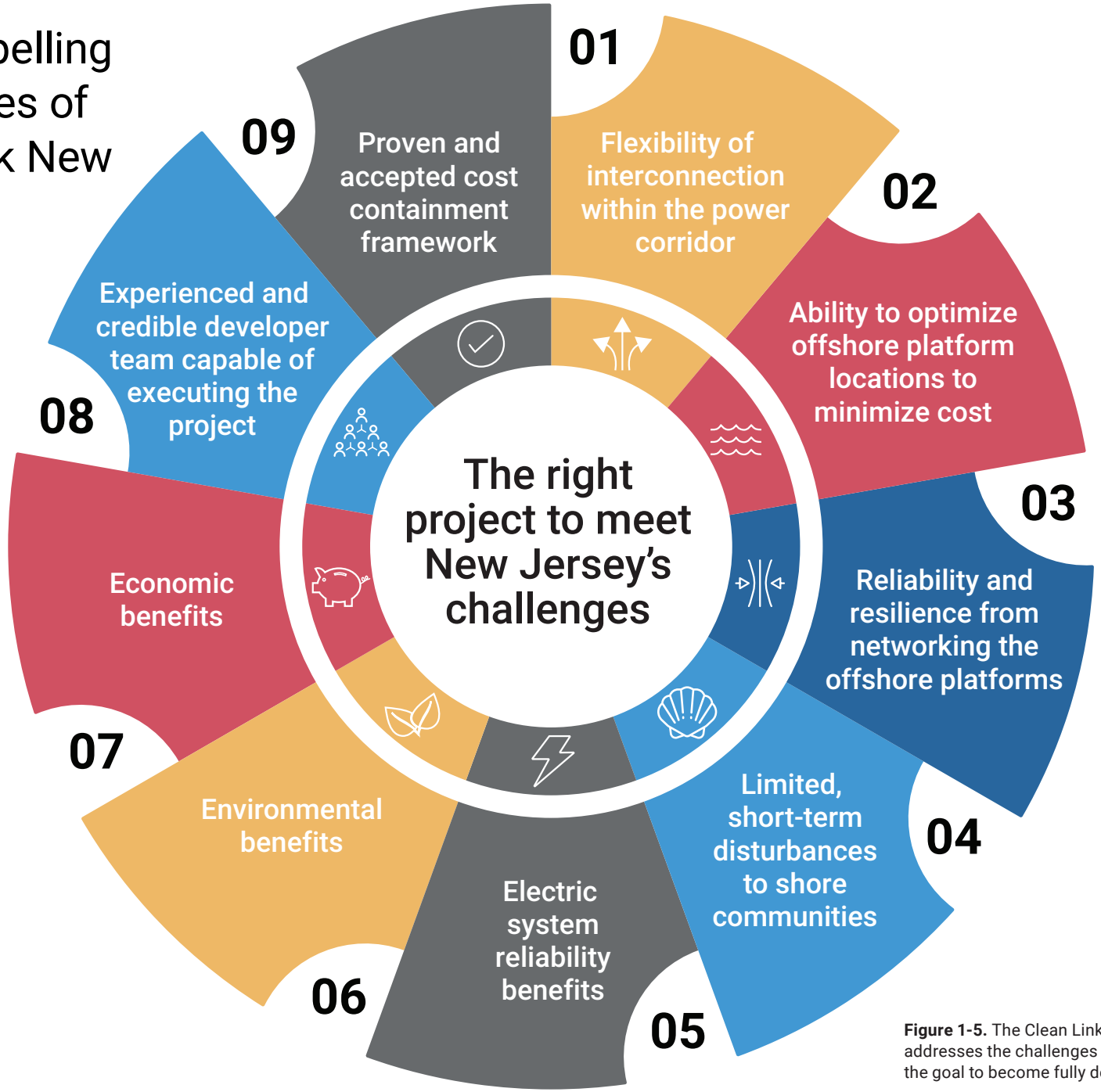


Figure 1-5. The Clean Link New Jersey solution addresses the challenges that New Jersey faces in the goal to become fully decarbonized.

1.4. Flexibility of beginning and end points within the power corridor

Clean Link New Jersey is offering a solution focused on the Option 2 Problem Statement as defined in the PJM Offshore Wind State Agreement Approach Transmission Proposal Window. The solution addresses landfall connections and offshore transmission connection needs from onshore substations to offshore substations.

Clean Link New Jersey creates options for New Jersey to determine where it could deploy our solution and optimize costs relative to other elements of the overall costs for achieving New Jersey's offshore goals.

We believe that New Jersey has the ability to interconnect [redacted] offshore power into the New Jersey power grid. Clean Link New Jersey is proposing to land two HVDC lines with 2,400 MWs [redacted] for one or both interconnect locations. We are also willing to team with others to pursue all four HVDC lines. Installing the HVDC lines captures savings in installation in one operation and minimizes the disturbance to the communities that are affected by the installation phase.

Offshore, the Clean Link New Jersey platforms will be located beyond sight of the beach communities, but their ultimate location can be optimized for cost with the identified wind leaseholds supplying to the Clean Link New Jersey lines.

The Clean Link New Jersey solution also offers the ability to link the two proposed HVDC platforms and potentially other nearby platforms. The proposed offshore platform design allows the integration of our HVDC platforms at the AC side to create an offshore grid. Our HVDC platforms may also integrate with other offshore wind AC or HVDC platforms through close coordination. This approach of creating a meshed grid is expected to enhance reliability and reduce the overall cost of adding more offshore wind power production. [redacted]

This flexibility provided by Clean Link New Jersey accommodates a coordinated approach to transmission from multiple projects, and the optionality of an offshore grid. This provides the opportunity to better manage costs and improve grid stability, while significantly reducing permitting and environmental impacts.

The Clean Link New Jersey flexibility of design uniquely provides the following benefits:

- Accommodates coordinated planning and offers modular solutions that enable capacity expandability, construction sequencing and partnering
- Offers flexibility and leverages the power corridor design to minimize disruption to communities and beach areas and leverages potential savings of installing multiple power lines together on mostly existing ROW
- Provides flexibility to locate the offshore grid to optimize the total cost to customers
- Creates cost-effective and flexible offshore network grid and emphasizes reliability and resilience of the resulting grid for operation

1.5. Reliability and resilience from networking the offshore platforms

Reliability and resilience of the offshore grid should be better than that from radial transmission to shore. The Clean Link New Jersey solution achieves reliability and resilience at a reasonable cost. **Both of the offshore platforms can be linked to each other or to nearby platforms for other leaseholds and have the ability to connect to other offshore wind lease areas.**

1.6. Limited, short-term disturbances to shore communities and beachgoers

Clean Link New Jersey is committed to minimizing disruption to shore communities and not impacting the fun of being at the beach. Clean Link New Jersey will leverage HVDC technology to maximize feasibility and reduce construction duration and impacts. Further, we propose that offshore platforms and infrastructure be beyond the line of sight for beachgoers. In shore communities, Clean Link New Jersey will use an underground approach for all rights of-way (ROW) from landfall to Points of Interconnection. Further, most of the ROW will use the existing utility infrastructure [redacted].

Figure 1-6. Clean Link New Jersey will not disrupt the enjoyment of a day at the beach.

1.7. Proven and accepted framework to protect the investment by New Jersey's customers: Our approach to cost containment

Clean Link New Jersey suggests a proven cost containment framework that will manage cost impacts for New Jersey ratepayers, a framework already approved by FERC and used within the NYSIO region. Our cost containment proposal protects customers from increases in certain capital costs, including the cost of contract work, labor, materials and supplies, transportation, special machine services, shop services, engineering services, general administration services, legal services, real estate and land rights, rents, studies, training, asset retirement, taxes, reasonably expected environmental site remediation, and environmental mitigation costs as defined in the tariff. Such costs are expected to form the majority of the investment.

[redacted]

This approach is part of a cost containment provision similar to the cost containment mechanism the New York Independent System Operator (NYISO) recently included in its tariff as an option for competitive bidders. This mechanism is based on a model of cost containment approved by the Federal Energy Regulatory Commission (FERC) for several projects under construction in New York. NYISO's cost containment provisions were created through a rigorous stakeholder process.

[redacted]

1.8. Electric system benefits

The proposed infrastructure will enable the delivery of offshore wind with HVDC converters providing operators voltage support with VAR stability and black start capability.

> HVDC decreases power degradation, cuts maintenance costs, reduces special operating procedures, and takes up less space in the underground corridor.

Clean Link New Jersey is designed for reliability and resiliency to benefit the PJM electric system, from the underground and underwater conduits and cables, the use of HVDC, and lastly the inclusion of AC links between the offshore platforms to create a limited offshore network.

Figure 1-7. Clean Link New Jersey will offer more system reliability.

1.9. Environmental benefits

The primary benefit of the transmission infrastructure is enabling a clean energy future for New Jersey. The modeled result for the creation of the Clean Link New Jersey is the potential to decrease the need for must-run generation (mostly fossil-fuel-dependent) by as much as 42%, as well as the potential to decrease the amount of CO_2 emissions produced in the New Jersey area by up to 48% in 2028.

Describing the concept of a power corridor, a report prepared by Levitan & Associates for the New Jersey Board of Public Utilities states, "**A single construction program in one ROW would minimize environmental disturbances, particularly along the coastline and through sensitive on-shore environments.** To minimize New Jersey's upfront costs, converter stations could be added by the OSW developers when needed as part of the construction scope associated with each new OSW project."

The Levitan report concludes that a radial approach would have the greatest environmental impact, stating "HVAC radial export systems will require more cables, miles of trenches, more landings, and more HDD boreholes compared to a coordinated HVDC transmission solution for the same OSW buildout, and thus will have greater short-term habitat disturbance, cumulative environmental impact, and potential long-term conflict with fisheries."

1.10. Economic benefits

Clean Link New Jersey supports the reliable and cost-effective integration of OSW without any curtailment or congestion on New Jersey and PJM grids. Further, it decreases Net Load Payments (NLP) by 2% and production cost by 2.5% providing comparable ratepayer cost savings opportunities.

The 2020 report U.S. Offshore Wind Power Economic Impact Assessment by the American Wind Energy Association (AWEA) states,

> "The offshore wind industry is poised for exponential growth in the United States. Market projections anticipate between 20,000 to 30,000 megawatts (MW) of offshore wind capacity will be operational by 2030, representing between $28–$57 billion of investment in the U.S. economy."

According to AWEA (now the American Clean Power Association), offshore wind project development, construction, and operations will support 19,000 to 45,000 jobs by 2025 and 45,000 to 83,000 jobs by 2030. Investment in the US offshore wind industry will deliver $5.5 to $14.2 billion per year by 2025, and $12.5 to $25.4 billion per year by 2030 in economic output.

The Levitan report states that New Jersey will gain "diverse economic benefits" from offshore wind development. "These benefits," the report states, "are robust and likely sustainable over the long term."

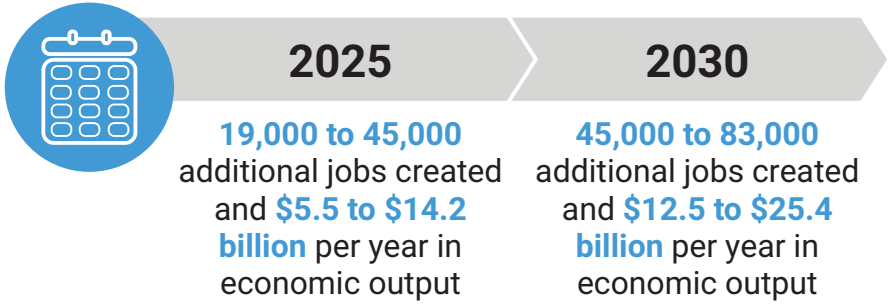


Figure 1-8. Offshore wind projects are projected to create thousands of jobs and generate billions of dollars in economic output over the next 20 years.

Our analysis shows that the Net Load Payments (NLP) do show a reduction in costs in 2028 [redacted] The reduction is about 2%. The comparison available shows a significant increase in NLP from 2028 to 2035 (about 24%) considering other factors are involved like an increase in load, fuel prices, inflation, etc., from 2028 to 2035. We suspect that a comparison to a hypothetical 2035 base [redacted] would yield about the same reduction in cost to the ratepayers as shown in 2028. Focusing on the greater New Jersey, we observed that the benefit trend was about the same as the PJM (about 2% reduction in 2028).

Our project enables new OSW which is expected to have an Effective Load Carrying Capability (ELCC) of about 31% that, through the investments in transmission, will become deliverable to the New Jersey load (Location Deliverability Areas or LDA). This increase in local capacity will translate in an increase to the local reserves in the LDA (AECO, JCP&L, PSEG, and RECO) reducing the need to invest in capacity or acquire capacity on the PJM capacity market as generation retires into the future. Moreover, the increase in local capacity should reduce the area's Capacity Emergency Transfer Objective (CETO) and hence the dependence on transmission to achieve a required Capacity Emergency Transfer Limit (CETL).

1.11. An experienced and credible developer team that can execute the project plan

Clean Link New Jersey is a project of Con Edison Transmission, Inc. (CET), a subsidiary of Consolidated Edison, Inc (CEI). CET is focused on creating electric transmission projects and has a portfolio of electric and gas transmission investments. CET has a mission to link customers with clean energy, including renewables. **"CEI is committed to leading and delivering the transition to the clean energy future that our customers deserve and expect."**

CET's strategy has been to pursue competitive transmission opportunities, through partnerships when available, to achieve the solutions that best fit the needs of the communities it serves. CET has become a successful independent transmission developer by understanding local needs, using the latest proven technology, and creating infrastructure and stakeholder outreach that minimizes impact on local communities.

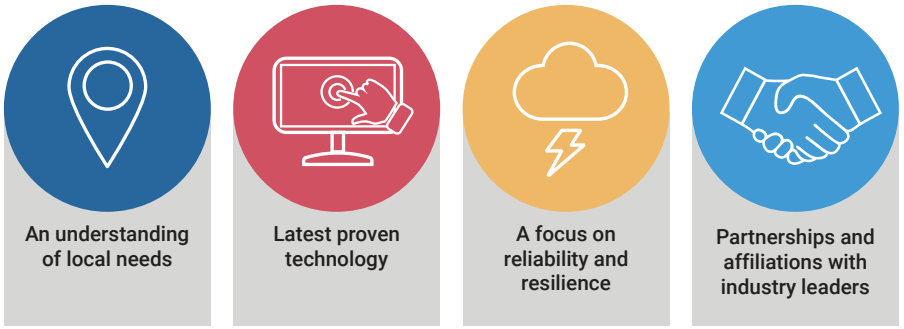


Figure 1-9. CET is a successful independent transmission developer providing greater access to energy supplies and more competitive pricing for customers.

Notable among CET's portfolio of electric investments is its ownership in New York Transco LLC (NY Transco), a partnership of the four New York State investor-owned utilities. The mission of NY Transco, in which CET is the largest investor, is to plan, develop, and own new high-voltage electric transmission projects in New York that will reduce power flow congestion, facilitate the growth of renewable generation sources, and provide continued grid reliability.

NY Transco is currently developing and constructing the New York Energy Solution and two related projects, Rock Tavern to Sugarloaf. These projects are designed to bring clean renewable energy from upstate to downstate New York, relieve historic congestion on New York's bulk electric power system, maintain system reliability, and improve resilience, all while maximizing the use of existing utility rights-of-way.

New York Energy Solution will upgrade approximately 55 miles of existing utility infrastructure, permanently eliminating approximately 230 existing transmission structures and replacing other towers with new monopole structures while Rock Tavern to Sugarloaf will replace aging infrastructure with modern structures along a 12-mile ROW relieving grid congestion. **The New York Energy Solution design will relieve grid congestion, bring more renewable energy from upstate to downstate New York while reducing the number of transmission towers, replacing them with number a new tower design that stakeholders agree is a visual improvement.**

CET has also been active in the development of offshore wind transmission and has been publicly identified as the transmission partner to the Sunrise Wind Project. This 924 MW project is located over 30 miles east of Montauk, NY and owned by Bay State Wind. **CET has focused on solving the challenges of bringing offshore wind through landfall to connect with the existing transmission system.**

CET has advocated for the need to create higher levels of reliability and resilience for offshore wind by migrating from radial "generator lead" connections to a coordinated offshore network that aids in creating multiple paths for power to reliably integrate with the onshore grid. We recognize that the interconnection from shore to the grid backbone is challenging, and those assets need to be optimized for the benefit of all customers, not just the initial interconnecting project.

As a subsidiary of CEI, CET is an affiliate of Consolidated Edison Company of New York, Inc., Orange and Rockland Utilities, Inc., and the Con Edison Clean Energy Businesses, Inc. (jointly Con Edison). The Con Edison companies have over 100 years of experience developing, constructing, maintaining, and operating transmission facilities with a total of approximately 143,000 miles of electric transmission and distribution infrastructure including underground and above ground.

Orange and Rockland Utilities' subsidiary Rockland Electric Company serves customers in New Jersey, while Orange and Rockland Utilities and Consolidated Edison Company of New York, Inc. serves customers in New York.

Con Edison has an established reputation for reliably operating a complex electric transmission and distribution system in a large urban environment that makes it a leader within the electric industry. **The Clean Link New Jersey project team will draw from this pool of knowledge and experience and will be supported by subject matter and industry-specific experts through strategic partnerships with our consultant team.** We are also open to exploring additional partnerships as necessary to successfully implement the project for the benefit of New Jerseyans.

Figure 1-10. CET has been active in the development of multiple ongoing offshore wind projects in the Northeast.

BPU EVALUATION CRITERIA

1. Project constructability

- Horizontal directional drilling (HDD) at proposed landfall will eliminate impacts to shoreline.
- Existing transmission ROW will minimize community disruptions and risk.
- Landfall is on a publicly owned property that is not open to the public and has a history as a landfall for communication cables.

2. Project costs

- Single power corridor will reduce costs of construction, ROW, and permitting.
- A proven cost containment framework will reduce costs to customers.
- The costs are realistic and aggressive and have been well vetted for feasibility that enable us to provide cost containment.

3. Project risk mitigation

- Stakeholders will be engaged and consulted early in the process.
- Site access, land acquisition, and permitting will be achieved at an early stage.
- A rigorous risk analysis has been conducted.

4. Environmental factors

- CO_2 emissions will be reduced by approximately 4%.
- HVDC is less risky and intrusive and will be underground.
- An existing ROW will be used.
- Offshore platforms will be out of sight.

5. Permitting plan

- Federal and state agencies will be consulted at an early stage.
- CET has experience in securing ROW from incumbent utilities.

6. Quality of proposal and developer experience

- CET and its affiliates have more than 100 years and 143,000 miles of electric transmission and distribution experience.
- CET has been involved in evaluating and developing solutions for offshore-to-onshore transmission links in the Northeast.

7. Flexibility, modularity, and option value of solutions

- Offshore HVDC platforms can be located to optimize costs to customers.
- Offshore HVDC platforms can be linked to enhance reliability and resilience.
- Power corridors enable combining HVDC circuits into a structure that limits impacts to communities and optimizes costs.

8. Market value of offshore wind generation

- Offshore wind will displace more expensive or carbon-emitting sources.
- In the 2028 case, Net Load Payments decrease by 2% and production cost by 2.5%.

9. Additional New Jersey benefits and synergies

- The project will support economic development and create thousands of jobs.
- Ratepayer savings, better environmental outcomes, and better grid stability are anticipated.

Figure 1-11. The Clean Link New Jersey project meets BPU's evaluation criteria as described in more detail on the following pages.

1.12. Fulfillment of BPU evaluation criteria

1. Project constructability

The challenges of bringing offshore wind to New Jersey include the need to avoid obstructions along the route, the need to minimize impact to the shoreline, homes, and businesses in this densely populated state, and the need to minimize impact to the natural environment, including sensitive or threatened species.

Our team draws on the experience of CET, an established developer with extensive experience in transmission infrastructure. We will apply our well-established processes to effectively plan and manage project risks.

Our team has conducted rigorous conceptual, environmental, and economic analyses to anticipate, avoid, or overcome obstacles. **Our infrastructure expertise helps us optimize project design, permitting, procurement, construction, commissioning, and operation and maintenance — all while managing risk.**

The proposed submarine corridor has been developed to avoid known areas of charted obstructions and wrecks. Horizontal directional drilling (HDD) will be vital at the proposed landfall [redacted] while eliminating impacts to the beach shoreline. This landfall is on a publicly-owned property that is not open to the public and has a history as a landfall for communication cables. HDD will also be used for major infrastructure and waterway crossings.

The recent bill signed by Governor Murphy enables the use of public ROW and allows a more centralized consenting approach. This supports our suggestion to use existing transmission ROW. Our onshore route has been developed to minimize community disruptions, optimize cost, and minimize risk. Our proposal takes time-of-year restrictions into account, including restrictions necessary to avoid impact to nesting birds.

Figure 1-12. The use of HDD at the proposed landfall in Sea Girt will minimize impacts to the shoreline and community.

2. Project costs

The Clean Link New Jersey project costs are realistic and aggressive and have been well vetted for feasibility that are enabling us to provide cost containment. We have used several strategies to make the Clean Link New Jersey proposal cost competitive. **Our choice of a single power corridor to convey electricity from numerous wind turbines, creating an energy superhighway, reduces costs of construction, required ROW, permitting, and disruption to local communities.**

Our team has maximized the use of existing ROW and existing POI. [redacted] With the selection of multiple HVDC circuits, Clean Link New Jersey can offer cost savings created by construction and major equipment procurement synergies. Our onshore transmission experience enables us to provide a certainty of outcome that is unmatched.

Our selection of the location of the offshore HVDC platform based on further optimizing the cost while taking certain technical limitations as well as BOEM permitting requirements and visibility from the shoreline into consideration. We understand however that there might be a need to relocate those platforms depending on the actual location of the potential wind farms or the greater solution being considered by the BPU and PJM. Our solution is flexible and can accommodate such change [redacted] We will evaluate the impact of such relocation to assess the associated water depths, bathymetry and other submarine conditions that may have an impact on our suggested design and HVDC platform cost.

As provided in our proposal, the offshore HVDC platform design allows the integration of our HVDC platforms at the 66 kV AC side to create an offshore grid. Our HVDC platforms may also integrate with other offshore wind AC or HVDC platforms through close coordination. [redacted] We will apply a proven cost containment framework that will reduce costs for New Jersey customers, a framework already used in the NYISO region and approved by the FERC.

Clean Link New Jersey will be in operation in early 2028. The proposed cost of the project in 2021 dollars is shown in Table 1-13.

	Capital expenditure
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]
[redacted]	[redacted]

Table 1-13. Proposed cost of the Clean Link New Jersey project in 2021 dollars.

These costs are for each HVDC line if they were selected individually. [redacted] Other combinations of other interconnection points would start at this level of savings and could be larger. We are also available to further discuss the impact or changing the in-service date. However, we respectfully ask for joint discussions if the date of operation is moved more than six months earlier which could result in premium pricing to reduce the lead time for offshore platform construction, or if the project were to be extended more than two years.

3. Project risk mitigation

Major power projects like Clean Link New Jersey affect many stakeholders, from homeowners, businesses, utilities, and regulators to environmental organizations. Open and transparent stakeholder engagement is critical.

Our team has already engaged or consulted with the Board of Public Utilities Department of Environmental Protection, [redacted] and landowners to anticipate their needs and mitigate risks. We will continue to respond to questions and concerns, provide opportunities to engage community members, and build relationships of trust.

We have applied rigorous risk analysis, including probabilistic risk modeling and Monte Carlo simulations, to determine and assess project-specific risks. This includes analysis of environmental, commercial, routing, siting, and nearshore/ marine factors.

4. Environmental benefits

Environmental benefits of the project include reduced CO_2 emissions, minimal impact to the shoreline and land ROW, minimal impact on plants and wildlife, and preservation of the viewscape throughout the ROW.

Our study indicated that our project would reduce CO2 emissions in the New Jersey area by about 4% by 2028 compared to adopting a standard approach (the base case). By 2035, CO2 emissions would still be reduced by 2.5% to 3% compared to the base case even under the projected demand growth.

> We have selected HVDC, which is less risky and less intrusive than AC and can be placed underground using a smaller footprint.

Most of our proposed route uses the existing power corridor [redacted], minimizing greenfield construction. The primary selected sites for new substations are in brownfield locations. Our use of HDD decreases disruption to shore communities. Finally, our offshore platforms would be sited beyond the line of sight for beachgoers.

4%
reduction in carbon dioxide emissions

Figure 1-8. Clean Link New Jersey will result in a reduction in CO_2 emissions compared to the base case.

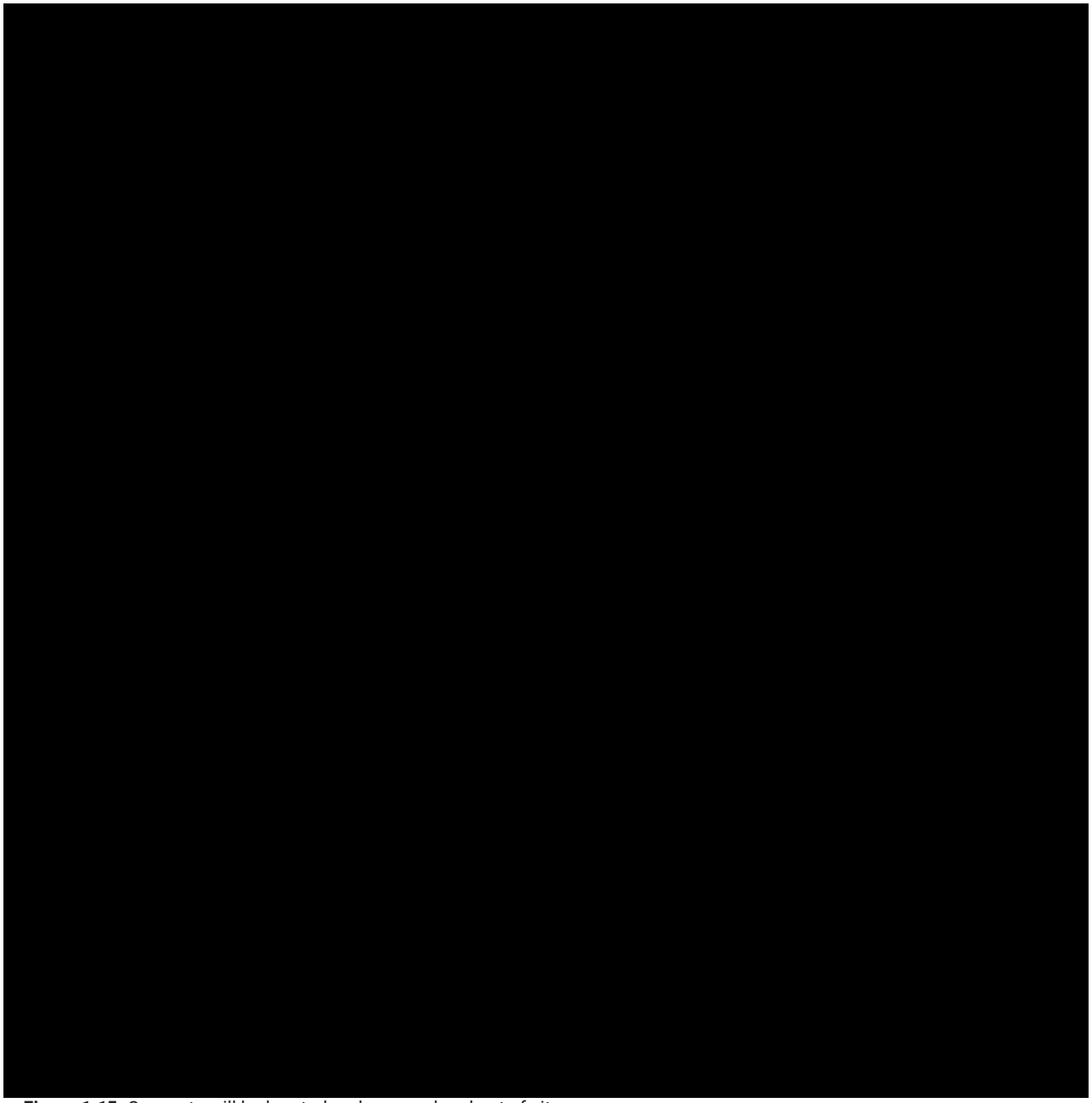


Figure 1-15. Our route will be located underground and out of site.

5. Permitting plan

Successful completion of the Clean Link New Jersey project requires both onshore and offshore permitting. To facilitate offshore permitting, we will coordinate with BOEM at an early stage to review the proposed lease and ROW and right-of-use and easement (RUE) request areas. We will consult with other federal and New Jersey state agencies as necessary.

We propose installing our underground facilities in a power corridor with existing overhead transmission ROW [redacted]. CET has experience in work with local utilities to utilize existing ROW from incumbent utilities, and we look forward to the opportunity to work [redacted] with the support of NJBPU.

Public road ROW will also be used for [redacted] the route. **Risks for this use are substantially abated by New Jersey law authorizing the use of public ROW for transmission lines carrying electricity from offshore wind turbines to the power grid.**

6. Quality of proposal and developer experience

CET has diligently approached this opportunity which should demonstrate the quality of our solution and proposal. We have engaged a team of subject matter experts and have participated in technical conferences to support the public conversation for the development of the concepts in the proposal.

The proposal reflects the experience of CET as an independent developer of public policy transmission projects in New York State, both linking renewables from land sources and as a specialist in offshore wind transmission. As mentioned above, CET brings to this project the skills and experience of its affiliated companies, totaling more than 100 years developing, constructing, commissioning, maintaining, and operating approximately 143,000 miles of electric transmission and distribution infrastructure and facilities.

On offshore wind specifically, CET has been involved in evaluating and developing solutions for offshore-to-onshore transmission links in the Northeast. CET has focused on engineering solutions that would fit permitting requirements and has developed detailed plans to address key environmental challenges. **CET has extensive experience in identifying constructable and permittable landfalls, de-risking upland routing, and managing complex stakeholders.**

CET has an ownership in NY Transco, whose mission is to plan, develop, and own new high-voltage electric transmission projects in New York State to reduce power flow congestion, facilitate the growth of renewable generation sources, and provide continued grid reliability. NY Transco is currently developing and constructing projects that will bring clean renewable energy from upstate to downstate New York, relieve historic congestion on New York's bulk electric power system, maintain reliability, and improve resilience.

7. Flexibility, modularity, and option value of solutions

Clean Link New Jersey's power corridor provides a platform for a coordinated approach to offshore wind transmission from multiple generators. The corridor includes offshore HVDC collector platforms as the building blocks for collecting and exporting power to onshore. The submarine cables including onshore underground cables can be scaled to add significant capacity with minimal expansion of infrastructure, offering a needed flexibility to cope with continuously shifting and increasing offshore wind targets. These elements can be combined, integrated, and sequenced to optimize delivery and cost in accordance with the actual and eventual offshore wind solicitations and in-service dates.

The power corridor proposed allows for the addition of more HVDC circuits. Clean Link New Jersey offers the flexibility of substituting connections [redacted] for one or both of the proposed lines. CET is also willing to team with other developers to install four HVDC lines within the power corridor. A supplementary link from an elective offshore converter station to a POI [redacted] would add the capacity to transmit more than the base 2,400 MW capacity. The project also sets out a framework for an offshore grid using supplementary AC links across and among the proposed offshore converter stations and the offshore wind generators.

8. Market value of offshore wind generation

The primary benefit of Clean Link New Jersey is to support the delivery of clean, low-cost offshore wind power to New Jersey ratepayers. We expect offshore wind power to be prioritized, displacing more expensive or carbon-emitting sources such as fossil-fuel-dependent generation. Our analysis identified that all of the scenarios considered resulted in the same delivered energy and there was no appreciable curtailment.

Focusing on the costs for the greater New Jersey area, we note that the Net Load Payments (NLP) decrease by 2% ($58 Million) in the 2028 case. The production cost in 2028 also decreased in the study footprint by about 2.5% although it varies slightly among the scenarios we have evaluated.

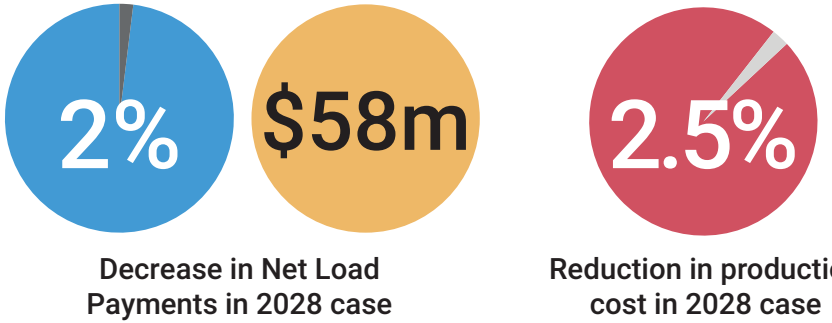


Figure 1-16. The low-cost of offshore wind generation is expected to displace more expensive or emissive generation.

9. Additional New Jersey benefits and synergies

Clean Link New Jersey represents a major investment in the state's infrastructure that will support economic development and create thousands of new jobs. Clean Link New Jersey is committed to employing skilled union workers.

Coordinated transmission from multiple wind farms, as planned in our project, may lead to considerable ratepayer savings, better environmental outcomes, and better grid stability, and may significantly reduce permitting risk.

> Clean Link New Jersey will accelerate the concept of offshore open access transmission system, putting New Jersey at the forefront of de-risking electric export of offshore wind to the shorelines and POIs in New Jersey. This will attract more offshore wind developers to invest in the state for projects such as ports.

1.13. Conclusion

Clean Link New Jersey offers an unparalleled combination of benefits and risk mitigation factors.

- Creates efficiencies and cuts costs through the use of a single power corridor, offering the opportunity for a coordinated approach to transmission from multiple offshore wind generators — reducing the need, cost, and impact of independent radial lines.
- Offers the option of adding modules to the power corridor, including AC connections between wind farms and additional AC/DC transformers, which will enhance reliability and resilience.
- Uses an underground approach for all ROWs from the landfall to the POIs. This offers superior protection from outages by sheltering the cables from extreme weather conditions.
- Decreases environmental impacts and increases system reliability.
- Contains costs and protects ratepayers through a mechanism already tested and approved by FERC.

- Uses the lower-risk and less intrusive alternative of HVDC rather than AC. HVDC decreases power degradation, cuts maintenance costs, and reduces special operating procedures.
- Has the potential to decrease the need for must-run generation (mostly fossil-fuel-dependent) by 40%.
- Has the potential to decrease the amount of CO_2 emissions produced in the New Jersey area by 4%.
- Supports the reliable and cost-effective dispatch of offshore wind without any curtailment or congestion on New Jersey and PJM grids.
- Uses HDD to minimize impact on shore communities.
- Uses existing utility infrastructure [redacted] for most of the route, resulting in minimal impacts to undisturbed areas.
- Offers the cost-effective option of extending the power corridor [redacted].
- Utilizes the experience of a proven transmission developer in the region.
- Enables the full benefits of the planned system reliability upgrades (provided by others).
- Invests in New Jersey transmission infrastructure that enables competitive solicitations for offshore wind, bringing all the benefits of clean wind energy to the people of New Jersey.

Figure 1-17. Clean Link New Jersey will facilitate reliable and cost-effective delivery of OSW energy to New Jersey.

02.

PROJECT PROPOSAL IDENTIFICATION

02.

PROJECT PROPOSAL IDENTIFICATION

2.1. Proposing entity name

COEDTR

2.2. Company ID

COEDTR-01

2.3. Project title

Clean Link New Jersey

2.4. PJM proposal ID

990

03.

PROJECT SUMMARY

03.

PROJECT SUMMARY

3.1. Narrative description of proposed project(s)

Clean Link New Jersey is proposing a modular HVDC power corridor development to support the reliable and cost-effective delivery of OSW resources to New Jersey consumers. Clean Link New Jersey's technical solution responds to Option 2 within PJM's Proposal Window by providing new offshore transmission facilities to default POIs on the PJM-operated grid within New Jersey.

The base solution proposes two new HVDC links, each with a capacity to transfer 1,200 MW, for a total of 2,400 MW, connecting new offshore converter stations to new onshore converter stations interconnected [redacted].

Clean Link New Jersey offers the optionality [redacted].

Clean Link New Jersey is willing to locate the offshore converter platforms in a way that will optimize the costs for the supply and therefore minimize the costs for New Jersey customers.

Clean Link New Jersey will also create a limited offshore grid by creating AC linkages between the proposed offshore converter stations and potentially neighboring offshore stations.

Our team is eager to support NJBPU in tackling the challenges associated with the timely, reliable, and cost-effective delivery of OSW benefits to New Jersey consumers..

Technical overview

Clean Link New Jersey's power corridor incorporates two offshore converter station platforms, located beyond the shore's line of sight, to collect power from the planned OSW generators. The collected AC power from the wind turbines is converted into HVDC power and transmitted towards New Jersey's shore via two submerged HVDC cables, each in a dedicated subsea trench (Figure 3-1).

The submerged cables transition to underground HVDC through two HDD tunnels at the landfall, [redacted].

HVDC cables are then installed in a single duct bank across two circuits, through [redacted].

From this facility the cables run along the existing road and utility ROWs, and ending at new converter stations [redacted].

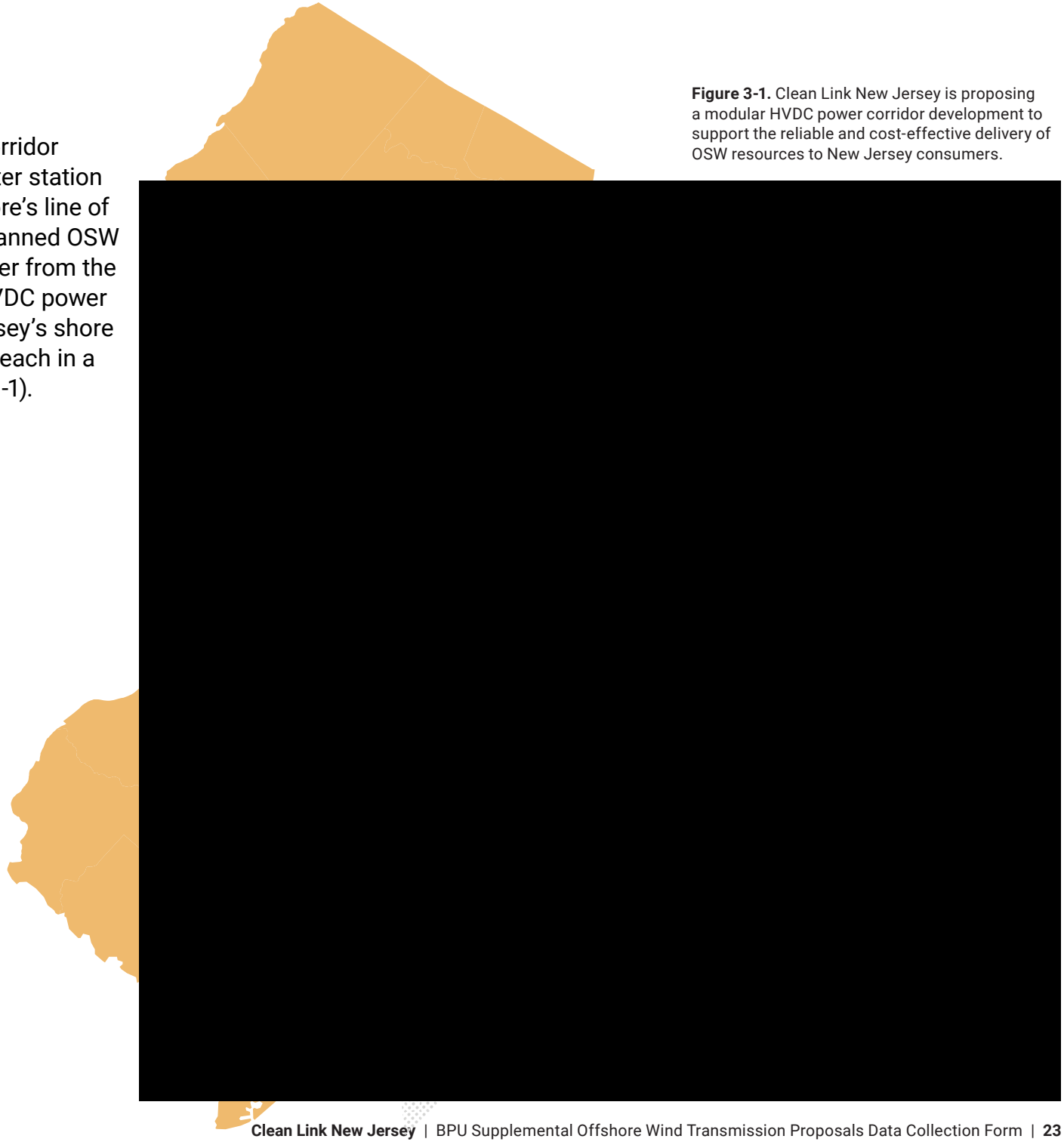


Figure 3-1. Clean Link New Jersey is proposing a modular HVDC power corridor development to support the reliable and cost-effective delivery of OSW resources to New Jersey consumers.

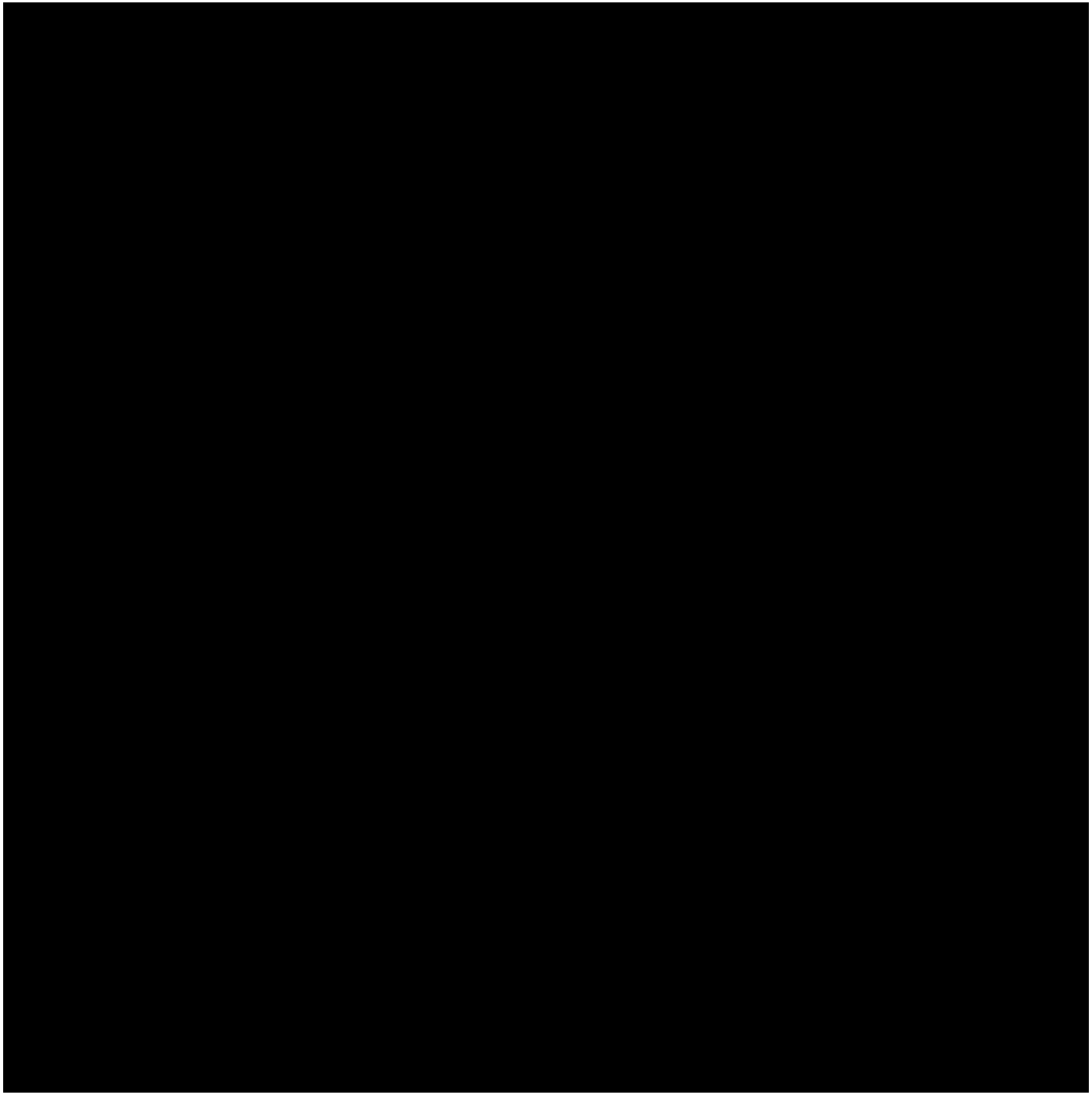


Figure 3-2. Overall routing segments.

Project components and key technical features

Clean Link New Jersey is offering a solution focused on the Option 2 Problem Statement, as defined in the PJM Offshore Wind SAA Transmission Proposal Window. The solution addresses landfall connections and offshore transmission connection needs from onshore substations to offshore substations.

Clean Link New Jersey's technical solution incorporates the following main components and features as listed below. The numbers correspond with the numbering shown in Figure 3-3.

[redacted]

[redacted] Our selection of the location of the offshore HVDC platform will be based on optimizing the cost while taking certain technical limitations as well as BOEM permitting requirements and visibility from the shoreline into consideration. We understand however that there might be a need to relocate those platforms depending on the actual location of the potential wind farms or the greater solution being considered by the BPU and PJM. We will evaluate the impact of such relocation to assess the associated water depths, bathymetry and other submarine conditions that may have an impact on our suggested design and HVDC platform cost.

Figure 3-3. Clean Link New Jersey key technical features.

Time frame for the development

Clean Link New Jersey supports NJBPU efforts to assure timely OSW transmission by taking into consideration the anticipated solicitation in-service dates and previous OSW solicitation awards. Clean Link New Jersey proposes a five-year time frame for development, with a target in-service date by 2028 (Figure 3-4). The detailed schedule has been included as Appendix B.

Support for New Jersey's policy to cost-effectively develop 7,500 MW of offshore wind

Clean Link New Jersey will support New Jersey's public policy initiatives in four key ways:

Modular power corridor solution. The power corridor solution accommodates a coordinated approach to transmission from multiple projects, providing the opportunity to decrease ratepayer costs, minimize impacts to shore communities, and improve grid stability while significantly reducing permitting and environmental risks.

Location of offshore platforms. Flexibility to locate the offshore platforms to optimize the total cost of the offshore wind for customers. This means that if it makes sense to extend the HVDC cable to a location nearer the generation source to limit higher costs of AC cables, Clean Link New Jersey will discuss the feasibility and conditions of changing the platform location.

Offshore grid optionality. The reliability and resilience of the offshore grid sets out an improved public policy framework where delivery of OSW generation is accommodated at more than one bus bar onshore while providing secondary AC paths between platforms and OSW generators.

Energy and capacity maximization. This solution increases the local reserves in the New Jersey area and reduces the need to invest in capacity or acquire capacity for New Jersey on the PJM capacity market as generation retires. Additionally, the availability of local capacity reduces the Capacity Emergency Transfer Objective (CETO) and hence the dependence on transmission to achieve the required Capacity Emergency Transfer Limit (CETL).

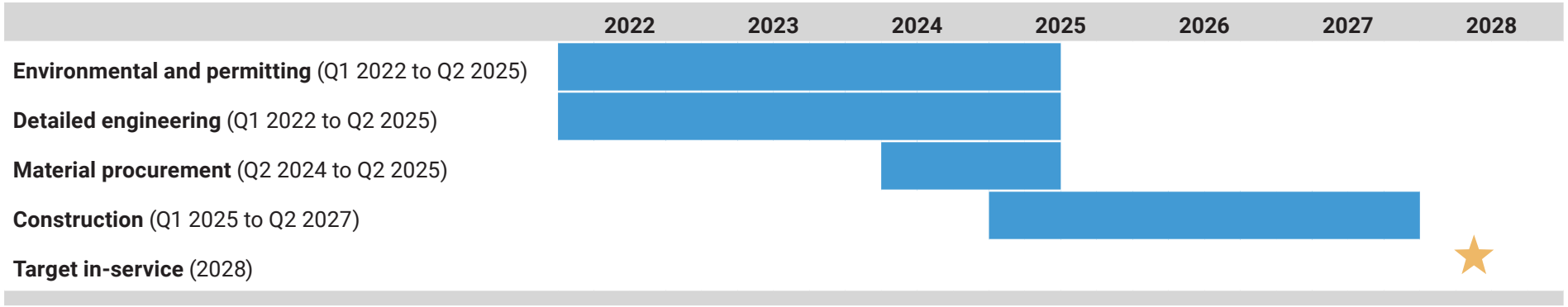


Figure 3-4. We propose a five-year time frame for development with a target in-service date by 2028.

3.2. Project optionality, flexibility, and modularity

Clean Link New Jersey's power corridor provides a coordinated approach to OSW transmission from multiple generators, providing the opportunity to optimize the delivery of offshore wind generation into New Jersey. Clean Link New Jersey integrates modular elements, providing the optionality and flexibility for adding, expanding, or restructuring its features and individual components within the proposed power corridor. Although the proposed base case solution responds essentially to the Option 2 problem statement within the Proposal Window, it offers the flexibility to integrate elements from Option 1b and Option 3.

Clean Link New Jersey consists of eight new modular transmission station and line components, as submitted through the PJM Competitive Planner. The modular elements could be combined, integrated, and sequenced to optimize delivery and cost in accordance with the awarded and eventual OSW solicitations and in-service dates.

Clean Link New Jersey engaged Siemens PTI to conduct an economic analysis with a sensitivity scenario for an additional 1,000 MW of OSW studied in 2035 [redacted]. The stress test observed that through Clean Link New Jersey, the transmission system can potentially accommodate the addition of the 1,000 MW OSW with negligible curtailment.

> Clean Link New Jersey offers the optionality of an offshore grid solution, providing the opportunity for cost-effectively enhancing the reliability and resiliency of OSW generation and transmission for New Jersey.

The two offshore substations are proposed to be sited within a reasonable distance from each other, [redacted] in order to have power transfer capabilities between them at 66 kV. Each 66 kV bus will have extra loop feeder breaker connections apart from the collector feeders and converter connections. [redacted].

3.3. Interdependency of options

Clean Link New Jersey is responding to PJM's Regional Transmission Expansion Plan (RTEP) 2021 SAA Proposal Window to Support NJ OSW: Option 2. [redacted] Therefore, our proposal is exclusive of any elements and costs associated to Option 1a, Option 1b, or Option 3 within the same Proposal Window.

The modular and optional features discussed throughout the proposal are representative and excluded for the base scope and the proposal price. We have provided cost frameworks for some of the optional features and components, but it is likely that the full level of optionality and flexibility should be jointly discussed, and costs will be determined should alternatives be elected.

3.4. Overview of project benefits

The Clean Link New Jersey power corridor solution proposes modular and optional features, accommodating coordinated planning for cost-effective OSW development. Our solution supports the delivery of 2,400 MW to the default POIs [redacted]. [redacted] The actual location of the offshore converter stations proposed by Clean Link New Jersey will eventually optimize costs to New Jersey based on eventual OSW generator locations.

To validate Clean Link Jersey's ability to maximize New Jersey's public policy benefits, Clean Link New Jersey has commissioned Siemens PTI to perform a rigorous market efficiency production cost analysis. Siemens conducted its analysis using PROMOD IV® to determine the impact of Clean Link New Jersey [redacted]

The analysis of all three interconnection scenarios confirmed that Clean Link New Jersey's power corridor would reliably and cost-effectively support the dispatch of OSW without any curtailment or congestion on the HVDC lines, nor on the AC system in New Jersey. The results indicate there are no transmission concerns delivering the OSW to PJM through Clean Link New Jersey in both the 2028 and 2035 time periods studied.

Figure 3-5. Siemens PTI analyzed three different interconnection scenarios to determine the impact of Clean Link New Jersey.

All cases assume that transmission upgrade Option 1a is included as planned by PJM, [redacted]. Given all the metrics evaluated, the analysis concluded that any one of the three interconnection scenarios proposed by Clean Link New Jersey would reliably and economically accommodate the future OSW [redacted].

All three scenarios showed about 2% reduction on the Net Load Payment and 2% reduction on the production cost in the New Jersey Area, when comparing the 2028 base case to the scenario case, solidifying the reduction of customer costs with the interconnection of [redacted] OSW.

The study also showed that CO_2 emissions produced in the New Jersey area would be decreased about 4% when compared to the absence of Clean Link New Jersey (the 2028 base case). By 2035, the CO_2 emissions would still be reduced by about 3% compared to the base case even with increased demand in the New Jersey area.

The fossil generation reduction was found to be around 1.1 TWh in 2028 to 1 TWh in 2035 for all the cases which translated to the reduction of heat consumption for about 5 TBTU in 2028 and 4 TBTU in 2035.

Through Clean Link New Jersey, NJBPU will have the option to maximize OSW generation benefits by selecting the most suited interconnection based on value-adding factors including, but not limited to, cost, permitting, constructability, or routing.

3.5. Overview of major risks and strategies to limit risks

Clean Link New Jersey has experience in transmission project developments and will be applying its well-established processes and expertise to effectively plan and manage project risks. This effort will be ongoing while further defining the project through planning, design, procurement, and execution. Clean Link New Jersey performed rigorous environmental, conduit routing, facility siting, nearshore/marine, and commercial analyses to determine and assess project-related risks.

Our infrastructure expertise helps optimize project design, permitting, procurement, construction, and operation/ maintenance while managing risk. The lessons learned in the process further emphasize the importance of adapting our infrastructure's operation and design to better withstand uncertainties — such as lockdowns and new disease threats. Just as net-zero carbon and climate resilience have led to industry standards and norms, we seek to build resilience to epidemics/ pandemics by adapting and transforming our designs and operational practices to address future threats.

Clean Link New Jersey adopted a strategic approach for risk analysis and management integrating public policy risks, contextual (project-on-project) risks, as well as execution risks. Following is a high-level summary of major project risks and mitigation strategies.

Site control, ROW, and authorization risks

Clean Link New Jersey has been carefully evaluating site control since the early stages of the siting process during project development. Our approach focused on avoiding wetlands and minimizing overlap with known congested, sensitive, or designated special-use areas to the extent possible. Clean Link New Jersey has already engaged with the landowners and potential sellers and secured Memorandums Of Understanding for the primary onshore converter station sites [redacted] Secondary acquisition and lease options are also being considered at each location.

The Clean Link New Jersey team evaluated the proposed power corridor during the routing process to minimize greenfield construction and reduce the negative impacts and adjacent land uses. Routing efforts focused on co-locating within the existing utility ROW and on existing road ROW to minimize environmental and community impacts and risks associated with authorizations.

Clean Link New Jersey has developed a detailed permitting plan and permitting matrix under Section 7 of this document.

The submarine cable corridor and converter station area extend into the Outer Continental Shelf. Clean Link New Jersey is also familiar with the Bureau of Ocean Energy Management's (BOEM) jurisdiction and understands that BOEM has authority over leases and ROW/RUE within the Outer Continental Shelf (OCS). Clean Link New Jersey will initiate early coordination with BOEM to review the proposed lease and ROW/RUE request areas. This early coordination will be key and should help mitigate unforeseen issues during the review process.

Most onshore impacts are minimized by underground installation of the proposed transmission line within existing public roadways and utility corridors. Risks related to access to existing ROWs are substantially abated by New Jersey law authorizing the use of public streets and ROW for transmission lines carrying electricity from OSW to the power grid. Clean Link New Jersey has substantial experience and certainty when it comes to securing ROW from incumbent utilities. We will engage with the incumbent utilities at the early stages of project definition to refine the route and consider the requirements and constraints related to the necessary authorizations.

The project schedule accommodates all required authorization and permitting along with a detailed engineering phase across three years, extending from a hypothetical award date on the first quarter of 2022 to the second quarter of 2025.

Public opposition risks

Clean Link New Jersey's goal is to be open and transparent, respond to questions or concerns, provide opportunities to engage community members, and build relationships of trust. The stakeholder engagement plan, as described in detail in Section 7, presents Clean Link New Jersey's overarching engagement strategy to achieve these objectives.

Offshore construction risks

The proposed submarine corridor has been developed to avoid known areas of charted obstructions and wrecks. However, certain features such as several charted existing cables and a charted fish trap area are unavoidable and mitigation efforts will be undertaken to address the risk at these areas of unavoidable constraint. Clean Link New Jersey will attempt to mitigate project delays where possible by establishing early coordination with stakeholders.

Clean Link New Jersey will use advanced methods and techniques including HDD. Several site investigations will be required to characterize ground conditions and to allow for development of risk mitigations.

The main contributing factors for project delays and potential cost overruns include these:

- Extended period of time to secure permits (for design tasks and construction tasks)
- Marine vessel and HDD contractors' availability, mobilization, location, and required size of vessels
- Dredging requirement, including ability to sidecast excavated materials
- Delays associated with high winds/waves and weather conditions

To further reduce offshore construction risks, Clean Link New Jersey has evaluated wrapped solutions from leading suppliers and specialized contractors with specific experience in similar projects and regions.

Potential time of year restrictions

The Clean Link New Jersey environmental team is prepared to limit impacts as practicable for Clean Link New Jersey. We have carefully identified both state- and federal-listed species that may be present within our proposed corridor. This information is included in Section 7 of this document, along with environmental impact and permitting plans which includes a list of biological resources of interest to both state and federal agencies and a plan for developing permit applications that avoid, minimize, and mitigate impacts. The potential restrictions on construction activities related to protected species habitats remain a key component of this project and risk management strategy.

3.6. Overview of project costs, cost containment provisions, and cost recovery proposals

Con Edison Transmission proposes to include certain capital costs as part of a cost containment provision similar to the cost containment mechanism recently implemented in the NYISO region. NYISO's cost containment provisions were created through a rigorous stakeholder process and approved by FERC pursuant to Section 205 of the Federal Power Act. Con Edison Transmission, through its New York Transco affiliate, has experience proposing and constructing under this cost containment structure. Such a framework is likely to be approved by FERC, and Con Edison Transmission believes it is important for PJM and New Jersey to consider it in evaluating proposals.

Further details of the cost containment provisions are provided under Section 5 of this document and within the PJM Competitive Planner.

04.

PROPOSAL BENEFITS

04.

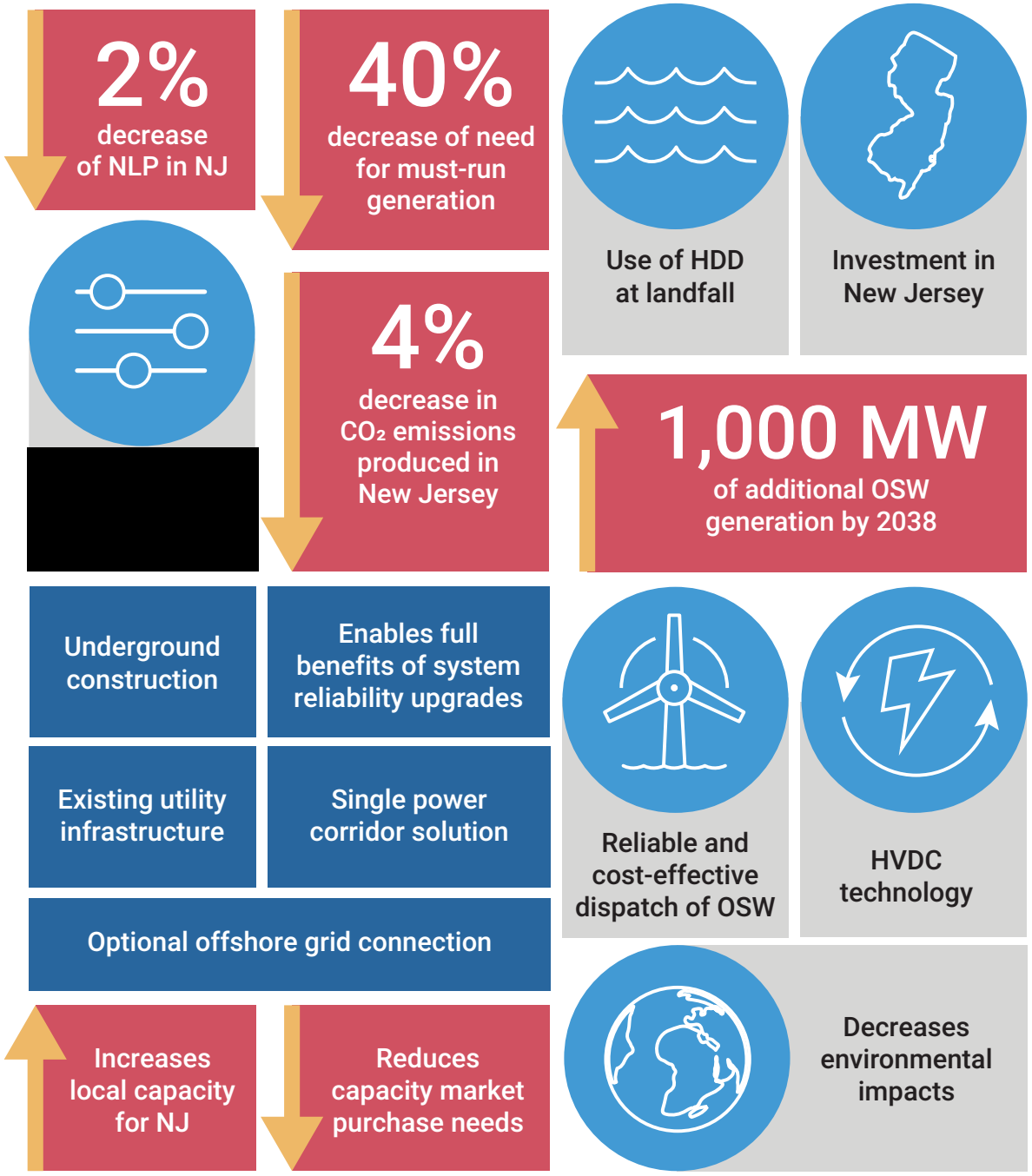
PROPOSAL BENEFITS

4.1. Key benefits of Clean Link New Jersey

Clean Link New Jersey offers an unparalleled combination of benefits including the following:

- Helps enhance the reliability and resiliency of OSW generation and transmission through an optional offshore-grid connection
- Uses HDD to minimize impact to the shore communities and provide reliable landfall approaches
- Uses existing utility infrastructure [redacted] for a majority of the route, resulting in minimal impacts to undisturbed areas
- Provides a single power corridor solution, offering the oportunty for a coordinated approach to transmission from multiple OSW generators, and reducing the need, cost, and impact of independent radial lines

Figure 4-1. Clean Link New Jersey will facilitate the reliable and cost-effective delivery of OSW to New Jersey customers.



- Supports the reliable and cost-effective dispatch of OSW without any curtailment or congestion on New Jersey and PJM grids
- Enables the full benefits of the planned system reliability upgrades (provided by others)
- Decreases power quality degradation, cuts maintenance costs, and reduces special operating procedures by adopting HVDC technology
- Offers superior protection from outages by sheltering the cables from extreme weather conditions through underground construction
- Decreases Net Load Payments (NLP) in New Jersey by 2% providing comparable ratepayer cost savings opportunities
- Decreases the need for must-run generation (mostly fossil-fuel-dependent) by 40%
- Decreases the amount of CO_2 emissions produced in the New Jersey area by 4%
- Allows the addition of 1,000 MW of OSW generation by 2033 (beyond the planned 7,600 MW)
- Decreases environmental impacts such as lower fossil generation and reduced emissions
- Offers the cost-effective option of extending the power corridor [redacted]
- Invests in New Jersey offshore wind infrastructure and creates economic benefits

Figure 4-2. Our solution is a flexible and modular solution that emphasizes a power corridor development.

4.2. Reliability benefits

Satisfying applicable reliability criteria

Maintaining the reliability of the electric grid is PJM's main priority. All generation and transmission projects must adhere to a rigorous interconnection procedure before being commissioned and becoming a resource to be relied upon by PJM and the people of New Jersey. Our project has been developed according to these strict standards and will meet identified interconnection requirements.

Two key aspects of reliability considered throughout the Clean Link New Jersey development are adequacy (having enough resources) and security (preventing grid failure).

> The project promotes resource adequacy by delivering 2,400 MW of OSW energy to the PJM grid—especially the New Jersey area—and enhances security by designing the transmission system in strict adhereance to PJM reliability criteria.

To validate our ability to support applicable reliability criteria, Clean Link New Jersey commissioned Siemens PTI to perform a rigorous market efficiency production cost analysis using PROMOD IV® model analysis on the proposed interconnection scenarios.

Additional reliability benefits of the Clean Link New Jersey project

Clean Link New Jersey offers the ability to satisfy reliability criteria that may arise during the evaluation process by relying upon our development team, subject matter experts, and state-of-the-art technology in collaboration with NJBPU advisement and PJM approval processes.

Should reliability issues beyond those identified in the original problem statement arise, we will work with PJM and NJBPU to modify the interconnection plan and associated costs to satisfy applicable reliability criteria.

Recommended reliability upgrades [redacted]

Clean Link New Jersey's team [redacted] For the purpose of this analysis and our proposal, it is assumed that [redacted]

The congestion costs observed within our analysis is expected to justify the cost [redacted].

Reducing the need for must-run generation

> Siemens PTI's production cost analysis shows that the project enables the potential to reduce the need for must-run generation resources, mostly fossil-fuel-dependent, by facilitating the amount and diversity of generation resources available to the grid.

The analysis shows that Clean Link New Jersey could accommodate for additional benefits related to operational changes in the thermal generation that is still required for reliability, resiliency, and/or reserves.

In the base case of the analysis, a number of fossil generators in the New Jersey area in the model are set as must-run units as shown in Table 4-3 below.

Name	Category	Area	Max. capacity (MW)
Camden Cogeneration:CC	Combined Cycle	PSEG	145.3
CPV Woodbridge Energy Center: CC1	Combined Cycle	PSEG	725.0
Kenilworth Energy:CC	Combined Cycle	JCP&L	14.6
Linden Cogen Plant:GTG6	CT Gas	PSEG	180.0
Logan Generating Plant:GEN1	ST Coal	AECO	219.0
Newark Energy Center (NJ):CC1	Combined Cycle	PSEG	705.0
Parlin:CC1	Combined Cycle	JCP&L	54.4
Parlin:CC2	Combined Cycle	JCP&L	54.4
Pedericktown Cogeneration Plant:CC	Combined Cycle	AECO	117.8
Sayreville Cogeneration Facility:CC	Combined Cycle	JCP&L	297.8
Sewaren:CC	Combined Cycle	PSEG	541.0

Table 4-3. Must-run generation base case assumptions.

Siemens's study included a sensitivity scenario changing a list of must-run units in the New Jersey footprint to pure economic dispatch. The change of must-run status relaxes the requirement of the fossil units needed to generate at a minimum level of capacity of all 8,760 hours except for outages. The analysis shows substantial reduction in costs, emissions, thermal generation, and heat consumption in greater New Jersey for 2028 and 2035. Particularly, 2028 thermal generation decreased from 17.8 TWh pre-Solicitation 3 to about 10.2 TWh by removing the Must Run. This is a significant reduction from the cases with must-run by more than 42%.

Although fossil fuel generation may not be eliminated, the reduction to overall dispatches where these facilities are once required across PJM could entail significant benefits to PJM and its customers. Reliability studies and further evaluations are necessary to determine what plants can and cannot be changed to economic dispatch. Details of the sensitivity analysis outcomes is provided within the attached report (Appendix C), and analysis, from Siemens PTI. Further reliability studies and evaluations would be necessary to determine what specific must-run plants can and cannot be changed to economic dispatch.

Additional resiliency benefits

Clean Link New Jersey leverages HVDC technology to decrease power quality degradation, cut maintenance costs, and reduce special operating procedures. Underground construction along established ROWs offers superior protection from outages by sheltering the cables from extreme weather conditions. Infrastructure is buried underground, away from natural elements.

Clean Link New Jersey offers the a limited offshore grid solution, providing the opportunity for cost-effectively enhancing reliability and resiliency of OSW generation and transmission. [redacted] Each 66 kV bus will have extra loop feeder breaker connections apart from the collector feeders and converter connections. This means that a total of four 66 kV circuits will span the two offshore substations to increase offshore reliability. The platforms could also connect to other neighboring substations if they were appropriately located.

4.3. Public policy benefits

Maximizing value of OSW

The Clean Link New Jersey power corridor solution proposes modular and optional features accommodating coordinated planning for cost-effective OSW development. Clean Link New Jersey's power corridor supports the delivery [redacted] The actual location of the offshore converter stations proposed by Clean Link New Jersey will optimize costs to New Jersey based on eventual OSW generator's locations.

The project will support New Jersey's public policy initiatives in four key ways:

Modular power corridor solution. The power corridor solution accommodates a coordinated approach to transmission from multiple projects, providing the opportunity to decrease ratepayer costs and improve grid stability while significantly reducing permitting and environmental risks.

Location of offshore platforms. Flexibility to locate the offshore platforms to optimize the total cost of the offshore wind for customers. This means that if it makes sense to extend the HVDC cable to a location nearer the generation source to limit higher costs of AC cables, Clean Link New Jersey will discuss the feasibility and conditions of changing the platform location.

Offshore grid optionality. The reliability and resiliency of the offshore grid sets out an improved public policy framework where delivery of OSW generation is accommodated at more than one bus bar on shore, while providing secondary AC paths between platforms and OSW generators.

Energy and capacity maximization. This solution increases the local reserves in the New Jersey area and reduces the need to invest in capacity or acquire capacity for New Jersey on the PJM capacity market as generation retires. Additionally, the availability of local capacity reduces the Capacity Emergency Transfer Objective (CETO) and hence the dependence on transmission, to achieve the required Capacity Emergency Transfer Limit (CETL). Please see Section 4.4 below for more detail about how this project will optimize energy and system capacity.

To validate Clean Link Jersey's ability to maximize New Jersey's public policy benefits, Siemens PTI has performed a rigorous production cost analysis. PTI's analysis utilized PJM production cost database to determine the impact of Clean Link New Jersey on [redacted] OSW in New Jersey at the chosen default POIs. Three different interconnection scenarios (shown in Figure 4-4) have been analyzed [redacted].

Figure 4-4. Siemens PTI analyzed three different interconnection scenarios to determine the impact of Clean Link New Jersey.

The analysis of all three interconnection scenarios confirmed that Clean Link New Jersey's power corridor would reliably and cost-effectively support the dispatch of the OSW without any curtailment or congestion on the HVDC lines, nor on the AC system in New Jersey. The results indicate there are no transmission concerns delivering the OSW to PJM through Clean Link New Jersey in both the 2028 and 2035 time periods studied.

All cases assume that transmission upgrade Option 1a is included as planned by PJM, [redacted].

Given all the metrics evaluated, the analysis concluded that any of the three interconnection scenarios proposed by Clean Link New Jersey would reliably and economically accommodate the future OSW [redacted].

Through Clean Link New Jersey, NJBPU will have the optionality to maximize OSW generation benefits by selecting the most suited interconnection option based on value-adding factors including, but not limited to, cost, permitting, constructability, and routing.

Accomodating future increases in OSW

> Clean Link New Jersey's modular and flexible solution architecture accommodates future OSW generation above the current plans.

Based on the current transmission upgrades assumptions within the model, it is anticipated that more OSW can be accommodated than what is currently targeted. Siemens PTI's study considered a sensitivity analysis for an additional 1,000 MW of OSW in 2033 connected [redacted]. This stress test considered a total OSW generation of 8,648 MW instead of 7,648 MW currently planned, which amounts to an increase in generation by approximately 18,306,400 MWh. The addition of the 1,000 MW resulted in very little curtailment (about 270 to 280 MWh for the year [0.001% to 0.002% curtailment]). This added 1,000 MW of offshore wind will provide additional reliability, as well as economic and environmental benefits.

4.4. Market efficiency benefits

Energy market benefits

> The primary benefit of Clean Link New Jersey is to support delivery of the benefits of low-cost carbon-free OSW generation to New Jersey ratepayers.

Focusing on the costs for the greater New Jersey area, Siemens PTI's analysis shows a 2% decrease in the Net Load Payments (NLP) by 2028, which could provide comparable ratepayer cost savings opportunities.

The analysis also shows a 2.5% decrease in production costs by 2028, as shown in the Table 4-5.

The low-cost OSW generation is expected to run at a priority displacing more expensive or emissive generation. The more expensive generation is typically fossil generation such as combined cycle combustion turbines, stand-alone combustion turbines, etc. When production from these units is further reduced, the corresponding operating costs are lowered, providing potential production cost savings for New Jersey ratepayers. This sensitivity is considered in our analysis as shown in the summary Table 4-6 on the next page.

[redacted]

Table 4-5. Must-run sensitivity.

[redacted]

Table 4-6. Production costs sensitivity to must-run generation selection.

Note: We have the option to create a fourth scenario [redacted]

Transmission system benefits

Clean Link New Jersey has broad experience in regional transmission projects and will be applying its well-established processes and experience to help NJPBU capture OSW generation benefits across its value chain. We recognize the preliminary nature of this proposal and the need for further elaboration. Clean Link New Jersey analysis includes a set of reliability assumptions and recommendations as mentioned in Section 4.2 above. CET is committed to support NJPBU in its efforts to deliver the full benefit of the OSW development to New Jersey ratepayers. This effort will be ongoing throughout further project definition, and deeper levels of rigorous engineering evaluations will progressively elaborate the selected solutions and their associated benefits.

Capacity market benefits

The new OSW is expected to have an Effective Load Carrying Capability (ELCC) of about 31% that, through the investments in transmission, will become deliverable to the New Jersey load, the Location Deliverability Areas (LDA). This increase in local capacity will translate in an increase to the local reserves in the LDA (AECO, JCPL, PSEG, and RECO) reducing the need to invest in capacity or acquire capacity on the PJM capacity market as generation retires into the future. Moreover, the increase in local capacity should reduce the area's Capacity Emergency Transfer Objective (CETO) and hence the dependence on transmission to achieve a required Capacity Emergency Transfer Limit (CETL) (e.g., 15%).

The Clean Link New Jersey links are the HVDC generation ties connecting the OSW to the substations in New Jersey. In the model, they are utilized by the OSW at 100% of the output of the OSW sites. The utilization is therefore the hourly output of the OSW delivered to the onshore substations. Because there is no curtailment of the OSW, the utilization is the capacity factor of the OSW facilities. The utilization of Clean Link New Jersey across different scenarios is approximately 44%. The low utilization provides some opportunities to improve the resilience and redundancy of the grid by using the lines for optional onshore or offshore coupling.

Table 4-7. Clean Link New Jersey link utilization.

Other benefits

Reduced emissions

The addition of OSW or other renewable resources foster substantial operational changes in the thermal generation. The reductions in fossil generation, heat consumption, and the associated CO_2 emission are significant.

For all three analyzed scenarios, by 2028 the amount of CO_2 emissions produced in the New Jersey area would be decreased by about 4% compared to the base case. by 2035, the CO_2 emissions would still be reduced by 2.5 to 3% compared to the base case.

Table 4-8. Less dependence on fossil-based thermal resources.

While the need for the fossil fuels is reduced, some of those types of generation are still required to maintain reliability and reserves across the system. Still, there is a potentially significant cost reduction to the customer with this reduced dependency on fossil fuel generation. It is likely that battery energy storage systems will also be developed along with the overall large amount of new offshore wind. Batteries can store the energy coming from offshore wind when it is not consumed or otherwise curtailed and discharge at the peak demand time hence displace the need for thermal peaking units. In this analysis, we did not specifically add new battery storages thus we cannot determine the impact and effectiveness of a battery scenario. Additional analysis can be performed in the future to study the benefits of battery storage to achieve even greater costs and emission reductions.

As an experienced and dedicated transmission developer, Clean Link New Jersey has the capability and resources to support NJBPU in its future efforts to explore grid resilience options and solutions to avoid any losses of OSW benefits.

Attachments

Siemen's report and its supporting analysis are submitted through the PJM Competitive Planner and also attached to this document as Appendix C.

05.

PROPOSAL COSTS, COST CONTAINMENT PROVISIONS, AND COST RECOVERY

05.

PROPOSAL COST, COST CONTAINMENT PROVISIONS, AND COST RECOVERY

5.1. Cost overview

Clean Link New Jersey has prepared an indicative capital expenditure (CAPEX) estimate for the each of the eight project components. The summary CAPEX estimate is presented in Table 5-1.

If multiple project components are selected, the project can realize cost savings created by synergies in construction and major equipment (such as HVDC converters) procurement and benefits passed on to New Jersey rate payers.

We aim to apply a proven cost containment framework that will reduce costs for New Jersey customers, a framework already used in the NYISO region and approved by the FERC.

In addition, if New Jersey is able to procure volume discounts on major equipment items in volumes that are greater than Clean Link New Jersey's needs, we are willing collaborate with the state and pass through the savings achieved.

Component	Capital expenditure ($MM)
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	
[redacted]	

Table 5-1. Summary of CAPEX estimate.

5.2. Cost estimate classification and expected accuracy range

[redacted]

[redacted]

5.3. Estimated energy loss of proposed facilities

The Clean Link New Jersey design would minimize energy losses across the proposed links between the offshore and onshore stations. The offshore converter station would be sized to compensate for losses and allow for a power transfer of 1.2 GW at each link. Anticipated losses are estimated as follows:

- Converter losses: 0.70% loss per station
- Cable losses: 0.008% loss per mile

The estimated losses for each link are shown in Table 5-2 and Table 5-3.

5.4. Physical life and economic life of the facilities

Clean Link New Jersey estimates the physical and economic life of the facilities will extend up to 40 years.

An HVDC grid is a complex system comprising many components and advanced subsystems. The majority of the HVDC components such as breakers, disconnectors, arresters, measuring equipment, transformers, reactors, and filter capacitors are well understood in the power industry. Systems unique to HVDC stations are HVDC valves or insulated-gate bipolar transistors, and control and protection systems. The lifetime of most components is well known to utilities and is typically well beyond 40 years.

The lifecycle of an HVDC system similar to the design we offer is typically 40 years. Components such as the controllers and secondary equipment generally have shorter lifetimes, and software requires frequent functional and security updates. However, all such systems are usually kept current as part of a prudent operations and maintenance practices, including lifetime extension upgrades.

The other aspect to be considered is the lifespan of the offshore converter and its associated platform. The current industry design standard targets a 25-year platform lifetime. However, many offshore platforms in the Gulf of Mexico and the North Sea are 40 years or older and have gone well beyond their design lifetime of 25 years. Our design basis, and its operational philosophy thereafter, will be for a platform with a physical lifecycle of 40 years.

5.5. Cost structure proposed, including cost containment mechanisms and cost recovery approach

Con Edison Transmission proposes to include certain capital costs as part of a cost containment provision similar to the cost containment mechanism recently implemented in the NYISO region. NYISO's cost containment provisions were created through a rigorous stakeholder process and approved by FERC pursuant to Section 205 of the Federal Power Act. Con Edison Transmission, through its New York Transco affiliate, has experience proposing and constructing under this cost containment structure. Such a framework is likely to be approved by FERC, and Con Edison Transmission believes it is important for PJM and New Jersey to consider it in evaluating proposals.

CET proposes to include certain capital costs as part of a cost containment provision (Cost Cap), including the cost of contract work, labor, materials and supplies, transportation, special machine services, shop services, protection, injuries and damages, privileges and permits, engineering services, reasonably expected environmental site remediation and environmental mitigation costs as defined in the tariff, general administration services, legal services, real estate and land rights, rents, studies, training, asset retirement, and taxes.

5.6. Impact of costs by selection of a subset of the options versus the entire proposed project

Clean Link New Jersey is responding to PJM RTEP's 2021 SAA Proposal Window to Support NJ OSW: Option 2.

If multiple project links are selected, the project can realize cost savings created by synergies in construction and major equipment procurement and benefits passed on to New Jersey rate payers.

Nevertheless, our power corridor solution accommodates a coordinated approach to transmission from multiple projects and the optionality of an offshore grid that provides the opportunity to decrease ratepayer costs and improve grid stability, while significantly reducing permitting and environmental risks. These modular and optional features are not included in the proposed pricing and would have to be independently elaborated should such alternatives be elected. Additionally, delays are covered by cost containment.

5.7. Any additional cost control mechanism provisions

At this stage of project development, the cost containment strategies discussed in Section 5.5 above are all-inclusive of proposed cost control mechanism provisions. Costs resulting from delays are separated but are included in the proposed cost containment framework.

06.

PROJECT RISKS AND MITIGATION STRATEGY

06.

PROJECT RISKS AND MITIGATION STRATEGY

6.1. Site control

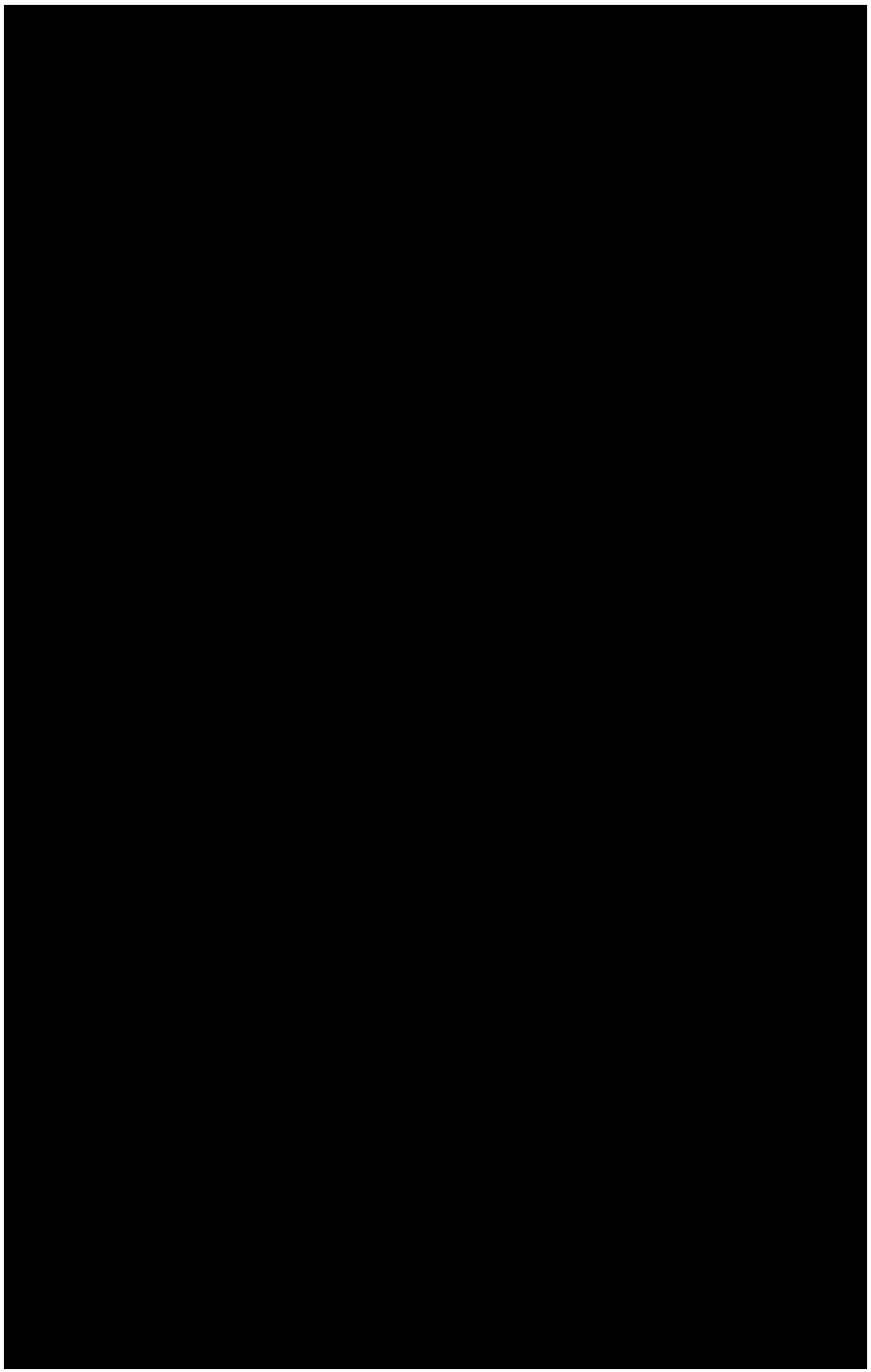
Clean Link New Jersey will be applying its well-established processes and industry expertise to effectively plan and achieve site control.

> Our project team has been carefully evaluating site control since the early stages of the siting process. Our approach focuses on avoiding wetlands and minimizing overlap with known congested, sensitive, or designated special-use areas (e.g., agricultural districts, parks, natural or protected areas, trail systems or other intensive recreational or residential areas).

This effort will be ongoing throughout further project definition, and siting will need to be adjusted accordingly. This section provides a high-level description for the site control approach [redacted]

Site control for new converter stations

Clean Link New Jersey's solution incorporates new converter station sites [redacted] The primary selected sites targeted brownfield locations, offering the added benefit of repurposing anthropogenic land uses.



6.2. Right of way, a right of use and easement, or similar authorization

Our team evaluated the proposed power corridor during the routing process to minimize greenfield construction and reduce the negative impacts and adjacent land uses. Routing efforts focused first on adopting the existing utility ROW, and second on existing road ROW, to minimize the impact and risks associated with authorizations.

Clean Link New Jersey has developed a detailed permitting plan and permitting matrix in Section 7 of this document. We have begun consulting with government agencies and key stakeholders along the proposed power corridor. At this stage, these meetings have been primarily focused on introducing the project, preparing for field reviews, and discussing routing opportunities and constraints. We recognize the need to coordinate further with land management agencies, cities, towns, and individual landowners to determine whether the proposed transmission facilities minimize conflict with any present or future land uses. This effort will be ongoing throughout further project definition, and routing will be adjusted accordingly.

The project schedule accommodates all required authorization and permitting along with a detailed engineering phase across three years, extending from a hypothetical award date in the first quarter of 2022 to the second quarter of 2025.

The following provides a high-level description of the offshore and onshore authorization processes required for Clean Link New Jersey.

Offshore authorizations

Clean Link New Jersey proposes a submarine cable corridor extending from the proposed offshore converter station area to the landfall site [redacted]. The submarine cable corridor and converter station area extend into the OCS. We are familiar with BOEM's jurisdiction and understand that BOEM has authority over leases and ROW/RUE within the OCS. We anticipate that a lease will be required for the proposed converter station area, and a ROW/RUE will be required for the proposed submarine cable corridor.

Our plan to obtain the necessary authorizations will follow the standard BOEM procedure outlined in Figure 6-4 below.

During the lease application and ROW/RUE review, it is understood that BOEM will be the lead agency. Clean Link New Jersey will consult with other federal and New Jersey state agencies as necessary. We will initiate early coordination with BOEM to review the proposed lease and ROW/RUE request areas.

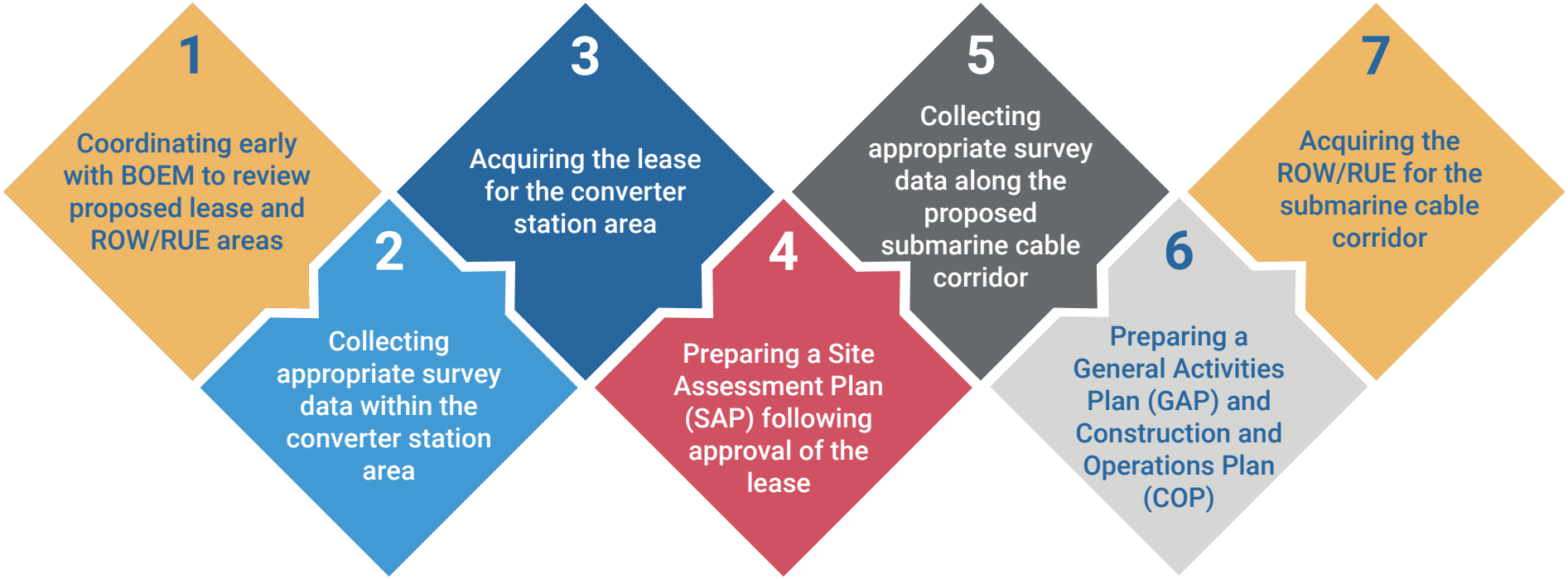


Figure 6-4. We will follow the procedures and standards set by the Bureau of Ocean Energy Management to obtain the relevant authorizations.

This early coordination will be key and should help mitigate unforeseen issues during the review process. However, we recognize that this is a multi-month process. It is anticipated that the lease area approval process may take around 12 to 18 months, and the ROW/RUE approval process may be able to occur more quickly, at around 6 to 12 months. However, the actual time required for this process will vary depending on the level of complexity, required agency coordination and input, and competitive/noncompetitive nature of the requested lease and ROW/RUE areas. Our understanding of the schedule will improve following the initial discussions with BOEM.

Onshore authorizations

Most upland impacts are minimized by underground installation of the proposed transmission line within existing public roadways and incumbent utilities corridors. An overview map of the onshore segments is provided in Figure 6-5.

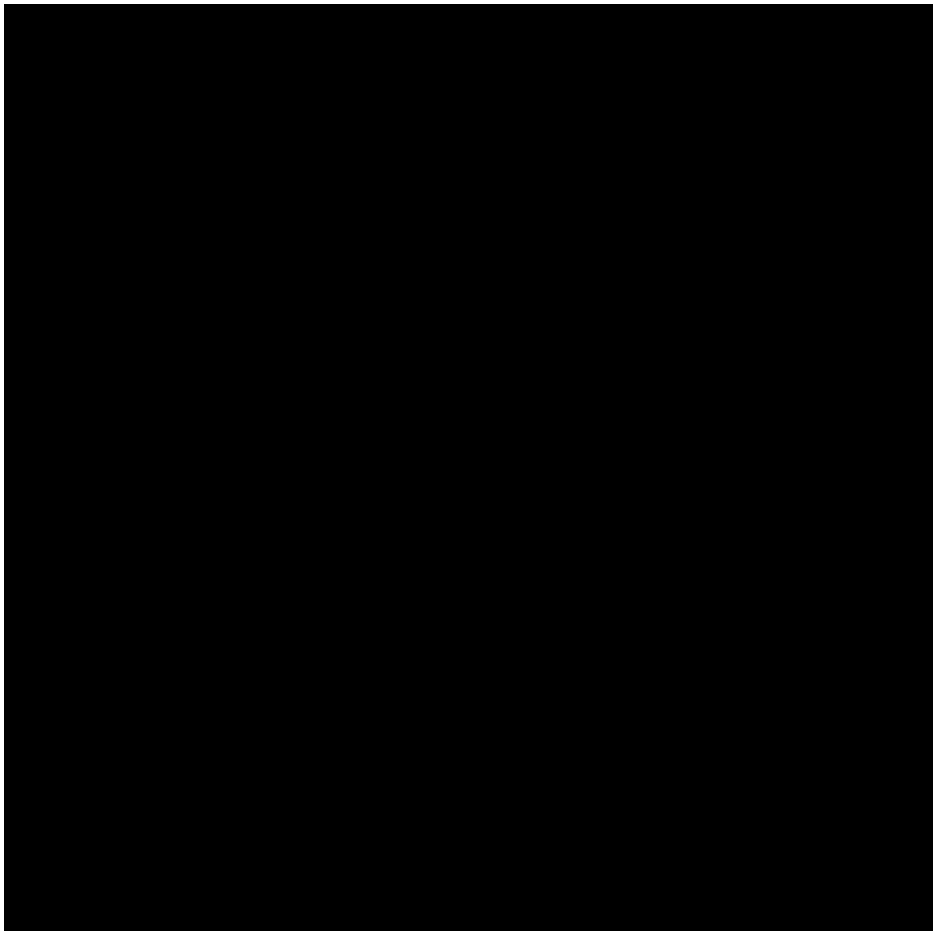


Figure 6-5. Onshore ROW segments.

Public road ROW

Existing utility ROW

The Clean Link New Jersey development team has experience, in securing ROW from incumbent utilities. We will engage with the incumbent utilities at the early stages of project definition to refine the routing, taking into consideration the requirements and constraints related to the required authorizations.

Additionally, to minimize potential construction effects to adjacent landowners, our team will develop a public outreach program that will provide timely information to stakeholders, adjacent property owners, and/or tenants regarding the planned construction activities and schedule. The outreach program is highlighted in Section 6.3 below and detailed under Section 6 of this document.

6.3. Stakeholder engagement plan's ability to minimize public opposition risk

Clean Link New Jersey's goal is to be open and transparent, respond to questions or concerns, provide opportunities to engage community members, and build relationships of trust.

The stakeholder engagement plan, described in detail in Section 6, presents our overarching engagement strategy to achieve these objectives. While this strategy will be broadly applicable, Clean Link New Jersey recognizes the need for a tailored outreach strategy for key stakeholder groups such as the fishing industry, coastal and beach communities, and nongovernmental environmental groups: those most at risk of organizing an opposition campaign.

A specific section plan has been included to address key stakeholders and is focused on the fishing industry. However, the approach outlined in the stakeholder engagement plan can be broadly applied to coastal and beach communities and other stakeholders on an as-needed basis. The principles are the same. Inclusiveness, transparency, and relationship building early in the process are all essential to mitigate opposition.

Clean Link New Jersey's outreach to fisheries stakeholders will be as inclusive as possible and will include engagement with local and regional fisheries associations, societies, groups, individual fishermen, and the various industry organizations. Information gathered during this effort will be used to craft specific outreach activities and methods that respond to the needs of these stakeholders. For example, open house venues and timeframes will be planned to account for typical fishing schedules and in locations that best accommodate ease of access.

Commercial and recreational fisheries stakeholder workshops will benefit the project by providing a platform to hear from fishermen about their concerns very early in the process and to facilitate early planning to mitigate these issues (e.g., before significant effort has been made in siting cable routes in areas where fishermen frequent). We will work with the fisheries stakeholder groups to refine our project design and location to accommodate concerns.

These same efforts will be employed with coastal and beach communities and any other stakeholders at risk of publicly opposing the project.

6.4. Construction techniques needed

Despite the high level and preliminary nature of the proposal, it is understood that there will be several special construction techniques utilized on this project.

These are further described below along with the anticipated mitigation measures and BMP. While we recognize the need for a more robust and customized mitigation plan, this section provides a high-level and preliminary assessment of anticipated mitigation for the specific construction techniques that will be employed on this project.

Submarine cable installation

The proposed submarine cable corridor has been developed based on a review of existing seabed conditions from publicly available data, such as the National Oceanic and Atmospheric Administration (NOAA) Navigation Charts. The proposed submarine corridor has been developed to avoid known areas of charted obstructions and wrecks. However, certain features such as several charted existing cables and a charted fish trap area are unavoidable and mitigation efforts will be undertaken to address the risk at these areas of unavoidable constraint.

Risk of potential project delays increases with the number of unavoidable constraint areas, due to the required coordination efforts, number of various stakeholders, and potential additional construction requirements. Clean Link New Jersey will attempt to mitigate project delays where possible by establishing early coordination with stakeholders. Coordination with appropriate agencies will be conducted to determine cable installation requirements through the unavoidable constraint areas such as the fish trap area charted by NOAA. Furthermore, at all proposed crossing locations of existing cables, the Clean Link New Jersey team will coordinate with the asset owners to develop a crossing agreement and mutual understanding of the proposed crossing methodology.

The submarine cable corridor will be optimized during future project development stages of the project. Geophysical and geotechnical surveys will be performed along the proposed submarine cable corridor. The surveys will refine our understanding of the physical seabed conditions and identify the precise locations of obstructions, wrecks, and existing cables along the submarine corridor. Surveys may discover previously unknown hazards, such as uncharted existing cables or uncharted obstructions. The alignment will be refined to address these additional hazards and/or additional crossing agreements during the design phase. However, the resulting duration of the cable corridor design refinement may vary depending on the type and number of additional constraints found.

At all proposed cable crossing locations, depending on the depth of the existing cable and required vertical clearance, if the design burial depth is not achievable, additional cable protection may be needed at the crossing. Examples of typical cable crossing protection measures include mattresses (i.e., precast, rock-filled, etc.) and riprap armoring. Depending on the crossing protection design, localized dredging may or may not be needed. Construction of the additional cable protection will require additional marine equipment, such as a crane-mounted barge and appropriate support vessels.

Risk of potential project delays increases with the need of additional marine equipment, supplies, and contractors. Other potential project delay risks may include restricted work windows, permitting constraints or requirements, contractor and equipment availability, and weather downtime.

> Clean Link New Jersey's goal is to mitigate potential project delays wherever possible through early outreach, detailed design assessments, and an extensive marine survey program to identify challenges prior to permitting and construction.

Horizontal directional drilling construction

HDD is another construction technique that will be employed on the project. [redacted]

The installation process will involve setting up a primary drill rig at the onshore HDD entry location, installing a starter casing for each landfall, and drilling a 10- to 12-inch-diameter pilot bore along the proposed alignment to the HDD exit location in the ocean. A casing pipe or cofferdam will likely be installed at the exit location to aid in the collection of drilling fluids offshore. Casing pipes will be installed using a pneumatic hammer.

Once the pilot bore has been completed, a secondary drill rig is envisioned to be set up at the exit location to aid in the reaming, swabbing, and conduit installation phases. This secondary drill rig and accompanying equipment will be set up and supported with marine barges. Reaming will commence from shore towards the ocean to maximize flow of drilling fluids to the onshore HDD entry location to the extent possible.

Reaming operations may involve one or more reaming passes through the HDD bore. Once reaming operations are complete, a swab pass will be completed. This pass will be used to gauge the condition of the bore prior to conduit installation. Once the reamed bore is deemed acceptable for pullback operations, the high-density polyethylene (HDPE) conduit will be installed from onshore to offshore or offshore to onshore, depending on contractor preference. Drilling fluids will be pumped through the drilling assembly during all phases of the installation process.

Once the HDPE conduit has been installed, a gauging pipe and messenger wire will be installed within the HDPE conduit. Blind flanges will then be installed on each end of the HDPE conduit and the drill rig will be moved over to complete the second HDD installation, following a similar approach. An offshore excavation may be used to lay down each HDPE conduit. Details associated with each HDD landfall will be further refined as detailed design occurs.

When the offshore cable installer is ready to install the submarine cable, a winch system will be installed behind the onshore HDD entry location. The messenger wire placed in each HDPE conduit will then be used to install the winch line inside the HDPE conduit. This winch line and system will be used to pull in the submarine cable within each conduit.

The HDD alignments will need to avoid existing onshore and offshore utilities. Once the location of any utility is determined, modifications to the HDD alignments can be made, if necessary.

> The largest risk to the deployment of this construction technique is the geotechnical conditions existing at the proposed landfall or crossing locations. This risk will be mitigated based on performing a thorough site investigation program to characterize ground conditions. This will provide the project team with the confidence that the proposed HDD crossing locations will be completed successfully.

Onshore right-of-way construction

The proposed upland construction and route alignment will involve a direct-bury conduit installation [redacted]. The proposed construction techniques for these two installation scenarios pose slightly different risks to the project, as detailed below.

For the existing ROW direct-bury installation, [redacted]. This risk will be mitigated through consultation with the NJDEP to understand the approved construction crossing techniques that could be employed. Clean Link New Jersey plans to make this consultation during the project development stage to minimize unforeseen issues during construction.

For the public road ROW duct bank installation, unforeseen conditions within the roadway will require further investigation. The project will employ a civil survey consultant to identify the existing utility locations, road conditions, and other appurtenant features during the detailed engineering phase of the project. This data collection phase will use the 811 call system to collaborate with owners of existing utilities to minimize any disturbances during construction.

Onshore converter station installation

In addition to the transmission line components, we anticipate commencing the converter station procurement process upon notice of award, given the duration and lead time for the material/top side and platform fabrication and transportation logistics associated with the offshore converter stations. The converter stations will require a two-phase construction process, the first phase for the site/civil/platform works and the second phase for the erection of the converter station.

As noted above, the most apparent risk for these facilities is the extended lead time — approximately 60 months from notice to proceed. We are prepared to mitigate this challenge based on our extensive conversations and consultations with the OEM vendors to fully understand the procurement process, preferred contracting strategy, and stage gates to advance the procurement of these facilities.

Clean Link New Jersey is well equipped to ensure that this long lead contract package will progress according to our proposed schedule and proposed commercial operation date (COD). Further mitigation strategies for this specific risk are detailed in Section 6.7, including deployment of a material procurement specialist team to purchase, expedite, and track the execution of this package.

6.5. Restrictions on construction activity

Our environmental team is prepared to limit impacts as practicable. We have carefully identified state-listed and federally listed protected species in the vicinity of our project route. This information is included in Section 6. The environmental impact and permitting plans are described in detail in Section 6, including a list of biological resources of interest to state and federal agencies and a plan for developing permit applications that avoids, minimizes, and mitigates impacts. Potential restrictions on construction activities related to protected species habitats remain a key component of this project and risk management strategy.

Potential Time-of-Year restrictions

Time-of-Year restrictions (TOYR) are normally a requirement of a permit authorization by state and federal agencies. TOYR are established to protect some or all life forms of sensitive or protected species, critical habitat, or commercially important resources. These TOYR may originate with a resource agency, such as NOAA National Marine Fisheries Service, the United States Fish and Wildlife Service, New Jersey Department of Environmental Protection (NJDEP) Natural Heritage Program, or Department of Fish and Wildlife (NJDFW). TOYR could also originate as a result of stakeholder input, via requests from fishermen or environmental groups during public reviews.

The project may potentially impact some or all life stages of a significant number of sensitive resources, with some life stages more sensitive to disturbance than others. In addition, the project may potentially impact Essential Fish Habitat (EFH), as described in more detail in Section 7. Briefly, EFH was defined by the US Congress in the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, known more commonly as the Magnuson-Stevens Act, as "those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity."

This proposal provides a high-level and preliminary assessment of anticipated restrictions. We recognize the need for a more robust and customized mitigation plan that will be developed in early 2022 in coordination with the agencies and stakeholders as the project progresses. Examples of restrictions currently in place that may affect the project schedule if the protected species or suitable habitat is present include these:

- **Northern long-eared bat.** If maternity roosts occur in or near project disturbances, no tree removal will be allowed during the breeding season between May and July. The US Fish and Wildlife Service (USFWS) has established 4(d) rules to authorize project disturbances that may affect northern long-eared bats, but these do not apply if there are known maternity roosts that could potentially be affected.
- **Piping plover.** Piping plovers breed and nest on sandy/gravelly beaches between March and August. Therefore, limitations to beach disturbance are in place where they are known to nest.
- **Red knot.** The red knot breeds from March through August on dynamic, sparsely vegetated coastal habitats such as beaches, tidal flats, and sandbars.
- **Sea turtles.** Sea turtles actively migrate and forage in the spring and summer months from May through November.
- **Fin whale.** Fin whales forage and migrate year-round, but calve and overwinter between October through January in New Jersey waters. Therefore, all months may require construction restrictions during sensitive seasons for these whales.

Figure 6-6. The piping plover breeds on the beach during late spring and summer which will be considered when planning construction.

The number of sensitive species present in our background research for this project indicates that limitations to construction could potentially be highly restrictive, especially if Project Design Criteria (PDC) are not acceptable or no BMPs are implemented. Examples of BMPs often used on land or in the water to reduce the seasonal restrictions are listed in Figure 6-7 below.

The first step in limiting the risk of extensive time delays is to establish clear lines of communication with all regulatory agencies at the project onset. Some of the agencies, like the US Army Corps of Engineers (USACE), can become significant advocates for projects if requests are taken seriously and responses provided in a timely manner.

Clean Link New Jersey will engage with the regulatory agencies like USACE and NJDEP early to discuss construction and alignment details and to benefit from their experience in limiting impacts with similar projects. We will connect with resource agencies early and often, helping them to understand the project construction details, and responding quickly and thoroughly to their requests for information.

Clean Link New Jersey's primary mitigation efforts will be to limit adverse impacts to the extent possible by prioritizing the use of areas on land that have been disturbed in the past by linear infrastructure alignment, including existing roadways and established transmission ROW. When this is not possible, we will avoid the most critical habitats as we are able. In the marine environment, we will also avoid important habitats and locations, but a more active and deliberate effort must be made as described below.

In 2017, the Greater Atlantic Regional Field Office (GARFO) of NOAA and the USACE, North Atlantic Division, developed an interagency program to streamline Endangered Species Act consultation for routine and noncontroversial projects, called the "NLAA Program." The program issued a set of Standard Operating Procedures to provide guidance to the USACE and applicants to understand the types of projects that may cause adverse impacts and the types of projects that likely result in a "Not Likely to Adversely Affect" (NLAA) determination. We will utilize this program if approved by the appropriate agencies. TOYR may not be imposed if the project is able to qualify and adhere to the program requirements, which will likely include BMPs throughout construction.

Best Management Practices

- ✓ Cofferdams
- ✓ Bubble curtains
- ✓ Turbidity curtains
- ✓ Pre-construction substrate sampling
- ✓ Pre-construction surveys
- ✓ Horizontal directional drilling
- ✓ Avoidance of direct impact
- ✓ Maintenance of Zone of Passage
- ✓ Marine observers during construction
- ✓ Water quality monitoring
- ✓ E&S control measures
- ✓ Limits on tree removal
- ✓ Replanting of disturbed sites with native species
- ✓ Restoration of type and elevation of removed substrate
- ✓ Use of socketed piles, slow start to pile driving, other low-impact pile installation
- ✓ Staggered, slow detonation of blast charges

Figure 6-7. Several BMPs will be considered to reduce seasonal restrictions.

If the project cannot qualify for the NLAA program, the agencies may require that the project adhere to TOYR. It is essential to validate online information sources and consult with the regulatory agencies to understand requirements very early in the project planning and permitting phases so that potential delays due to gathering validating information can be accounted for.

> A robust and thorough Stakeholder Communication Plan is also essential to limiting surprises before and during the permit process. Understanding the serious concerns of stakeholders, and resolving them as possible, will contribute significantly to a timely permitting issuance. Unresolved public comments and concerns will delay permit issuance.

Beach or open-space restrictions imposed on construction may be related to a number of factors, both human and ecological. First, the beach may be associated with a public park that remains open seasonally. The project would have to consult with the park authorities to understand the parameters in which a cable landing would be allowed. Second, the beach may be under private ownership and obtaining permission to disrupt the beach may require special legal efforts. A third factor may be a beach that has been nourished by the USACE as part of a civil works project. In this case, authorization by an additional permitting process would be required under Section 408 of the Rivers and Harbors Act of 1899, with the timing of permit issuance delayed until the Section 408 permit is issued. Finally, we understand that TOYR for beach disturbance will be likely due to nesting shorebird species, including the piping plover and red knot, protected migratory species that nest on dunes and supratidal beaches between March 15 and August 31.

Our team is committed to consult and coordinate with agencies and stakeholders to determine appropriate field studies aimed to identify use and suitable habitats supporting protected species. If protected species are determined to be present and agencies require TOYR, the project's construction schedule would be amended to adhere to the TOYR.

Figure 6-8. Human and ecological beach restrictions may have an impact on construction.

6.6. Anticipated construction-related outages

The interconnection of the Clean Link New Jersey project will require certain outages of transmission facilities [redacted] The full scope of work, including the sequencing and duration, of these outages will be coordinated with [redacted] PJM to minimize the impact to the PJM transmission system wherever possible.

6.7. Supply chain constraints or material procurement risks

Clean Link New Jersey will procure major materials at the onset of the project. Based on initial discussions with the material suppliers, lead times are expected to range from two to four years as of contract execution to initial receipt of materials on-site. These lead times are for the HVDC land and submarine cables and the converter stations. Procurement is expected to have the largest duration in the project schedule.

Purchasing these major materials in the early stages of the project will help derisk the procurement.

Clean Link New Jersey has well-established supply chains, matured over the years from successfully delivering major energy projects regionally. We will assign procurement specialists to closely monitor the supply chain bottlenecks and intervene when a potential disruption is identified. Such interventions would include engaging alternative suppliers to augment supply capabilities.

6.8. Project-on-project risks related to other transmission and offshore wind projects

Clean Link New Jersey is offering a flexible solution underpinned by its modular 1.2 GW building blocks, as described in Section 3 of this supplemental data collection form. The details of the technical solution are provided through PJM's submission planner.

Our detailed schedule depicts the sequencing and duration of activities that are required for the completion of the base offering of 2.4 GW [redacted].

Our COD is set to be in 2028 to support the New Jersey offshore wind targets, mainly including the potential future solicitations. The schedule is flexible and could be further optimized to support already awarded projects if Clean Link New Jersey is requested to do so by the BPU and if an agreement is considered by the awarded offshore wind developers.

Our suggested commercial operation date is based on the expected future offshore wind solicitation commercial operation dates provided under the request for proposal document and is directly tied to those developments. The schedule can be revised depending on the actual progress of such awards and projects. [redacted].

6.9. Project schedule guarantees

As noted in Section 5.5, Clean Link New Jersey proposes to certain capital costs as part of a cost containment provision, the Cost Cap, including the cost of contract work, labor, materials and supplies, transportation, special machine services, shop services, protection, injuries and damages, privileges and permits, engineering services, reasonably expected environmental site remediation and environmental mitigation costs as defined in the tariff, general administration services, legal services, real estate and land rights, rents, studies, training, asset retirement, and taxes. Clean Link New Jersey views the Cost Cap, and the extensive categories of costs to which the Cost Cap applies, as an effective measure to ensure targeted commercial online dates will be met and cost overruns will be minimized. Clean Link New Jersey therefore does not, at this time, propose any an separate contractual language related to project schedule guarantees.

6.10. Additional risks

Clean Link New Jersey's infrastructure expertise helps us optimize project design, permitting, construction, and operation while managing risk. The lessons learned in the process further emphasize the importance of adapting our infrastructure's operation and design to better withstand uncertainties — such as lockdowns and new disease threats.

> Just as net-zero carbon and climate resilience have led to industry standards and norms, we seek to build resilience to epidemics/pandemics by adapting and transforming our designs and operational practices to address future threats.

Mitigation needed for wetland impacts

Several types of impacts to wetlands, freshwaters, and coastal zones, including those listed in Figure 6-9, would potentially require mitigation.

Depending on the type of impact and the value, functions provided, and uniqueness of the wetland or waterbody resource, the agencies may require anywhere from no compensatory mitigation to three to five times the acreage impacted. Regulatory agencies typically operate under a "no-net-loss" of wetland or waterbody area and function; and prefer a "net gain" in wetland or waterbody area and function through requiring compensatory mitigation to offset project impacts. The concept has followed through to impacts within other natural resources including coastal intertidal zones, dunes, substrate habitats, and habitats supporting protected species.

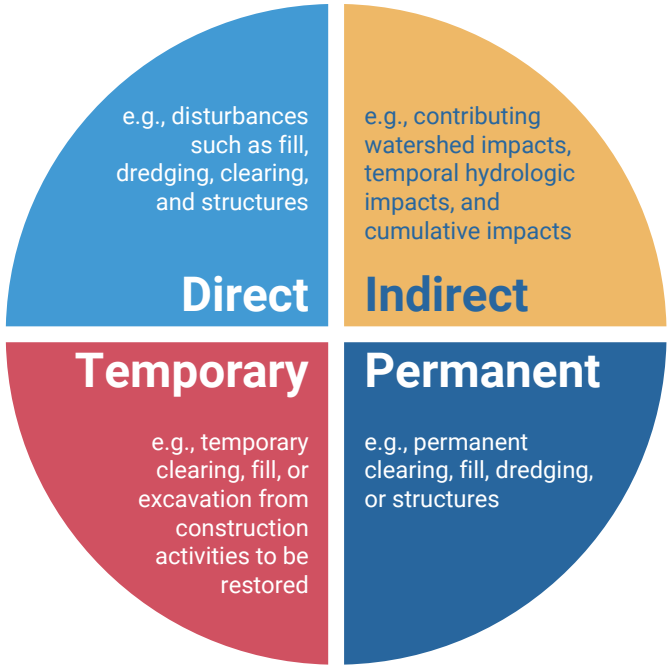


Figure 6-9. Mitigation may be required for several types of impacts to wetlands, freshwaters, and coastal zones.

The White House Council on Environmental Quality (CEQ) has defined mitigation in its implementing regulations for the National Environmental Policy Act to include avoiding, minimizing, rectifying, reducing over time, and compensating for impacts. The Clean Water Act Section 404(b)(1) Guidelines (Guidelines), developed by the Environmental Protection Agency (EPA) in coordination with the USACE and issued in 1980, establish substantive environmental criteria that must be met for activities to be permitted under the Section 404 permit program. The types of mitigation enumerated by CEQ are compatible with the requirements of the Guidelines; however, as a practical matter, they can be combined to form three general types of mitigation: avoidance, minimization, and compensatory mitigation.

As discussed in the USACE/USEPA 1990 Memorandum of Agreement (MOA) on the mitigation requirements of the Guidelines, USACE and USEPA agree that the following mitigation types are generally applied sequentially in the following order:

1. **Avoidance**, meaning mitigating an aquatic resource impact by selecting the least-damaging project type, spatial location, and extent compatible with achieving the purpose of the project. Avoidance is achieved through an analysis of appropriate and practicable alternatives and a consideration of impact footprint.
2. **Minimization**, meaning mitigating an aquatic resource impact by managing the severity of a project's impact on resources at the selected site. Minimization is achieved through the incorporation of appropriate and practicable design and risk avoidance measures.
3. **Compensatory mitigation**, which means mitigating an aquatic resource impact by replacing or providing substitute aquatic resources for impacts that remain after avoidance and minimization measures have been applied, and is achieved through appropriate and practicable restoration, establishment, enhancement, and/or preservation of aquatic resource functions and services.

The NJDEP Office of Policy and Coastal Management maintains a manual on mitigation as well as a Mitigation Council and standards on establishing and using mitigation banks in the state. New Jersey allows the use of wetland banks and riparian zone banks. Availability of mitigation banks are based on the location where impacts have taken place and the established mitigation bank's service area. The current established mitigation bank service areas in relation to the project's location can be viewed in Appendix G, Figure G-5.

Review of the mitigation bank service areas has identified that approximately half of the terrestrial cable route is located in service areas open for credit purchase. The remainder of the terrestrial cable route occurs in areas that are not serviced by an established mitigation bank. For direct impacts to freshwater wetlands that require compensatory mitigation in areas not serviced by an established mitigation bank, the New Jersey Wetlands Mitigation Council has established the Wetland Mitigation Fund to accept monetary contributions in the form of in-lieu fees as an acceptable mitigation option. The amount of the contribution would depend upon the type and duration of the direct impacts, wetland resource types impacted, and the size of the impacts.

Based on wetlands GIS data developed and maintained by the NJDEP, the cable route crosses approximately 8.87 miles of wetland resources (refer to Section 7.1). Using the NJDEP wetlands data for an impact estimate, the operational 10-foot-wide right-of-way would temporarily impact approximately 10.8 acres of wetlands and the 30-foot-wide construction corridor would impact approximately 32.3 acres of wetlands, including 21.5 acres of temporary disturbances and the 10.8 acres of operational impacts.

To determine actual impacts to wetland resources, field studies will be conducted to identify the extents, types, and communities present that meet jurisdictional criteria for wetlands and waterbodies. Using field-delineated wetland and waterbody data, Clean Link New Jersey will refine the cable alignment to mitigate impacts through avoidance and minimization measures to the extent practicable.

Custom, project-specific agreements may be allowed with the regulatory agencies to first limit impacts as practicable, and then to develop a strategy to invest in work that enhances understanding of the marine environment or the impacts of cable installation, including the use of monitoring equipment installed on ocean platforms to help understand migration patterns of fish, marine mammals, and seabirds as well as currents, ocean temperature, and severe weather events.

Clean Link New Jersey is committed to establishing an effective and open working relationship with the agencies and will facilitate suitable mitigation expectations early in the project. We emphasize that each component of this project is flexible and will be modified as necessary to meet agency and stakeholder concerns.

07.

ENVIRONMENTAL IMPACTS AND PERMITTING

07.

ENVIRONMENTAL IMPACTS AND PERMITTING

7.1. Environmental protection plan

Clean Link New Jersey has decades of experience in transmission projects including many years of experience in the design elements of offshore wind cable landing, having provided dozens of alternative export cable routes (ECR) for projects with similar scope in the same geographic region.

Clean Link New Jersey has completed a preliminary evaluation and will continue to refine the locations for infrastructure features to optimize costs and minimize potential environmental impacts to efficiently deliver power to the grid. The placement of generation facilities is a function of the existing and future lease area locations and accessibility, viewshed considerations, and the potential routing design for associated power cables both offshore and onshore.

Each step in the process includes its own challenges that vary by location and permitting requirements. The challenges associated with siting offshore infrastructure and routing a submarine cable include some potential impacts on the environment and public. Early identification of these potential impacts will enable us to minimize concerns throughout project development.

> Acknowledgment of sensitive sites and resources will enable the team to properly plan, minimize, and develop methodologies to manage impacts to the environment and the public with the objective of obtaining permits and authorizations expeditiously.

Construction of offshore energy infrastructure and submarine export cabling may have temporary and localized impacts to physical and biological resources during pre-construction, construction, and operational phases. Obtaining the necessary permits for the project requires an understanding of the regulatory and political landscape, a thorough knowledge of existing resources and their baseline condition, and experience to minimize potential project impacts through avoidance and construction best management practices.

According to the April 2021 NYSERDA Final Report of the Fisheries Technical Working Group, Offshore Submarine Cabling Overview (Report Number 21-14), diligent planning can set the stage to reduce environmental and many other potential impacts of submarine cable installation and operation through the following steps:

- Gather and understand relevant data for the region and specific project cable routes, such as conducting geotechnical and geophysical surveys, a fishing industry study, and a commercial traffic study.
- Create an in-depth Cable Burial Risk Assessment to identify risks and a set of burial recommendations designed to mitigate those risks.
- Perform due diligence when selecting cable installation and burial contractors, methods, and equipment.
- Maintain continuity from design through installation with adequate oversight during installation and burial operations to ensure the cable is laid and buried in accordance with the plan.
- Put into effect an operations and maintenance strategy so the cable burial depth is monitored, and any trends (such as reduction of burial depths) can be remedied before becoming problematic.
- Develop a decommissioning plan that weighs the pros and cons of abandonment versus recovery of the cabling after the operational life is complete.

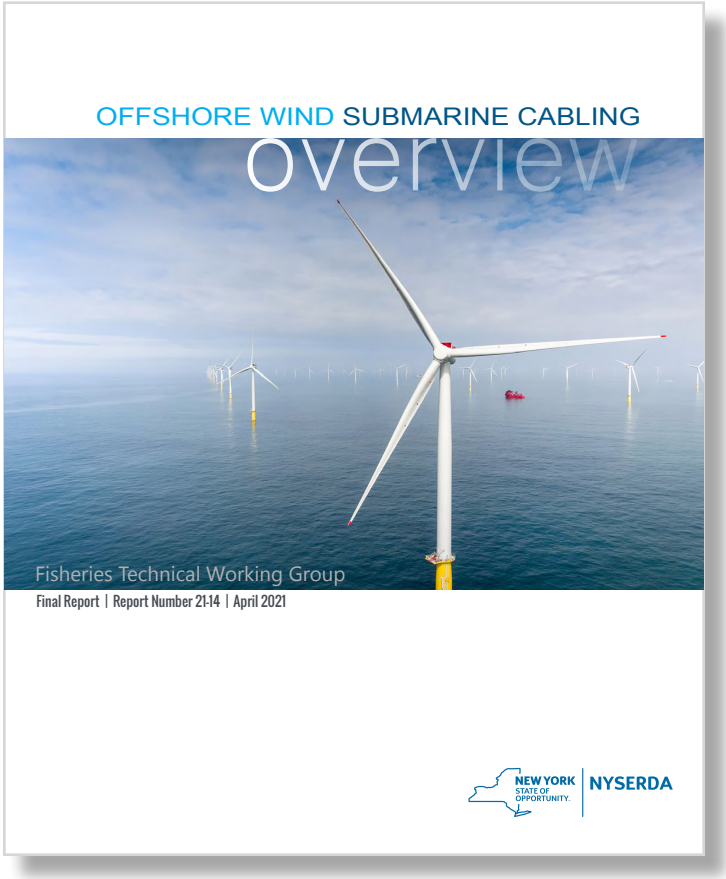


Figure 7-1. Thoughtful and cautious planning can reduce the environmental impacts of submarine cables as outlined by the Fisheries Technical Working Group in NYSERDA's Offshore Submarine Cabling Overview.

While impacts to natural systems can still occur even if the recommendations above are taken, impacts can be minimized by understanding baseline physical, chemical, and biological conditions. If selected, Clean Link New Jersey will provide experienced input on site-specific geologic and geomorphological attributes, rare, threatened, and endangered terrestrial and marine species and their habitat, Essential Fish Habitat (EFH) critical for commercial and recreational fisheries, and other sensitive natural resources.

To maintain an orderly strategy and initiate collaboration with the regulatory agencies, a Master Survey and Assessment Plan (MSAP) will be prepared to initiate identification of surveys or studies needed for comprehensive federal and state permit filings. The MSAP will be developed in consultation with regulatory personnel and will form the basis for research on the project and the potential project impacts. The MSAP will describe why and how information on individual resource areas will be collected, assessed, and presented within the area of potential effect (APE), including information regarding populations and habitat for benthic organisms, marine mammals, sea turtles, submerged aquatic vegetation (SAV), cultural resources, and commercial and recreational fisheries. As needed, Clean Link New Jersey will complete pre-construction surveys, inspections during construction, and post-construction monitoring.

The MSAP will be a living document addressing areas of concern or uncertainty raised by state and federal agencies, non-governmental organizations (NGOs), and other stakeholders from suggested early Stakeholder Engagement meetings, and will fulfill BOEM's requirements (30 CFR Part 585 Subpart F) throughout the project.

When developing the survey plan, Clean Link New Jersey will consider previous work in the region. We will focus mostly on temporal, spatial, and species-specific targeted approaches for reducing uncertainty around biological activity as well as physical attributes of the submarine, intertidal, and terrestrial zones of the proposed impact area. Surveys will be designed to inform and to build upon the growing body of knowledge about potential habitat impacts from offshore wind and cable landings. If there are unrelated studies in the project area that can be adapted to include survey materials for this project, the team will seek approval to make use of these resources as a method of improving data collection efficiency.

When possible, studies will be designed to allow for isolation of offshore wind effects from other anthropogenic effects. Any suggested monitoring activity would be scientifically justified and closely linked to the project schedule. Studies would be planned to allow for a change analysis from pre- to post-construction. Clean Link New Jersey will develop and present a survey plan report, PowerPoint slides, and infographics to support permitting and stakeholder engagement activities.

The following sections describe our current understanding of assessing the physical, chemical, and biological aspects of resources that could potentially be impacted by the proposed project. We are also providing a general approach of how the potential impacts can be avoided and minimized to protect environmental resources.

Physical resources

Air quality

A primary benefit of wind energy is generation of energy without negative impacts to air quality.

During construction, vehicles and vessel traffic may contribute temporary and localized air emissions. During normal operation, there are no air emissions associated with wind energy generation; however, a backup generator will be used to maintain operation of essential auxiliary systems should there be a complete loss of power at the HVDC converter station(s).

Monmouth and Ocean Counties, and the entire state of New Jersey, are in nonattainment for ozone. Monmouth County is in maintenance for particulate matter equal to or smaller than 2.5 micrometers (PM2.5) and in nonattainment for all other criteria pollutants established within the National Ambient Air Quality Standards (NAAQS). The PM2.5 and other NAAQS statuses for Ocean County are not reported. Operational and construction-related emissions will be quantitatively assessed utilizing the BOEM emissions model (Wind Tool).

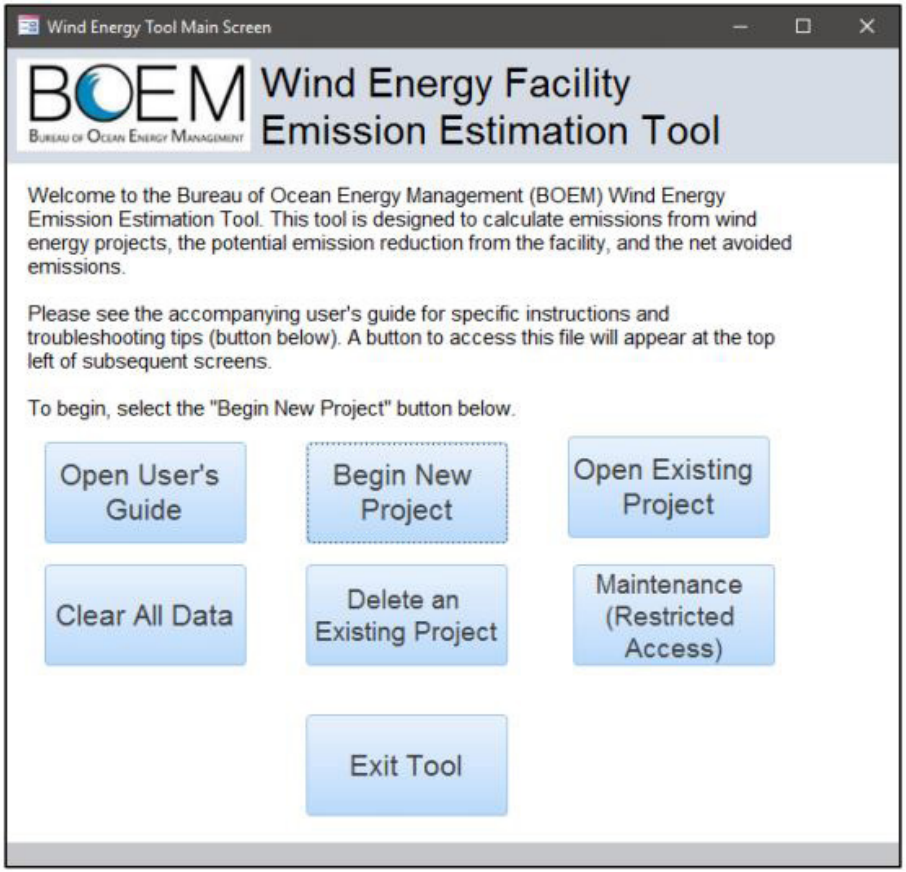


Figure 7-2. BOEM's emission estimation tool will aid in assessing the operational and construction-related emissions of this project.

Airborne sound

Most noise emitted from the project will occur during the planning and construction phases. During planning, survey activities are proposed in the offshore realm, including a geophysical and geological investigation program, which will be designed and carried out in accordance with federal and state guidelines. The appropriate authorizations will be obtained with respect to noise emissions prior to carrying out marine surveying or construction activities.

[redacted]

During construction, we will adhere to noise ordinances and best management practices to minimize impacts of airborne sound within these municipalities. Construction-related noise levels will be a significant consideration for the potential impacts on marine and coastal wildlife, including sea turtles, marine mammals, protected fish, and nesting marine and coastal birds. The project team will consult with the local municipalities to determine appropriate mitigative measures to take for each major phase of the project, including site development, trenching and utility installation, horizontal drilling, and other construction activities expected to result in temporary noise levels higher than ambient noise levels.

Operational noise related to the onshore converter stations will be addressed in accordance with New Jersey Administrative Code (N.J.A.C. 7:29) and local noise ordinances. If necessary, converter stations can be designed and constructed with noise attenuation panels to control and mitigate operational noise.

Underwater acoustics

Some project activities may create noise in the underwater environment. To understand these potential noise disturbances and the range at which potential impacts may occur, Clean Link New Jersey will identify the marine species that will may be affected, and the noise exposure criteria associated with potential adverse effects to these species. NOAA National Marine Fisheries Service (NMFS) has issued a Technical Guidance document that details acoustic thresholds using Sound Pressure Levels above which permanent hearing loss may occur in marine species and provides weighting functions to account for the different hearing frequency ranges of marine mammals (NMFS 2018).

For fish, injurious/behavioral response levels are listed in the NOAA Greater Atlantic Regional Fisheries Office acoustics tool (GARFO, 2020), while for sea turtles, response levels are obtained from US Navy data (Finneran et al. 2017; McCauley et al. 2000). To assess exposure, the NOAA Guidance recommends using both the unweighted peak sound pressure and the frequency-weighted, cumulative sound exposure level. The behavioral thresholds for marine mammals are currently an unweighted Sound Pressure Level of 160 dB re 1 µPa for impulsive sounds (e.g., impact pile driving) and an unweighted Sound Pressure Level of 120 dB re 1 µPa for non-impulsive sounds (NOAA 2005). These thresholds are not adjusted for the hearing ranges of different species.

Alternative approaches to address acoustic effects include a method by Wood et al. (2012), which uses a frequency-weighted Sound Pressure Level step function for impulsive sounds, and the use of the US Navy's frequency-weighted Sound Pressure Level values for non-impulsive sounds (Matthews et al. 2021). Clean Link New Jersey's marine mammal and marine fish acoustics specialists will determine any potential impacts under federal and state regulations and work to avoid or minimize impacts throughout the planning process.

We will model the expected noise and sound propagation along the limits of disturbance and work with state and federal regulators to minimize and avoid significant impacts to sensitive species through best management practices, seasonal construction windows, and/or other regulatory approved methods.

Offshore and onshore electromagnetic field (EMF)

The project will utilize a bundled DC cable in the submarine environment, which will extend from the offshore converter station to the onshore HDD joint bay, where a transition to an onshore HVDC cable duct bank will be made. A preliminary duct bank section is shown in Figure 7-4 below.

Cables used for energy transmission produce low-frequency electromagnetic fields (EMFs). EMF fields can generally be separated into electric fields and magnetic fields, as well as high-frequency and low-frequency EMFs. High-frequency EMFs are an ionizing type of radiation that scientific research generally agrees causes harmful effects to human cells. Low-frequency EMFs, on the other hand, are a non-ionizing type of radiation that is thought to not be harmful to human cells.

Figure 7-4. Typical onshore HVDC cable duct bank section.

Cable designs include grounding to restrict the propagation of electric fields, resulting in direct propagation of solely a magnetic field, which in turn produces its own electric field (BOEM, 2020). The strength of the resultant EMF depends on the current strength flowing through it, depth of burial, type of shielding, and other factors. Currently, the effects of EMF from submarine cables on marine benthic and pelagic organisms are being studied, as little is known regarding potential impacts resulting from exposure to these cables.

A recent study (Hutchinson et al. 2021) showed that both bundling and deep installation of DC cables work to decrease the overall magnetic field at the seabed surface. Figure 7-5 below shows a typical HDVC submarine cable section.

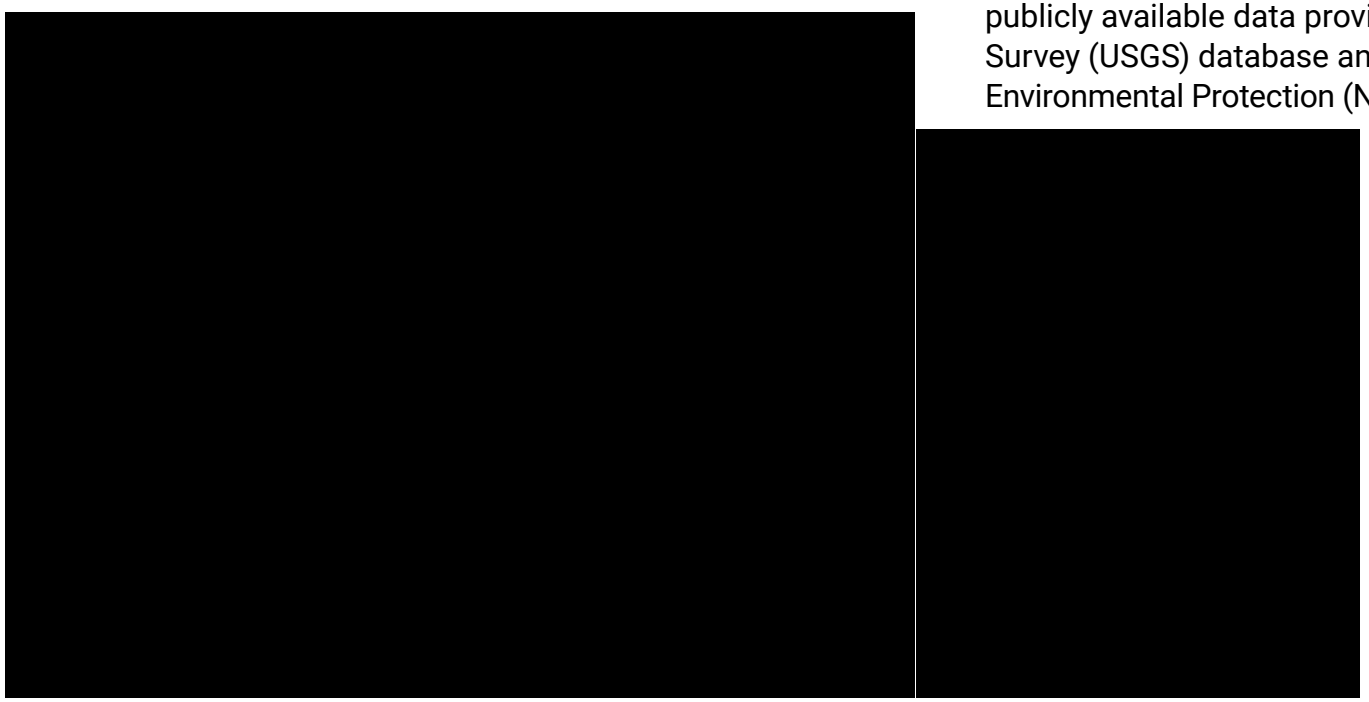


Figure 7-5. Typical submarine HVDC cable section.

To understand the potential effects of EMF generation on humans and other potentially affected species, an experienced subcontractor will be engaged to model the EMF intensity as a function of cable properties, burial depths, and the local geomagnetic environment. The range of potential impacts will be delineated along with the expected EMF intensity. If necessary, baseline and follow-up studies will be conducted to evaluate potential effects on humans and sensitive species in the vicinity.

Geological resources

A preliminary review of the geological conditions has been completed of the platform area and the proposed cable corridor, both offshore and onshore. The preliminary review used publicly available data provided by the United States Geological Survey (USGS) database and the New Jersey Department of Environmental Protection (NJDEP) database.

According to the USGS database, the proposed offshore platform and offshore cable alignment is in the inner continental shelf: the submerged portion of the Middle Atlantic physiographic province, between the Hudson and Wilmington canyons. Today, the middle Atlantic coast is a tectonically quiet area with a sedimentary record of up to 52,800 feet thick, caused by post-rift depositional processes dominated by sea level rise and sediment supply.

As the onshore cable alignment exits the offshore region, it traverses the emerged portion of the Coastal Plains Physiographic Province of New Jersey, which consists of an eastward thickening wedge of unconsolidated river/deltaic and marine sediments dating back to Late Jurassic and Early Cretaceous (138 million years ago).

[redacted]

Clean Link New Jersey geotechnical engineers, geologists, and oceanographers will survey the area proposed for development with onsite sampling of sediments and geologic resources as necessary to understand limitations and characteristics of the subsurface. We will assess the high-level impacts of the project on geological resources through the construction, operation, and decommissioning phases of the project. This will include both onshore and offshore geological resources and will incorporate an understanding of physical seabed/land disturbance; sediment transport for foundation scour protection; and offshore cable, landfall, onshore cable, and substation impacts.

Clean Link New Jersey will also assess the survey data for the presence of natural or man-made hazards that could potentially impact the development of the project. Potential natural hazards would include shallow faults; gas seeps or shallow gas; mobile sediments; potentially unstable slopes; rock exposed at the surface; buried channels; scour features; soft sediments; seismic activity; and volcanic activity. Potential man-made hazards would include cables/pipelines, debris, wells, shipwrecks, and unexploded ordinance.

Water quality

With respect to water quality, the project may impact open marine waters, inland waters, and upland streams/wetlands. Marine waters include the area where the proposed offshore converter station will be sited as well as the export cable corridor. Export cable installation and HDD installation will occur within inland, state-controlled waters. Upland routing has been designed to minimize impacts to inland bays, and to maximize use of existing roadways and maintained electrical transmission rights-of-way to the extent possible.

BOEM guidance provides the basis for evaluating existing water quality and potential project effects for offshore resources. Similarly, NJDEP has established standards for compliance with the Clean Water Act. Clean Link New Jersey will use available data and water quality classifications to understand and report existing water quality.

During planning phases, Clean Link New Jersey will gather data to understand water quality conditions in the project area. Water quality parameters required for determination of potential impacts may include the following:

- Dissolved oxygen
- Chlorophyll a and b pigments
- Nutrients (N and P)
- Seasonal trends in algae/bacteria content
- Upwelling conditions
- Sediment contaminants
- Water contaminants
- Water-suspended sediments
- Water turbidity
- Salinity
- Temperature range conditions

It is anticipated that during construction, temporary minor increases in suspended sediment/deposition in the vicinity of the offshore converter station may occur. These effects are associated with pile-driving activities, vessel movement and anchoring, and potential use of jack-up barges or other working platforms.

Export cable installation is currently expected to be installed via jet plow methodology, which is thought to be the least environmentally impactful installation method but is nevertheless expected to result in temporary minor increases in turbidity and suspended sediment concentrations. HDD activities near the landfall location are expected to result in some disturbance to sediments.

> In all cases, water quality impacts are expected to be minimal/negligible, due to the temporary nature and limited sphere of influence.

During planning we will review other research to fully understand potential marine water quality impacts during construction. We will work with regulators and use modeling during construction to help assess potential impacts on water quality.

Potential water quality challenges for onshore construction, such as potential discharges from dewatering activities, will also be considered. Clean Link New Jersey will prepare a Construction and Operations Plan (COP) that will present a detailed discussion of the current understanding of impacts that could occur to water quality due to proposed construction activities. Spill Prevention, Control and Countermeasure Plans will be included in the COP. Any additional construction activities anticipated to impact water quality for the project will be evaluated to bolster the current assessments and comply with state and federal water quality standards.

Wetlands and waterbodies

As cables are installed onshore, there is the potential for disturbances to freshwater wetlands and waterbodies. At the time of this bid submission, field delineations have not been performed for the export cable alignment or converter station developments. However, a field delineation of resources along the corridor will be the focus of onshore permitting. If selected, Clean Link New Jersey will field delineate and evaluate wetlands, streams, waterbodies, and other water resources.

Some of these wetlands are associated with Category 1 waters and habitats that are exceptional resources and highly valued in New Jersey. We have preliminarily evaluated the cable alignment for interactions with other Category 1 waters that are protected and important surface water resources in New Jersey (pursuant to N.J.A.C. 7:9B-1.15 (c) through (h)). The path of the proposed cable alignment currently intersects with Category 1 waters in approximately 15 locations. Further refinement of the route will attempt to avoid these resources.

The State of New Jersey requires the use of the Federal Manual for Identifying and Delineating Jurisdictional Wetlands (FIDWC, 1989) to delineate wetlands in the state, including along the corridor route and within any areas that could be disturbed, such as laydown areas, construction access roads, or appurtenant facility sites. The wetlands under federal authority will be delineated using the US Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual along with the 2010 Regional Supplement, Atlantic and Gulf Coastal Plain Region (Version 2.0). Because the state has requested and received delegation of the Section 404 program under the Clean Water Act, it has primary authority for jurisdiction and delineating the boundaries of their authority. However, the USACE still retains Section 10 of the Rivers and Harbors Act oversight over "navigable waters," which include tidal areas and their adjacent wetlands. A recent revision (2019) in the definition of navigable waters, called the Navigable Waters Protection Rule (NWPR) significantly changed the extent of the USACE jurisdiction over some streams and wetlands "adjacent" to navigable waters. In late August 2021, a federal judge vacated the NWPR; however, new policy from the current administration has not been issued as of the date of this submission. We anticipate additional changes could affect this project and will comply with applicable requirements.

Figure 7-6. New Jersey is home to a variety of dynamic and valued wetlands and other water sources.

Before delineating, we will coordinate with the regulatory authorities to establish a reasonable study corridor. One of the first activities identified and scheduled within the MSAP will be a Wetland Delineation Report and Draft Jurisdictional Determination Map for NJDEP and USACE approval, depicting jurisdictional wetlands and waters, as well as regulated buffer zones within the construction footprint. It is assumed that the methods of delineating resource areas and the resulting Wetland Delineation Report will be satisfactory for evaluation of impacts and development of the permit application and mitigation proposals. More information regarding permitting strategy is included in Section 7.6.

Impacts to wetlands and waters are the catalyst for permitting under federal and state laws. The action on the part of the government to potentially issue a permit for impacts to these wetlands and waters will initiate additional policies, requiring a thorough evaluation of the corridor for natural resources associated with these wetlands.

Visual resources

As the project develops, it will be important to understand how the project activities may affect viewer experience of scenic, ocean, or landscape viewsheds. Large infrastructure projects can affect resources that have been deemed unique by society due to their scenic or wild visual quality, for example, a scenic river, a wilderness trail, or a historic landscape. Even though the quality and condition of these resources are quite different, they are each vulnerable to visual impacts due to their uniqueness and value to society. Clean Link New Jersey will define the value and scenic aspects of potentially affected resources through a visual impact assessment.

Visual impacts occur when the scenic attribute of a landscape or ocean scape are brought about by visual contrasts, and these associated changes in the human visual experience are analyzed by the visual impact assessment. Various methods are used to create the assessment, including stakeholder engagement, which assists in identifying the locations and views considered valuable by the local users and visitors. From there, simulations of that view can be compared with simulations of the project to ascertain the degree of change and contrasts before and after construction.

> Although our project will be primarily installed below ground thus minimizing visual impacts, Clean Link New Jersey's visual resource analysts, landscape architects, and stakeholder engagement team will address visual resources throughout our planning and permitting efforts.

Clean Link New Jersey will use photos and simulations to provide an evaluation that helps understand the visual impacts that may take place and ways to lessen the potential impacts.

In addition to analyzing the aesthetics of the proposed project, Clean Link New Jersey will complete a visual impact analysis on historic properties everywhere along the route where construction may have an impact to comply with the requirements of the National Historic Preservation Act (NHPA) regarding adverse effects on historic properties. The visual effects report will provide a methodology for development of the viewshed area of potential effects (APE) for coordination with cultural resource stakeholders. Upon concurrence of the APE, an analysis of the project's visibility will be evaluated for impacts to the cultural resources present within the APE (this can include historic buildings, landscapes, and Traditional Cultural Properties) and provide an effects evaluation. The effects evaluation will adhere to the NHPA's Criteria of Adverse Effects and will utilize existing reports (including the visual effects evaluation for other projects in the vicinity), existing studies related to long-range visibility, and visibility studies developed for the project to inform the evaluation.

Biological resources

Clean Link New Jersey conducted a preliminary biological resources desktop review for the project corridor (see Table 7-7). This included database, literature, and preliminary aerial imagery reviews to identify protected species that may range in the vicinity of the project corridor, their preferred or suitable habitats, and potential occurrence for sensitive or highly productive habitats. This is the first step in determining the criteria for habitat-level field surveys and potential for species-specific surveys, if required by the agencies.

Source	Database	Accessibility
Department of the Interior, USFWS	Information for Planning and Consultation (IPaC)	Public
NOAA, NMFS	Essential Fish Habitat and ESA Section 7 Threatened and Endangered Species Directory	Public
Mid-Atlantic Regional Council on the Ocean (MARCO)	Mid-Atlantic Ocean Data Portal	Public
New Jersey Bureau of GIS, NJ Geoweb	Multiple NJ data sources	Public
NJDEP, NJDFW	New Jersey's Landscape Project, and New Jersey's Endangered and Threatened Wildlife	Public
NJDEP, Division of Parks and Forestry, Natural Heritage Program	New Jersey's Natural Heritage Database	Public
New Jersey Division of Parks and Forestry, Natural Heritage Program	New Jersey's Rare Plant Species and Ecological Community Lists by County	Public

Table 7-7. Clean Link New Jersey consulted a number of databases to identify protected specifies that may be in the vicinity of the project area.

Similar reviews will occur as the project progresses and the route is refined, and before field surveys are initiated. The purpose of these reviews will be to identify known protected or sensitive resources in the vicinity of the project corridor and establish survey protocols for discussions with agency personnel regarding potential impacts to federal and state protected species and their habitats.

Rare, threatened, and endangered species

Federally listed species

Understanding the extent of preferred or suitable habitats for rare, threatened, and endangered species that may occur in the project vicinity requires a knowledge of the protected species biology, habitat preferences, and known range. When proposing a project in the marine and nearshore environment, it is essential to understand the ranging species protected by the Endangered Species Act (ESA), and the extent of documentation and detailed analysis that will be required to authorize the installation of infrastructure under both federal and state regulatory programs.

For the Clean Link New Jersey project, the potential for protected species habitat is high due to the number of habitats the project would traverse. Within the marine environment, federally protected species could include marine mammals, sea turtles, marine fish, and marine colonial nesting and shorebirds. Upon the corridor entering the nearshore area, an overlap of terrestrial and marine protected species that rely on the coastal and nearshore areas rich in resources for reproduction and foraging may occur.

The cable will traverse a developed barrier beach, then continue on land for another 23 miles through and along undeveloped landscapes. Within the terrestrial environment, federally protected species could include bats, shorebirds, bog turtles, and plant species. Our goal will be to limit adverse impacts to protected species to the extent possible through avoidance and co-locating within areas of prior disturbance such as existing roadways and ROWs.

We will use online resources to get a preliminary understanding of where these species range, and their life histories, to manage construction activities in habitats where they occur. We will also use photointerpretation to understand the extent of potential habitat. Habitat-level field surveys will be conducted to identify the locations, extents, and compositions of habitats within the project corridor. Prior to conducting field surveys, the project will consult with state and federal regulatory agencies to determine proper field survey protocols for the initial habitat-level surveys. Following the initial surveys, the results will be presented to the appropriate regulatory agencies for their review and determination on whether species-specific surveys are necessary.

Clean Link New Jersey will record study methods and the level of effort the study would require, including the time of year and the areas of coverage, documenting regulatory agency approval as we proceed. Our work will include presentations documenting each species and their habitats, the opportune times to conduct field studies to verify presence and use, and management of adverse impacts to prevent "take" of a listed species. Clean Link New Jersey will conduct the necessary studies for the species that could range within the project area.

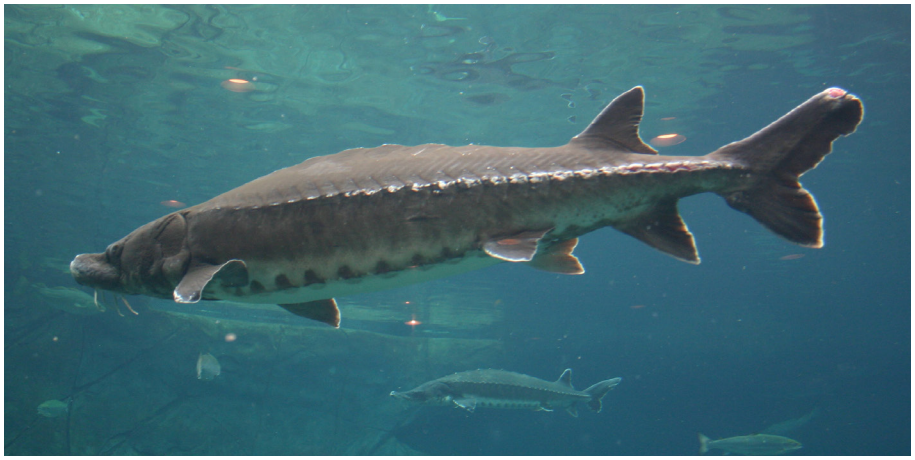


Figure 7-8. Impacts to endangered species found in the project area, such as the Atlantic Sturgeon, will be considered and minimized.

Data will be compiled as a GIS dataset for easy viewing, interpretation, and use in coordination with appropriate stakeholders and agency personnel. Tables 7-9 below and Table 7-10 on the next page provide information on the marine and terrestrial wildlife and plant species protected under the ESA that may be present in the vicinity of the project.

Species	Federal status	Life stage	Dates ranging in project area
Atlantic Sturgeon *(Acipenser oxyrinchus)*	Endangered	Adults	Year round
Northern Right Whale *(Eublaena glaciales)*	Endangered	Adults and juveniles	Migrate and forage: Year round
Fin Whale *(Balaenoptera physalus)*	Endangered	Adults and juveniles; possible calving offshore; overwintering	Calving: 10/1 to 1/31 Migrate and forage: 1/1 to 12/31 Overwintering: 11/1 to 1/31
Green Sea Turtle *(Chelonia mydas)*	Threatened	Adults and Juveniles	Migrate and forage: 5/1 to 11/30
Kemp's Ridley Sea Turtle *(Lepidochelys kempii)*	Endangered	Adults and Juveniles	Migrate and forage: 5/1 to 11/30
Leatherback Sea Turtle *(Dermochelys coriacea)*	Endangered	Adults and Juveniles	Migrate and forage: 5/1 to 11/30
Loggerhead Sea Turtle *(Caretta caretta)*	Threatened	Adults and Juveniles	Migrate and forage: 5/1 to 11/30

Table 7-9. Marine wildlife protected under the ESA administered by the NMFS.

Species	Federal status	Range for potential occurrence	Breeding date and habitat
Northern Long-Eared Bat *(Myotis septentrionalis)*	Threatened	Milepost 26.5 to 49.5	Breeds between late summer to early fall, raising pups in forested areas from late May to early July. Relies on wooded habitats (e.g., fragmented or continuous forested areas) for breeding and raising young.
Piping Plover *(Charadrius melodus)*	Threatened	Milepost 26.5 to 32.0	Breeds between March 15 and August 31. Relies on dynamic coastal habitats (e.g., ocean beaches, washover areas, inlets and barrier islands, sandflats, sparsely vegetated dunes, and intertidal areas) for foraging, breeding, and roosting.
Red Knot *(Calidris canutus rufa)*	Threatened	Milepost 26.5 to 32.0	Breeds between March 15 and August 31. Relies on dynamic, sparsely vegetated coastal habitats with exposed intertidal substrates (e.g., ocean beaches, tidal flats, sandbars) for foraging and roosting.
Bog Turtle *(Clemmys muhlenbergii)*	Threatened	Milepost 26.5 to 49.5	Active from April to mid-September. Relies on unfragmented, open-canopy wetlands with a diversity of micro-habitats (e.g., dry, periodically flooded, and saturated areas) for foraging, nesting, basking, hibernation, and shelter.
American Chaffseed *(Schwalbea americana)*	Endangered	Milepost 32.0 to 49.5	Flowers from June to mid-July. Found in open pine flatwoods or other open areas with dry acidic sandy loams or sandy peat loams.
Knieskern's Beaked-rush *(Rhynchospora knieskernii)*	Threatened	Milepost 26.5 to 49.5	Flowers from July to September. Found on wet, bog-iron substrates in early succession stages (e.g., periodically eroded or human-disturbed areas).
Seabeach Amaranth *(Amaranthus pumilus)*	Threatened	Milepost 26.5 to 32.0	Flowers from July to late fall. Found in dynamic coastal habitats (e.g., barrier island beaches, inlets).
Swamp Pink *(Helonias bullata)*	Threatened	Milepost 26.5 to 49.5	Flowers from March to May. Found in wetland areas that are perennially saturated but not inundated with floodwater, with shallow depth to groundwater. Often found on small mounds.

Table 7-10. Terrestrial wildlife and plant species protected under the ESA administered by the USFWS.

Figure 7-11. The endangered bog turtle relies on the wetlands of New Jersey for foraging, nesting, basking, hibernation, and shelter.

State-listed species

New Jersey's endangered and threatened wildlife species are managed under the Division of Fish and Wildlife's Endangered and Nongame Species Program, and state-listed rare plants and significant natural areas are managed under the Division of Parks and Forestry, Natural Heritage Program. The Natural Heritage Database, maintained by the Natural Heritage Program, is the state's most comprehensive inventory identifying the range and occurrences of rare plants, protected wildlife species, and natural communities.

Preliminary review of these state databases has identified plant and wildlife species that may be found within the project corridor. Further consultations with the state agencies will be necessary to properly identify the specific species of concern as the project scope and location is finalized. Through informal consultations with the state agencies, we will identify known protected or sensitive resources with potential to occur within the project corridor and establish survey protocols for state protected species and habitats.

Marine mammals, sea turtles, and fish species

Clean Link New Jersey will prepare the Marine Mammal, Sea Turtle, and ESA-listed Fish Species Assessment, as required, to be submitted as an appendix to the COP. Listed species will include those formally listed under the ESA and those on the New Jersey protected species list.

For marine mammals, a particular focus will be given to potential underwater acoustic impacts, given the sensitivity of these species to underwater sound. However, all project activities that may impact sensitive species will be assessed. Information on underwater acoustic impacts related to proposed project activities will be based on modeling conducted by acoustic subject matter experts.

The assessment will use best-available science and reference the most recent regulatory frameworks available. It will also leverage the information provided in the assessment for several existing COPs in the same offshore vicinity, since the geographic area and species presence are expected to overlap.

Because of the ongoing significant work within the vicinity, a white paper using scientifically based and BOEM accepted studies for the initial assessment, including a desktop assessment, is proposed for the project impact assessment. Field surveys may be warranted during future assessments to collect additional marine species and underwater acoustic data, which could also be collected by Protected Species Observers during project monitoring, or through the deployment of acoustic loggers in or near the lease area to collect site-specific ambient acoustic data.

The project may obtain high-resolution aerial photography to remotely gather information about the range of marine mammals and other marine wildlife within the project impact area. However, for the purposes of the initial impact assessment, we believe ample information is currently available from other sources regarding species distribution and potential for impact.

The Marine Mammal, Sea Turtle, and ESA Fish Assessment will provide supplemental information regarding species presence and distribution, with a more detailed assessment of project activities that may impact sensitive species, including underwater acoustic impacts.

Marine benthos and shellfish species

If not managed properly, converter station infrastructure and export cables could have an adverse effect on benthic and fishery resources throughout the construction phase of the project, depending on the time of year and methods of construction. Changes in vessel traffic can temporarily impact commercial and recreational fishing practices in the vicinity and could adversely affect benthic and shellfish resources. Potential impacts to infauna include habitat disturbances (e.g., changes in water quality, temperature, bottom disturbance, crushing, and habitat conversion), ecological shifts due to changes in fishing practices and habitat alterations, EMF exposure, and noise exposure (Methratta et al. 2020).

A preliminary review of publicly available information indicates there are several reefs and shoals offshore that support significant finfish, and potentially shellfish resources. The installation of the offshore cable that progresses through the outer continental shelf may influence shellfish populations in that area. However, the proposed cable landing site is co-located with several other subsea structures and is, therefore, unlikely to disturb the benthic habitat significantly. It is also noted that some of the troughs left by past cable installations are now prime fishing spots.

Clean Link New Jersey may choose to examine benthic species abundance, distribution, and taxonomy within the lease and cable areas, if not limited by other buried structures. Our marine benthos and shellfish expert will assess potential impacts to marine benthos and shellfish species from project activities, including construction, operations, and decommissioning.

Benthic surveys are normally accomplished by surveying with grab samples and underwater images, accompanied by visual mapping. If data collection is not possible in some locations, information regarding benthic habitat will be gathered from other studies. As part of this process, publicly available data, such as the Coastal and Marine Ecological Classification Standard and the Mid-Atlantic Ocean Data Portal (MARCO) would also be reviewed.

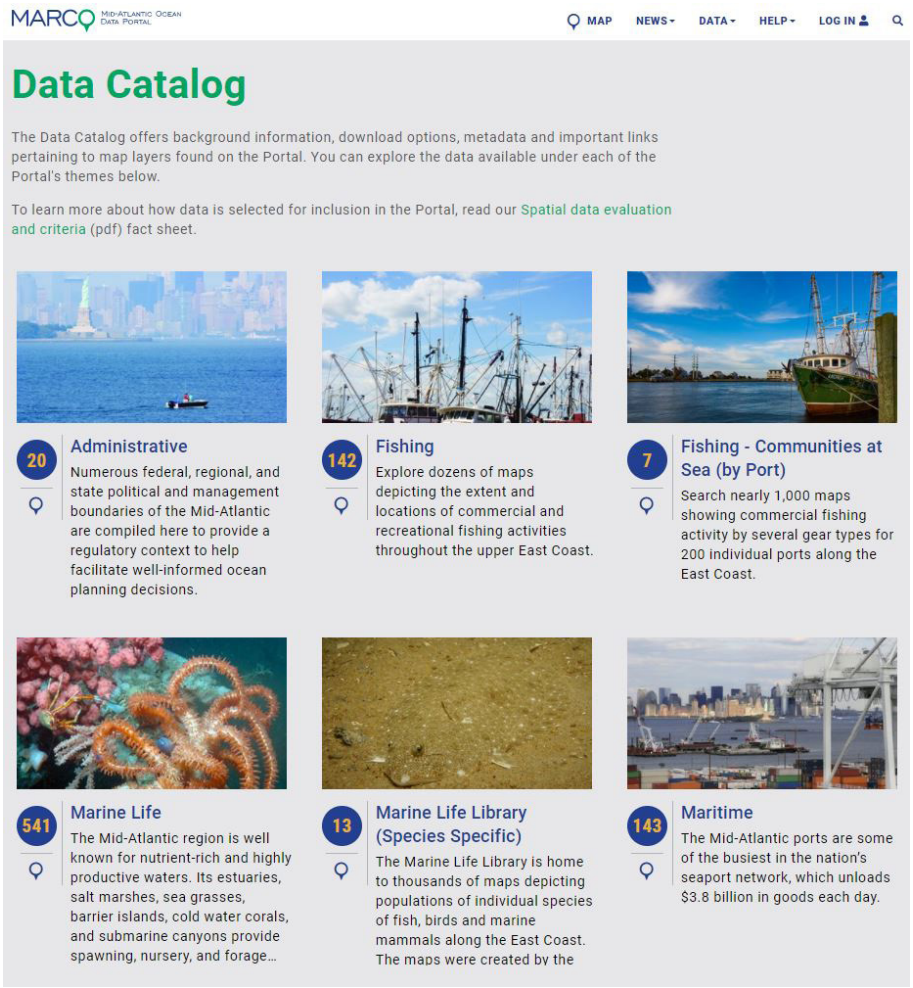


Figure 7-12. The data collection process will include reviewing publicly available data such as the MARCO.

Finfish and essential fish habitat

Finfish habitat

Clean Link New Jersey will rely on publicly accessible baseline data (reports, published papers, and GIS datasets) and documentation produced for other relevant projects to determine the presence and distribution of marine finfish. This information will be compiled in accordance with BOEM's *Guidelines for Providing Information on Fisheries for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 58* (June 2019). The information will focus on the following:

1. Identifying and confirming which dominant benthic, demersal, and pelagic finfish species are using the project site, and when these species may be present;
2. Establishing a preconstruction baseline that may be used to assess whether there are detectable changes in post-construction abundance and distribution of fishes; and
3. An emphasis on the identification and distribution of ESA-listed species (e.g., sturgeon) and commercially important species within the vicinity of the project.

Finfish information will be collected from surveys and studies completed by federal and state resource agencies, regional fishery management organizations, and other fishery stakeholders. These fish surveys and studies have collected and analyzed fisheries data and trends over large spatial and temporal scales, which should describe the fish resources and habitats within the vicinity of the project.

According to several of these data sources, several offshore fishing resource areas have been preliminarily identified, including several natural and human-constructed Important Fishing Areas at or near the cable route. These areas include the constructed Axel Carlson Reef, the Southeast Lump, Ron's Lump, the Ringe Buoy Hills, The Lump, and other submerged resources.

Clean Link New Jersey's mitigation approach will be founded upon the fisheries mitigation hierarchy:

1. Avoid impacts on fishery resources and commercial fisheries.
2. Minimize impacts where avoidance is not possible.
3. Take steps to offset any significant residual adverse impacts that are predicted to remain.

For more information, refer to the Fisheries Protection Plan provided in Section 7.3.

Essential Fish Habitat

EFH exists within the project corridor according to NOAA National Marine Fisheries Service. EFH includes all types of aquatic habitat and, in practice, specifies where a certain fish species lives and reproduces. Congress established the EFH mandate in 1996 to improve the nation's main fisheries law (the Magnusen-Stevens Fishery Conservation and Management Act), which highlights the importance of healthy habitat for commercial and recreational fisheries.

An EFH Assessment will be prepared, as required by the National Marine Fisheries Service, along the cable route and where potential impacts to the seafloor may occur. The EFH Assessment will include the list of species for which essential habitat has been identified in the project area, including the proposed converter station, the cable transmission route, and other areas affected by construction, maintenance, or decommissioning. The anticipated species for which a study will be required are numerous and include various life stages (egg, larvae, juvenile, subadult, adult).

Clean Link New Jersey will compare habitat conditions within this footprint to ecological requirements and preferences of the species' various life stages, as well as important food resources, to narrow down the species whose habitat will potentially be affected by project activities. The EFH Assessment will consist of a summary of habitat preferences for relevant species, a description of the project's activities that may impact these specifies, and a discussion of the anticipated impacts.

Potential Time-of-Year Restrictions

TOYR are normally included as a condition of project authorization by state and federal agencies. TOYR are established to protect some or all life forms of sensitive or protected species, critical habitat, or commercially important resources. TOYR may originate with a resource agency, such as NOAA NMFS, USFWS, or NJDEP NHP, or they may originate from stakeholder input, including requests from fishermen or environmental groups. The project may potentially impact several including EFH, as noted above.

The number of sensitive species present indicates that the TOYR could be highly restrictive, if no BMPs are implemented. Examples of BMPs often used to reduce the potential restrictions and limit adverse effects on sensitive species and habitats are listed below:

- Cofferdams
- Bubble curtains
- Turbidity curtains
- Pre-construction substrate sampling
- Pre-construction surveys
- Horizontal directional drilling
- Avoidance of direct impact
- Maintenance of zone of passage
- Marine observers
- Water quality monitoring
- E&S control measures
- Limits on tree removal
- Replanting of disturbed sites with native species
- Restoration of type and elevation of removed substrate
- Use of socketed piles, slow start to pile driving, other low-impact pile installation
- Staggered, slow detonation of blast charges

In 2017, the Greater Atlantic Regional Field Office of NOAA and the USACE, North Atlantic Division, developed an interagency program to streamline ESA consultation for routine and noncontroversial projects, called the "NLAA Program." The program issued a set of Standard Operating Procedures to provide guidance to the USACE and applicants to understand the types of projects that may cause adverse impacts and the types of projects that would typically result in a "Not Likely to Adversely Affect" (NLAA) determination. TOYR may not be imposed if the project is able to qualify and adhere to the NLAA Program requirements, which will likely require the implementation of appropriate BMPs.

Figure 7-13. Time-of-Year Restrictions are expected to protect sensitive or protected species, critical habitat, or commercially important resources such as the beach.

If the project cannot qualify for the NLAA Program, whether on land or in the coastal areas, the agencies may require that the project adhere to TOYR. It is essential to validate online information sources and consult with the regulatory agencies to understand requirements early in the project planning and permitting phases.

TOYR for beach disturbance could occur due to nesting shorebird species, including the Piping Plover, a protected migratory species that nests on dunes and supratidal beaches between March 15 and August 31. In addition to species-related TOYR, beach restrictions related to recreation are likely to have TOYR. Beaches associated with public parks will require consultation with park authorities to understand the parameters in which a cable landing would be allowed. Beach under private ownership will require permission to disrupt the beach and TOYR may be required by owners. A third factor may be a beach that has been nourished by the USACE as part of a civil works project. In this case, an additional permitting process would be required under Section 408 of the Rivers and Harbors Act of 1899.

Terrestrial avian and bat species

Bird and bat species may be affected by the project through habitat disturbances, noise, lighting, structures, and increased boat traffic. Under both the ESA and the Migratory Bird Treaty Act, potential project impacts to birds and bats will be assessed. Sensitive areas for these species will also be addressed, including Critical Habitat (for species listed under the ESA).

With birds and bats, both federal and state guidelines as well as agency input will be used for evaluating resources. Should detailed information about a particular resource become necessary, Clean Link New Jersey will perform applicable surveys or studies. If no species-specific surveys are required, Clean Link New Jersey will obtain and evaluate information regarding range, habitat, and potential presence for listed species, such as gathering scientific data from accepted journal sources pertaining to detailed wildlife distributions on and offshore.

Data sources for onshore bird and bat information include the USFWS Information for Planning and Consulting (IPaC) tool and the NJDEP Landscape Project Data tools. We have reviewed these data sources and have overlaid the offshore and onshore corridors to determine if land and water disturbance associated with these proposed structures overlap with important bird and bat resources.

A preliminary review of the proposed project envelope was completed utilizing the IPaC and NJDEP Landscape tools. Because some protected bird and bat species were highlighted in the federal review, field studies to validate presence or absence and document use of habitat in and around the project may be required. We will also request specific information from the New Jersey Natural Heritage Program regarding state-listed species. More information is presented in the section on coastal and terrestrial habitat and the potential for species on the federal and state endangered species lists.

Wildlife habitat areas

New Jersey provides habitat for an incredible number and diversity of wildlife species.

> More than 400 species of vertebrate wildlife are found within the state, due in large part to the state's geographic position within the continent, as well as 134 freshwater fish and 336 marine finfish due to the rich supply of water resources and an extensive coastal zone.

Many extensive undeveloped areas exist within the state and these areas are connected to the coast by undeveloped rivers and extensive wetland systems. A few federal, state, and local parks, and wildlife refuges are present within the vicinity of the project. These include the following:

- Manasquan River Wildlife Management Area
- Allaire State Park
- Various municipal parks and open space associated with the North Branch of the Metedeconk River, a FW2-TMC1 River with associated protected species and habitats.

The Metedeconk River is categorized as a C1 waterway. C1, or "Category One" waterways, are noted for their exceptional ecological, water supply, recreational, and/or fishery values. The corridor currently includes areas considered a "rural environmentally sensitive area" and Critical Environmental Site (CES), indicating occurrence of sensitive species or habitats. Clean Link New Jersey will work to avoid and minimize impacts to these areas to the degree practicable.

The NJDFW is responsible for all wildlife in New Jersey. Management of both game and nongame species has the goal of protecting and managing habitats and wildlife populations and maintaining wildlife diversity. The NJDFW's Endangered and Nongame Species Program began the Landscape Project in 1994. Its goal is to protect New Jersey's biological diversity by maintaining and enhancing imperiled wildlife populations within healthy, functioning ecosystems. As a result, the state has mapped much of the ecological systems that support all wildlife in the state. These maps are available from the New Jersey GIS Geode system.

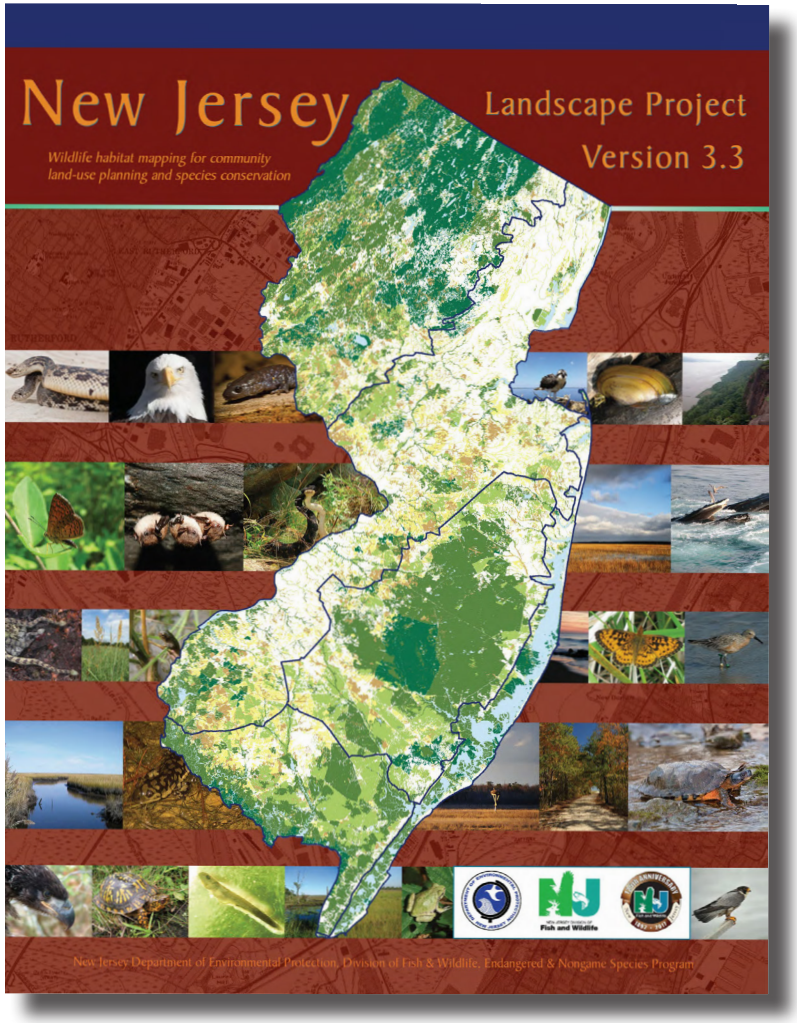


Figure 7-14. The Landscape Project was designed to guide wildlife habitat conservation using GIS maps showing location data of endangered and threatened species in New Jersey.

The NJDFW Landscape Project includes the following mapped Landscape areas within the state: the Atlantic Coastal Landscape, Delaware Bay Landscape, Piedmont Plains Landscape, Pinelands Landscape, Skylands Landscape, and Marine Region. The Clean Link New Jersey project is located in the Marine, Atlantic Coastal, Piedmont Plains, and Pinelands Landscapes. These areas have their own indigenous species adapted to the microclimate, land cover, hydrology, biogeochemistry, and geomorphology of the areas. The more undisturbed and larger the undeveloped land areas, the more significant is the plant, fish, and wildlife diversity and the quality of the habitat. We have reviewed the open spaces through which the Clean Link New Jersey cable corridor comes into close contact with state, county, municipal parks, and privately owned areas of open space. The following areas were noted:

[redacted]

Clean Link New Jersey will assess these open spaces and evaluate their value to New Jersey wildlife.

Coastal, terrestrial, and aquatic high-quality habitats

Offshore infrastructure can affect the coastal and aquatic habitats of nearshore or onshore species throughout construction, operations, and decommissioning phases. Typical impacts include noise, EMF effects, land/seabed disturbances (e.g., sediment disturbance, erosion), increased vessel traffic, habitat changes, physical structures, vegetation removal, changes in geomorphology, changes in the currents or flooding regime, and changes to the chemistry of coastal and inland waterways.

In 2017, BOEM released a publication that reviewed available literature on the effects of offshore wind projects on coastal habitats (Latham et al. 2017). Coastal habitats considered include coastal uplands, dunes, beaches, salt/brackish water wetlands, rocky intertidal zones, tidal flats, submerged aquatic vegetation (SAV), shellfish reefs, nearshore hardbottom and softbottom habitats, and the water column (Latham et al. 2017). This document noted that landfall and nearshore activities tend to result in minimal impacts to habitats if they occur in existing rights-of-way or within areas that have been previously disturbed. Further, impacts onshore are minimized by use of trenchless technologies such as HDD for cable installation (Latham et al. 2017). However, some impacts may still occur, such as habitat loss or disturbances from inadvertent returns of HDD fluids, though this can be minimized/avoided with proper engineering and preventative measures (Latham et al. 2017).

A list of ecological communities that serve as coastal, terrestrial, and nearshore marine habitats within the vicinity of the Clean Link New Jersey ECR that signify high-quality habitats is included below.

Subtidal nearshore: Submerged aquatic vegetation (eelgrass)

Based on our review of readily available information and understanding of the physical characteristics that support eelgrass (*Zostera marina*), we believe that SAV is not present in the project area or along the corridor and landfall approach [redacted]. Eelgrass beds in New Jersey are restricted to the coastal bays and estuaries located inland of the shoreline. As such, a separate SAV survey should not be required.

If confirmation that eelgrass beds are not present is required, we propose to include bathymetric and side scan imaging along the cable route. If the export cable route changes and traverses a coastal bay or estuary, a site-specific SAV survey may be necessary unless very recent and available data has been gathered for the area. Please note that restoration of eelgrass beds can be difficult and, therefore, the project will avoid them if possible. Unavoidable impacts to the SAV beds will be mitigated by restoration or by in-lieu fee, according to state requirements.

Intertidal zones and beaches

Beaches serve an important function in migratory stopover areas, wintering areas, foraging, and nesting areas for many migratory and resident birds. These habitats support many benthic organisms that form the basis of the food chain in the bays and oceans.

These areas slope towards the ocean and consist of sands and gravels in most New Jersey locations. They are subject to the ebb and flow of tides and to high-energy wave activity. The cable landing may impact coastal intertidal zones and beach features. However, we will employ HDD installation techniques to avoid impacts to these essential coastal features.

Bay islands, coastal dunes, and barrier beaches

These environmentally sensitive coastal features can be found along the entire New Jersey shoreline. Bay islands are non-oceanfront islands surrounded by tidal waters. Coastal dunes are a transient landform composed of wind- or water-driven sand dynamically linked to beach processes that protect the back bays from flooding and wave action impacts. Barrier beaches are typically narrow low-lying sand ridges that rise slightly above the surface of the sea and run roughly parallel to the shoreline.

Figure 7-15. Sand dunes are a coastal feature vital to wildlife habitat and the resilience of the shoreline.

These zones provide valuable wildlife habitat as the coast transitions to upland areas. These zones, though dynamic, include valuable habitats for marine colonial nesting birds and shorebirds, including rare, threatened, and endangered species. These areas also serve an important function in providing the first line of defense against coastal storms and surges, and they are essential to the resilience of the shoreline.

The Clean Link New Jersey corridor avoids most impacts to these habitat types. The cable landing may impact coastal features. However, we will employ HDD installation techniques to avoid impacts to these essential coastal features.

Salt marshes

Salt marshes are one of the most productive habitats in New Jersey when it comes to biomass contribution to estuaries and marine ecosystems. The organic peat they produce provides nutrients for bacteria and protozoans, which in turn provide food for larger invertebrates. Finfish, shellfish, and other living creatures utilize the production of salt marshes for food. Two thirds of marine finfish and shellfish are known to be estuarine and therefore depend on salt marshes and estuarine tidal marshes. New Jersey's coastal salt marshes are prime wintering habitat for hundreds of thousands of migratory waterfowl annually. Our corridor avoids impacts to salt marshes. However, if impacts to salt marshes are found to be unavoidable, we will utilize design techniques that will minimize impacts.

Swamps, freshwater marshes, and bogs

The transition from coastal features and salt marshes upgradient of the ocean often includes a transition to estuarine and freshwater wetlands and tidal creeks to freshwater streams. In the coastal plain of New Jersey, these wetlands are numerous and densely vegetated. Some of the bogs in the state support endangered orchid species as well as endangered amphibians and reptiles like the bog turtle. The project has avoided wetlands to the extent possible. Where impacts are unavoidable, we will utilize design techniques to avoid disturbing the hydrology and will revegetate the areas with native species identified in reference wetlands of the same types. At this time, minimal to no permanent loss of wetland areas is anticipated.

Lakes and streams

Several waterbodies and streams exist along the proposed cable corridor. To the extent possible, we will utilize approved methodologies to install the cable without impacting the stream and wetland features that border them. We do not anticipate impacting any inland surface waters, but if impacts to surface waters are unavoidable, we will utilize design technologies that will avoid permanent impacts on the hydrology and geomorphology of those natural water bodies.

Cultural resources

Clean Link New Jersey conducted a preliminary archaeological desktop review of the project corridor. This includes an evaluation of known aboveground historic properties, marine cultural resources, and terrestrial resources. This is the first step in determining the level of effort for field surveys. Table 7-16 identifies the databases consulted as part of our preliminary review.

Source	Database	Accessibility
Department of the Interior, Bureau of Ocean Energy Management	Atlantic Shipwreck Database	Restricted
Department of the Interior, National Park Service	National Register of Historic Places	Public
National Oceanic and Atmospheric Administration	Automated Wreck and Obstruction Information System (AWOIS)	Public
National Oceanic and Atmospheric Administration	Electronic Navigational Charts (ENC)	Public
New Jersey Historic Preservation Office (NJHPO)	Cultural Resource Geographic Information System (CRIGRIS), also known as LUCY	Restricted
New York State Historic Preservation Office (NYSHPO)	Cultural Resource Information System (CRIS)	Restricted

Table 7-16. Clean Link New Jersey consulted various databases during our preliminary review of the project corridor.

Similar reviews will occur as the project progresses and the route is defined, and before field surveys are initiated. The purpose of these reviews will be to avoid known resources and establish a cultural APE for discussions with agency personnel regarding potential impacts to architectural properties, terrestrial archaeology, marine archaeology, historic landscapes, and other cultural resources.

Prior to initiating the field survey, Clean Link New Jersey will coordinate a pre-application meeting with the BOEM archaeologist to obtain concurrence on the proposed field survey methodology and cultural resource stakeholder list. This pre-application meeting may or may not include the SHPO (at the discretion of BOEM). However, if SHPO is not included, a separate meeting will be scheduled with SHPO staff. The same may occur with the THPO's office, if possible.

The project team will utilize the results of earlier tasks to inform these meetings and make them as useful as possible. They will be used to gather details on APE boundaries, survey requirements, architectural recording requirements (number of photos, preference on forms or nomenclature, etc.), the amount of consultation preferred, and any other specific requests and preferences of each party for this project. A general timeline for the project will be developed for fieldwork, report submittals, reviews, comments, public meetings, stakeholder engagement, and other items that the BOEM archaeologist, SHPO, and THPO may provide. These initial meetings are critical to establish the foundation for the cultural resources' component of the project.

Aboveground historic properties and terrestrial archaeology

The project team's desktop survey initial review identified three previous surveys that intersect the current proposed cable corridor. The current corridor intersects four historic districts, which are potentially eligible for listing in the National Register of Historic Places:

It is likely that the Historic Districts that are identified can be crossed with minimal to no impacts or avoided by boring or HDD.

The project team will conduct an archaeological and architectural survey as directed in the approved survey protocol. This will be developed through agency meetings and will identify a cultural APE associated with the various project components. The cultural APE will, at a minimum, adhere to the standards required by the state, and will be further informed by digital review and field observations.

Fieldwork will be conducted to make field observations and photograph all historic resources requiring architectural survey. Survey data will be processed and recorded on appropriate survey forms so data may be collected in a comprehensive manner. A survey report will be completed to the standards of the SHPO and BOEM. Survey items will be prepared and submitted to applicable agencies and stakeholders as required.

The architectural resources identified during the archaeological survey and as part of a visual assessment study will be completed as a standalone technical study. The level of informative detail regarding the nature and location of historic properties will be sufficient to support the environmental analyses required by NEPA and other relevant environmental laws, particularly the NHPA. We will describe the methods and results of cultural resources surveys conducted by others with the goal of identifying historic properties that could be adversely affected by the proposed undertaking. This data will also be used to support the visual assessment study described in Section 7.1.

Marine archaeology

Clean Link New Jersey's maritime archaeology team has conducted a preliminary desktop review of the proposed cable corridor and has established that there are no known wrecks or obstructions within the 200-foot project area corridor. There are also no known unexploded ordnance areas within the project area.

There is one submerged Pre-Contact site located significantly north of the project area. Four cells are identified in LUCY as containing cultural resources, but the SHPO office remains closed due to COVID-19 and timing prevented additional data from being obtained for this report. Prior to field work, we will be able to obtain more clarity on the known resources for this location from this database. Our cultural resources team will synthesize all survey data to provide a comprehensive technical report that will be accepted by all required agencies and provide applicable data for NEPA and NHPA permitting requirements.

Socioeconomic resources

Clean Link New Jersey has completed a preliminary screening of several socioeconomic factors as part of the routing analysis and will complete a more focused assessment of social and economic conditions as the project progresses. Our focused analysis will consider demographic and environmental justice considerations; public health and safety, recreation, and tourism; and other important economic drivers such as commercial and recreational fisheries and commercial shipping.

Table 7-17. Our routing analysis will include socioeconomic factors to understand potential benefits and adverse impacts of the project.

Information generated in this effort will establish baseline existing conditions to help inform the stakeholder engagement effort and ultimately to develop project alternatives, which is integral in identifying the least impactful route. We will seek to understand the potential benefits and adverse impacts of the project in socially and economically vulnerable communities as part of a Social and Economic Benefits and Adverse Impact analysis and report.

The Proposal Window identified several topics that are loosely related to socioeconomics but are more aligned with other resource sections. For example, visual resources are addressed in Section 7.1, environmental justice in Section 7.5, land use in Section 7.1, and zoning in Section 7.6. The following sections describe Clean Link New Jersey's approach to analyzing socioeconomic specific factors.

Commercial and recreational fisheries

Potential exposure of commercial fisheries to expansive OSW development on the OCS of New Jersey, particularly scallop and clam dredging, is a known stakeholder concern. Compiling and presenting adequate commercial and recreational fishing information will be a critical component of the our project will be highly scrutinized by BOEM and stakeholders.

Through consultation with stakeholders, and as we better understand their concerns and explain our proposed project, Clean Link New Jersey can reduce adverse impacts to commercial and recreational fishing grounds. New Jersey harvests more than 100 varieties of finfish and shellfish out of nine commercial fishing ports. New Jersey's fishery and aquaculture supports a $20 billion dollar industry and recreational fisheries accounts for an industry of nearly $10 billion in the state.

Clean Link New Jersey will evaluate potential economic impacts related to commercial and recreational fisheries. In addition to working with the fishery stakeholders on their specific concerns, we will incorporate current research related to economic impacts to commercial and recreational fisheries.

BOEM conducted research into the impacts of construction and operation of OSW energy facilities during 2019-2021, focused on the Surfclam and Ocean Quahog, two of the largest exports of the New Jersey commercial fishery. Part of the BOEM project is designed to improve the modeling for economic impacts to commercial fisheries. We plan to work with the new modeling as well as the respected models for standard fishing methods to best capture the true economic impacts for commercial and recreational fisheries.

These models are based on data including vessel trips, goods, and services consumed by anglers (including bait, fuel, food, lodging, and gear), license and permit purchases, fish processing services, and other related services. Vessel traffic and any interruption in vessel traffic will also be evaluated. Any proposed closure to the fisheries will be examined and the potential economic impact will be evaluated.

Clean Link New Jersey will implement a robust stakeholder outreach plan (see Section 7.4) to identify and incorporate feedback from affected fishery groups to minimize impacts to commercial and recreational fisheries. As part of this effort, we have developed a preliminary Fisheries Management Plan in Section 7.3 that addresses many of these concepts as well as potential mitigating factors. This plan will be included in the MSAP and refined as we study information that is important to obtaining permits and authorizations and addressing stakeholder concerns.

Commercial shipping and other vessel traffic

Clean Link New Jersey will develop a vessel strike analysis that includes marine mammals, small vessels, and recreational vessels, as well as a Navigation Safety Risk Assessment (NSRA) for this project. Relevant US regulations, including BOEM, US Coast Guard (USCG), NOAA National Marine Fisheries Service, and others will be used to inform the vessel strike analysis and NSRA. We will include wider international experience and industry guidance.

Clean Link New Jersey has extensive experience developing NSRA and vessel strike analyses to meet the relevant regulatory requirements as well as the latest scientific data and BOEM guidance for vessel traffic servicing offshore renewable energy development. The most recent NOAA-approved risk models will be evaluated for use on this project and may be incorporated to help reduce the risk of marine mammal strikes.

Information from stakeholders and vessel traffic data will be used to develop models to scope and develop the NSRA. The NSRA will be used to conduct the standard assessment of the offshore above water structures and will be compliant with NVIC No. 01-19. It will include the assessment of potential vessel strikes during the construction of the cable and above water structures.

The details and assessment of expected tidal and weather conditions, water depths, and sea states and how these may impact allision and collision risk will be evaluated, and the potential impact of visual navigation during various weather scenarios will be established. In addition, quantitative modeling of layout configuration and a qualitative consideration of grounding risk will be undertaken as part of the analysis.

Communication operation systems, emergency response, and port operations, including pilot boarding stations, beacons, and standard operating procedures, will be evaluated as part of both studies. This information will also be noted as important aspects to be included in permit commitments and operational procedures throughout the project.

Tourism and recreation

When evaluating socioeconomics, a key consideration will be recreation and tourism.

> The New Jersey coastal waterfront is a destination for people from the surrounding metropolitan areas of New York and Philadelphia.

In 2019, New Jersey tourism contributed approximately $21 billion of the direct gross domestic product to the state economy, approximately 3.2% (2019 data was used due to the impact of the pandemic on 2020 travel). Prior to 2020, the state had witnessed 10 straight years of growth in tourism. Due to the pandemic, the state saw a dramatic decline in travel.

Clean Link New Jersey will develop a methodology to evaluate how to best evaluate the economic impacts of a single project on an economy in the midst of an unprecedented global shift due to the pandemic.

The most direct impact on recreation and tourism will be temporary, due to the inconveniences of laying cable and traffic issues during construction. Mitigation options related to timing and rerouting will be developed and evaluated.

Figure 7-18. The Jersey coast is a lucrative tourist destination and source of immense pride for locals.

Long-term positive impacts have been found in previous areas of OSW development for tourists drawn to visiting such areas of development. Past developments have served as an opportunity for the communities to build awareness and education around clean energy and a new identity. An example is the Block Island Wind Farm in Rhode Island.

Workforce

Wind energy projects support multiple levels of employment, as the project can be divided into a minimum of three main phases: development, construction, and operation. We will address workforce development and utilization primarily focused on the construction and operation phases. The development phase will be briefly discussed.

If selected, Clean Link New Jersey will discuss construction and operation workforce to address stakeholder concerns, which are typically focused on the development and use of local employees and companies versus the influx of skilled laborers from outside local communities. We will discuss community development, company engagement methods, and proposals for utilization of local labor. This will be developed as part of a discussion on a regional scale, focusing on manufacturing and supply chains as well as the economic investment in lodging and restaurants for the life of construction.

Demographics

The Clean Link New Jersey team will assess social and economic conditions within the community and the larger region. Our analysis will include an analysis of the basic demographics of the communities affected by the project.

> Community infrastructure, such as emergency response systems, schools, healthcare facilities, public facilities, and parks and recreation locations will be considered.

Our analysis will evaluate levels of education and employment, which will also help assist in developing our local labor workforce strategy. Our analysis will establish a baseline of existing conditions, with particular attention to the potential benefits and adverse impacts in socially and economically vulnerable communities. This information will be coordinated with our Communities Impact Analysis (Section 7.5) and associated efforts.

Public health and safety

We will evaluate the available healthcare facilities as part of our Communities Impact Study and will evaluate the emergency response support for marine traffic as part of the NSRA. From these documents, we will evaluate the stress this project may place on these resources. An assessment of the current scientific literature on public health and safety from EMF of offshore and onshore cables and other project facilities will be provided. This analysis will provide stakeholders with meaningful data for each component of the project and help them make informed assessments of the project.

GIS desktop study

Clean Link New Jersey completed a preliminary GIS assessment of available datasets to provide preliminary summaries of potential impacts to sensitive resources. Much of this data has been presented throughout this narrative in sections applicable to the resources discussed. As the project advances, additional resource analysis will be completed to assist with routing and project permitting. Table 7-19 on the next page provides a summary of the GIS data sources reviewed. Figures prepared to visually interpret the project's relation to different datasets are provided in Appendix E.

Several sensitive resources within the project's APE were identified in the GIS data sources reviewed. Field studies will need to be conducted to determine actual extents and locations of sensitive resources. As the project is further refined and field studies are completed, we will evaluate direct, indirect, and cumulative impacts from proposed construction, operation, and maintenance activities. We will modify the route to avoid and minimize impacts, as needed.

Clean Link New Jersey completed a preliminary analysis of existing land uses that may be affected by construction and operation. Land use and development intensity are highly variable across the project.

In association with the land use analysis, we also completed an assessment of land use controls, permits, and approvals that may be applicable. This assessment was completed for each municipality crossed and was based on publicly available information and focused on zoning regulations, site plan review processes, various construction permits (i.e., wetlands, floodplains), and MS4 stormwater regulations.

Source	Resource types
New Jersey Geographic Information Network (NJGIN) Open Data	Land use/land cover
	Landscape project data for the Atlantic, Marine, Piedmont, and Pinelands Ecoregions
	County and municipal boundaries
	Critical environmental and historic sites
	Coastal Area Facility Review Act (CAFRA)
	Historic Districts and Historic Properties
	Open space (federal, state, county, municipal, nonprofit)
	Wetlands of New Jersey
	Roads and railroads
NJDEP GeoWeb	Critical Environmental and Historic Sites
	Historic archaeological site grid
	Important Fishing Zones
	Natural Heritage Priority Sites
	Open space (federal, state, county, municipal, nonprofit)
	Parcel boundaries
	Parks, trails, and open space
	Riparian tidelands
	Wetland mitigation bank service areas
NJDFW Landscape Project	Species and Wildlife Habitat Mapping for Species Conservation within the Atlantic, Marine, Piedmont and Pinelands Ecoregions
FEMA National Flood Hazard Layer	Flood Hazard Zones (i.e., floodplains)
NRCS Web Soil Survey	Soils
USGS National Hydrography Dataset	Streams and waterbodies
USGS National Watershed Dataset	Watershed boundaries
USFWS National Wetlands Inventory	Wetlands and waterbodies
USFWS Information for Planning and Conservation	Threatened and endangered species

Table 7-19. Summary of GIS data sources reviewed.

Most of the municipalities crossed by the project have local zoning ordinances that apply. We will also coordinate with various public and private utilities, as needed, during the planning and construction process. Several tables providing an overview of the sensitive resources and existing land uses that may be present across the project are included in Appendix E. A table providing zoning compatibility of jurisdictions crossed by the project is also provided in Appendix E.

GIS data

Clean Link New Jersey has prepared GIS shapefiles of major project elements, such as the current proposed cable corridor, landfall location, offshore and onshore converter stations, and onshore interconnection locations. Digital data is provided in Appendix E. All GIS data has been prepared in NAD 1983 State Plane New Jersey FIPS 2900 feet.

Preliminary mitigation considerations

Mitigation considerations are directly correlated with resource impacts. Therefore, the primary mitigation concern at this time is to avoid or minimize impacts wherever possible through routing or construction methods. As the project alignment is finalized through the siting and consultation process and resources clearly identified during field surveys, a detailed mitigation plan will emerge that will address resource impacts.

Despite the preliminary nature of the project, certain mitigation measures and best management practices are likely to emerge regardless of final alignment. While acknowledging the need for a more robust and customized mitigation plan in the future, this section provides a high-level preliminary assessment of anticipated mitigation for specific resources.

Information from NJ Geoweb indicates that some portions of the corridor fall within wetland mitigation bank service areas (See Appendix G, Figure G-5). However, large portions do not, and therefore it will likely not be possible to offset wetland impacts entirely with mitigation bank credits. It is likely the project will need to pursue alternative methods of mitigation, which may include some form of permittee responsible mitigation.

Clean Link New Jersey will work with federal and state agencies to identify potential mitigation strategies for this work. Creating a mitigation bank for the project will require development of a Mitigation Bank Instrument, which will require a separate federal and state approval process. Whatever means of mitigation is used, applicable regulatory agencies will need to be involved to approve the means/methods for potential impacts to resources over which they are responsible.

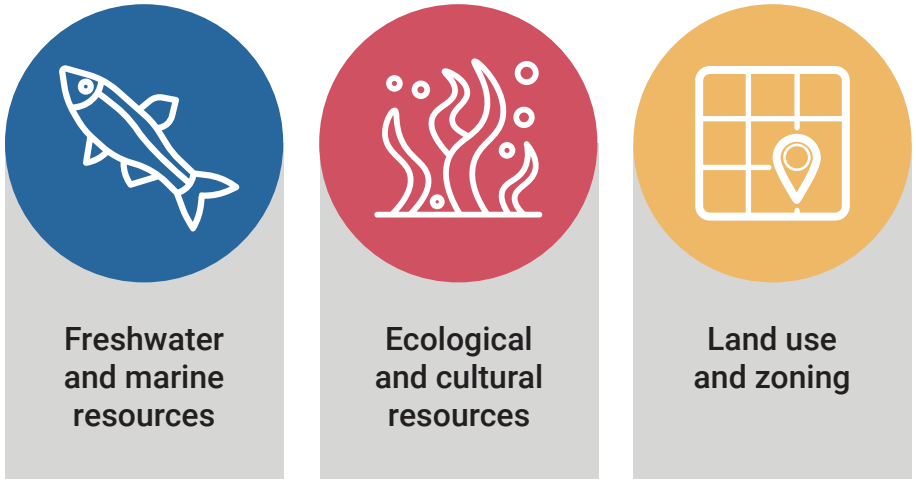


Figure 7-20. We will prepare a detailed mitigation plan addressing resource impacts including these, as well as other relevant considerations.

Freshwater and marine resources

The construction and operation of the project will result primarily in temporary impacts to freshwater resources, such as wetlands and waterbodies, due to the underground cable installation. This may include both direct impacts, where the cleared construction corridor traverses a wetland or riparian area, and indirect impacts from vegetation clearing and ground disturbance in adjacent uplands. In some instances, permanent conversion of forested wetland to scrub-shrub wetland may occur in areas where vegetation management is needed during operation.

Freshwater resources may also be impacted during construction at crossing locations or during extended stretches of in-water installation. Potential short-term water quality impacts may include turbidity, downstream sedimentation, water temperature, temporary water chemistry changes (e.g., pH and dissolved oxygen levels), and localized affects to organisms.

To minimize and mitigate negative impacts to freshwater resources, the project team will develop a Wetland and Waterbody Construction and Mitigation Plan that will detail construction and restoration techniques appropriate to site-specific resource conditions that will be encountered during construction. Additional plans will be developed to address inadvertent returns from HDD, groundwater resources, construction stormwater management, spill prevention and cleanup, and unanticipated discovery of contaminated materials.

The construction and operation of the project may also result in impacts to marine resources, such as benthic and fishery resources, marine mammals, and sensitive habitat. The project team will consult with the appropriate federal and state agencies to identify best management practices that will minimize and mitigate negative impacts on marine resources. These best management practices may include developing marine resources monitoring and protection plans, observing time of year and seasonal restrictions, utilizing approved, low-impact construction techniques and methodologies, and adhering to applicable agency requirements and guidelines. Additional information on proposed avoidance, minimization, and mitigation measures for benthic and fishery resources is provided in Section 7.3 below.

Ecological and cultural resources

For the purposes of this document, ecological resources include vegetation and natural communities, wildlife, geology, soils, and rare, threatened, and endangered species. Cultural resources include archaeological, prehistoric, and historic resources. Mitigation requirements pertaining to these resources will be highly dependent upon completion of field surveys after agency consultation. Therefore, it is premature to postulate specific mitigation measures for these resources.

However, we recognize the importance of these resources and will implement the necessary mitigation measures to avoid or minimize impacts to sensitive resources to the degree possible. Detailed plans, including unanticipated discovery plans, will be developed with agency input for specific resources as appropriate.

Land use and zoning

Land uses along and adjacent to the proposed project were evaluated during the siting process to minimize potential negative impacts to the natural landscape and present anthropogenic land uses. Mitigation focused first on avoidance and second on minimization of impacts at known sensitive areas or otherwise designated special use areas (e.g., agricultural areas, parks, natural or protected areas, trail systems, or other intensive recreational areas such as beaches, residential areas, etc.).

We recognize the need to coordinate further with individual land management agencies, boroughs, and townships to determine whether the proposed facilities minimize conflict with any present or future land uses. This effort will be ongoing throughout the planning process and routing may need to be adjusted accordingly.

Most upland impacts have been minimized by burying the proposed cable within existing utility corridors and roadways. This approach minimizes greenfield construction and associated impacts, such as vegetation clearing, visual impacts, habitat fragmentation, and its associated impacts to terrestrial and avian species.

To minimize potential construction effects to adjacent landowners, we will develop a public outreach program that will provide timely information to stakeholders, adjacent property owners, and/or tenants regarding the planned construction activities and schedule. Our preliminary stakeholder engagement approach is found in Section 7.4 of this document. Similarly, specific mitigation plans will be developed for agricultural areas, recreational areas, and public lands, as applicable.

Other considerations

In addition to resource-specific mitigation planning, a broad array of best management practices are common to most large-scale transmission projects and will be implemented upon agreement with agencies and local authorities. Plans may be developed to address, among other things, overland and underwater construction techniques, noise impacts, visual resources, invasive plants, and overburdened communities. Our team is committed to minimizing impacts to the degree possible and will work with stakeholders to develop robust mitigation options throughout the planning process.

Another issue commonly faced by energy projects in New Jersey is opposition by residents. Past regional transmission projects have generated organized and vocal opposition. It can be assumed that some residents may be concerned with the project's land use and potential impacts. Therefore, our team will implement an transparent and robust community engagement process. We will host a website with project-specific information, attend local board meetings, sponsor local events, host online virtual meetings, and support other similar efforts to engage the public as described in Section 7.4.

7.2. Environmental benefits

The predominant environmental benefit from developing a single hub for potentially multiple wind farm export cables is the **single** proposed landfall.

We are proposing a single landfall to progress from the offshore converter station through the mid- and nearshore outer continental shelf, which will limit impacts to the narrow, shallow, intertidal marine zones where many competing uses exist. Most impacts to the human environment occur at the nearshore interconnection location and minimizing and avoiding impacts to marine ecological areas is a primary goal of the regulatory agencies.

The use of one power corridor will limit the construction period, which in turn will reduce overall impacts to fisheries and other sensitive resources. This approach supports New Jersey's goals for a sustainable coastal environment while balancing the needs for clean renewable power.

As this project moves through stakeholder engagement and corridor refinement, we will evaluate each section of the corridor, compare the environmental impacts and benefits it presents, and endeavor to avoid environmental impacts where practicable. Involving stakeholders in this process will help define a corridor that provides a sustainable solution for all parties involved.

To support long-term oceanic and ecological monitoring of the project, we anticipate coordinating with third parties collecting data regionally to integrate their ongoing studies with our efforts. Our efforts may also include coordination with universities, nonprofit organizations, and federal and state agencies. We will implement scientifically rigorous and accepted means for collecting, evaluating, and sharing this information throughout the life of the project.

7.3. Fisheries Protection Plan

Marine resources in the project area

Developing the Fisheries Protection Plan will require a desktop review of previous studies performed in the project area. It may also require collection of field data in sensitive locations. Biological studies in the marine environment can be time-consuming and expensive, so coordination with the state and federal agencies is essential for understanding the scope of the studies.

The following details our approach to gathering and evaluating information for the project area, performing a gap analysis according to our understanding of regulatory requirements, and proposing a plan to gather additional information from "on the ground/water" field studies. The following tasks will help guide our approach for data collection.

Collect agency and stakeholder guidance, regulations, and previous studies

We will collect information applicable for this project from the relevant regulatory agencies. We will also seek information about ongoing studies for geophysics and geotechnical investigations contained in other publicly available COPs. We will evaluate information from sources like floating LiDAR platforms and studies developed by federal and state resource agencies, regional fishery management organizations, and other fisheries stakeholders, such as BOEM, USFWS, NOAA NMFS, USACE, NJDEP, and NYSERDA. Survey data of fisheries in the region are available from the NJ Ocean/Wind Power Baseline Ecological Studies, MARCO, Marine Cadastre (NOAA and BOEM), and Mid-Atlantic Fishery Management Council Fishery Management Plans.

We will request information from entities that operate suitable existing survey platforms that are currently collecting data in real time, or may purchase/lease, outfit, and launch buoys equipped with remote technologies that allow for efficient, real-time, long-term data collection on fish species. A strong technology-driven data gathering effort will allow us to design studies to collect information on multiple taxa simultaneously, providing efficiencies in both time and cost.

Establish the Area of Potential Effect

The offshore project area consists of open high-energy ocean coastline that slopes from 0 to 15 meters about three-quarters of a mile offshore. The area continues to a maximum depth of approximately 45 meters. The substrate consists of various sloping sections of fine to medium sands to high flat and depressional area gravels. Generally, the bottom physiography is characterized by a ridge and runnels. Exactly where the sands and gravel substrates and habitat types exist along the cable route is unknown but will be evaluated and mapped during the project site characterization.

We will establish evaluation boundaries by overlaying project construction areas and methodologies that could cause temporary impacts, and final structure locations that would result in permanent impacts. We will also determine the magnitude of both direct and indirect impacts.

Develop a gap analysis

We will review and summarize information that is available within and/or near the project footprint. Based on comparison with regulatory requirements, agency requests, and stakeholder issues, we will assess the state of knowledge for the study area and environs, provide a gap analysis identifying critical data insufficiencies, and, through coordination with the agencies, develop an MSAP to add to our knowledge of resources within the project study area.

Include in Master Survey and Assessment Plan

The study area will be characterized by certain species, habitats, and ecosystems. To understand what impacts the project may have, we must understand these species, habitats, and ecosystems as a whole. According to available information, the benthic habitat on the outer continental shelf of New Jersey is made up of substrate ranging from fine (0.005-0.010 in) (0.125-0.25 mm) to coarse (0.02-0.039 in) (0.5-1 mm) sands at depths of 82 to 148 feet. This sand-based habitat is considered a soft substrate in comparison to rocky/cobbly substrates that exist farther north. The substrate will dictate many of the natural characteristics of the study area and the type of habitat and ecosystem there.

Our MSAP will document the basis for research on the project and the project impacts, describing why and how information on individual resource areas will be collected, assessed, and presented within the study area, including populations and habitat for benthic, marine mammals, sea turtles, and SAV, and trip reporting on commercial fisheries. We will define the regulatory and permitting objective for the offshore field surveys and technical assessments so that the results of these efforts will be applicable to a robust COP, as well as all federal and state permit application filings. This approach will limit the future efforts required to document COP and permitting processes.

We will design scientific studies that isolate the potential impacts of cable routing from other anthropogenic and natural stressors. The monitoring activity will be scientifically justified and defensible, and closely linked to the project schedule. Surveys to detect change between pre- and post-construction conditions will require larger sample sizes and more frequent sampling.

Execute field sampling plan

Field collection of finfish data

If required, we will use the necessary equipment and qualified individuals with expert knowledge of marine finfish to gather baseline data and to develop plans to collect detailed field information. We will rely initially on publicly accessible baseline data (reports and GIS datasets), the Ocean Wind COP, documentation produced for other relevant projects in proximity to Ocean Wind, and other COPs to determine the presence and distribution of marine finfish within the vicinity of the cable project.

We will compile this information in accordance with BOEM's Guidelines for Providing Information on Fisheries for Renewable Energy Development on the Atlantic Outer Continental Shelf Pursuant to 30 CFR Part 585 (June 2019).

The information will focus on the following:

- Identifying and confirming which dominant benthic, demersal, and pelagic finfish species are using the project site, and when these species may be present
- Establishing a pre-construction baseline that can be used to assess whether there are detectable changes in post-construction abundance and distribution of fishes
- Identifying and defining the distribution of ESA-listed species (e.g., sturgeon) and commercially important species within the vicinity of the project

Climactic and oceanographic data collection

Existing resources will be consulted, but if not available or close enough to the cable route and study area, a floating LiDAR will be fitted to collect climatic and oceanographic data. Collecting our own data would allow us to place the technology in a location specifically appropriate for this project. Floating LiDAR buoys will be proposed only if sufficient existing data sources or information are not available for the project site.

Submerged aquatic vegetation survey: Eelgrass

Nearshore resources have significant effect on fish habitat quality, especially shallow water resources. SAV supports the growth and development of marine forage species that are used by adult and juvenile fish. We propose to include, if required, preparation of a SAV assessment (marine) plan and field survey to support various regulatory requirements, as well as contribute to our understanding of finfish and shellfish habitat within the study area.

Based on our review of readily available information, and as noted above, our understanding of the physical characteristics that support eelgrass (*Zostera marina*), are limited. No publicly available resource indicates SAV stands within the project area or within the surrounding coastal zone. Eelgrass beds in New Jersey are normally restricted to the coastal bays and estuaries located inland of the shoreline, as they are adapted to shallow, low-energy water.

Readily available eelgrass mapping in New Jersey is fairly dated (1979). Distribution information is available from the NJDEP in the New Jersey Submerged Aquatic Vegetation Distribution Atlas (Final Report, February 1980), conducted by Earth Satellite Corporation and on “Eelgrass Inventory” maps prepared by the NJDEP Division of Fish and Wildlife, Bureau of Shellfisheries (1983). We will request the most recent copies of maps for the project area from NJDEP, Division of Land Use Regulation office.

Other sources of eelgrass bed mapping are available but are not detailed enough or do not cover the study area sufficiently. However, we do not believe SAV is present in large expanses in the study area. Even if it was, we do not believe the beds would be significantly disturbed by this project.

If required to further confirm our assumptions that eelgrass beds are likely not present, we will include bathymetric and side scan imaging to support the SAV assessment.

Figure 7-21. We do not expect that eelgrass beds will be significantly disturbed by this project.

Project site description and baseline information gathering and desktop review report

The outline in Figure 7-22 includes the content topics of the resulting MSAP report for use in developing NEPA documents and other reports, permitting documents, and COP licensing documents. As noted above, our intent is to use existing, scientifically defensible information where appropriate, obtain agency and stakeholder agreement, and if indicated by the gap analysis, to obtain site-specific field-collected information. Figure 7-22 presents a preliminary outline of the MSAP report.

Monitoring impacts to marine resources

A valid detection method in a relatively narrow cable corridor may be difficult to select but will certainly require data-rich monitoring. This monitoring plan will require input from regulatory agencies and stakeholders to develop methodologies for monitoring potential adverse impacts to a variety of species and habitats.

Master Survey and Assessment Plan (Preliminary outline)

1. Physical/chemical description of APE
    a. Nearshore and outer continental shelf contours/depth
    b. Location and characterization of mudflats/Intertidal zones
    c. Marine wetlands and tidal creeks
    d. Nearshore/offshore subtidal bottom substrate
    e. Currents and tides
    f. Water quality
2. Past and existing deleterious effects in APE
    a. Existing submerged manmade structures
    b. Dredge and fill
    c. Water quality
    d. Invasive species
    e. Climate change
    f. Long-term trends
3. Marine biota of the APE and environs
    a. Benthos and shellfish
    b. Phytoplankton/zooplankton
    c. Fish
        i. Fish habitat, numbers, and distribution of major species
        ii. Fish recruitment and life history
        iii. Forage and habitat requirements
        iv. Endangered species
    d. Marine mammals and sea turtles
        i. Marine wildlife habitat, numbers, and distribution of major species
        i. Marine wildlife recruitment and life history
        i. Forage and habitat requirements
        i. Endangered species
    e. Essential Fish Habitat
    f. Nearshore effects: Mudflats and intertidal zones
4. Fisheries data collection
    a. Commercial fish
    b. Commercial fish habitat, numbers, and distribution of major species
    c. Commercial fish recruitment and life history
    d. Forage and habitat requirements
    e. Stock status
    f. Predator/prey relationships
    g. Fisheries-dependent data (collected from commercial and recreational fisherman as required by the National Marine Fisheries Service)
    h. Fisheries-independent data
    i. Socioeconomic needs of recreational and commercial fishermen
    j. Law enforcement issues
5. Bibliography

Figure 7-22. The MSAP report will be used to develop NEPA documents and other reports, permitting documents, and COP licensing documents.

We propose to develop an omnibus draft monitoring plan for presentation and review by stakeholders and will entitle the document the Marine Ecology, Climate, Oceanographic, Fish and Shellfish Monitoring Plan. Monitoring will be initiated at the identified base year and continue through construction to operation and eventually decommissioning. The plan will be developed to understand existing conditions, and to detect the potential impacts to existing physical, chemical, and biological characteristics of the biota, and to recreational and commercial fisheries catch landings before, during, and after construction.

Detecting change in biological resources, such as fisheries, as a direct result of an offshore wind development can be challenging, as the fisheries resource may be subject to natural fluctuations in abundance and spatial and temporal distribution due to outside factors (e.g., oceanographic conditions). As such, any proposals for monitoring should be statistically robust. We advocate for technical experts, agency staff, and stakeholder engagement to collaboratively develop statistical analyses upfront in the planning process. We support collaborative research and monitoring opportunities and are committed to exploring appropriate monitoring protocols, such as monitoring of potential behavior responses or changes in spatial and temporal distribution of biological resources as a direct result of offshore wind energy development.

Biological information provided to detect impacts to marine biota and recreational and commercial fisheries would include similar surveys for benthic infauna, Essential Fish Habitat, and rare, threatened, and endangered species near shore and offshore. Commercial fish landings data are available from the NJ Ocean/Wind Power Baseline Ecological Studies; MARCO; Marine Cadastre (NOAA and BOEM); and Mid-Atlantic Fishery Management Council Fishery Management Plans. The plan would address any areas of concern or areas of uncertainty raised by state and federal agencies as well as NGOs and other commercial or recreational fisheries stakeholders from early stakeholder engagement meetings and will fulfill BOEM's requirements (30 CFR Part 585 Subpart F).

The goals of the data collection will be as follows:

- Provide a baseline survey strategy that when implemented as part of both pre- and post-construction monitoring has the appropriate statistical power to detect changes in distribution and densities of fish populations.
- Collect data that would potentially provide additional information to BOEM, other regulatory agencies, and NGOs to assist in reducing uncertainty surrounding the potential risks of impacts to some species.
- Use existing information generated from nearby lease areas and projects.
- Tailor studies to use similar methods and collection techniques so data can be compared from one project site to another.
- Focus on temporally, spatially, and species-specific targeted approaches to reduce uncertainty around commercial efforts.
- Isolate impacts that may be occurring in areas close to our project site so that other anthropogenic and natural stressors to biota and fish stocks will not compromise the validity of the data collection and analysis.
- Demonstrate that our proposed monitoring plan during construction is scientifically defensible and closely linked to the project schedule to be sensitive to pre- and post-monitoring conditions.

While previously generated data and research will be considered, we must remain aware of how minor changes in routes and coastal areas can result in large changes in ecological value of a site. Each cable route may have its own unique issues, data gaps, and species or habitats of concern.

Clean Link New Jersey's marine biological experts with access to collection equipment and vessels, and experienced technicians with hands-on experience designing and implementing monitoring programs for benthos studies and fisheries, will create scientifically defensible study plans. We will provide new and creative recommendations as necessary, so that the proposed methods facilitate potential project permitting and successful data collection and are scientifically justified. We will develop specific survey plans to serve as dynamic documents to approach key nongovernment organizations and agencies, and to collaborate with those conducting research. Our team will also develop and present PowerPoint slides and infographics that may be needed for meaningful stakeholder engagement.

Fish and Fisheries Impact Assessment and Management Plan

We will develop a Fish and Fisheries Impact Assessment and Management Plan to assess and manage potential impacts to fish and commercial and recreational fisheries from project construction, operation, and decommissioning. The plan will include impact analysis based upon fish and fishery data as outlined above, with direct impacts accounted for during construction and direct and indirect impacts accounted for during operation and decommissioning.

A preliminary list of potential impacts to fish and commercial and recreational fisheries, along with proposed mitigation measures to address impacts, is provided in the following section.

To understand the regulatory aspects of permitting approvals requires a knowledge of existing resources, their conditions, and a thorough understanding of project impacts to the physical, chemical, and biological resources present. These impacts could include those listed in Figure 7-23.

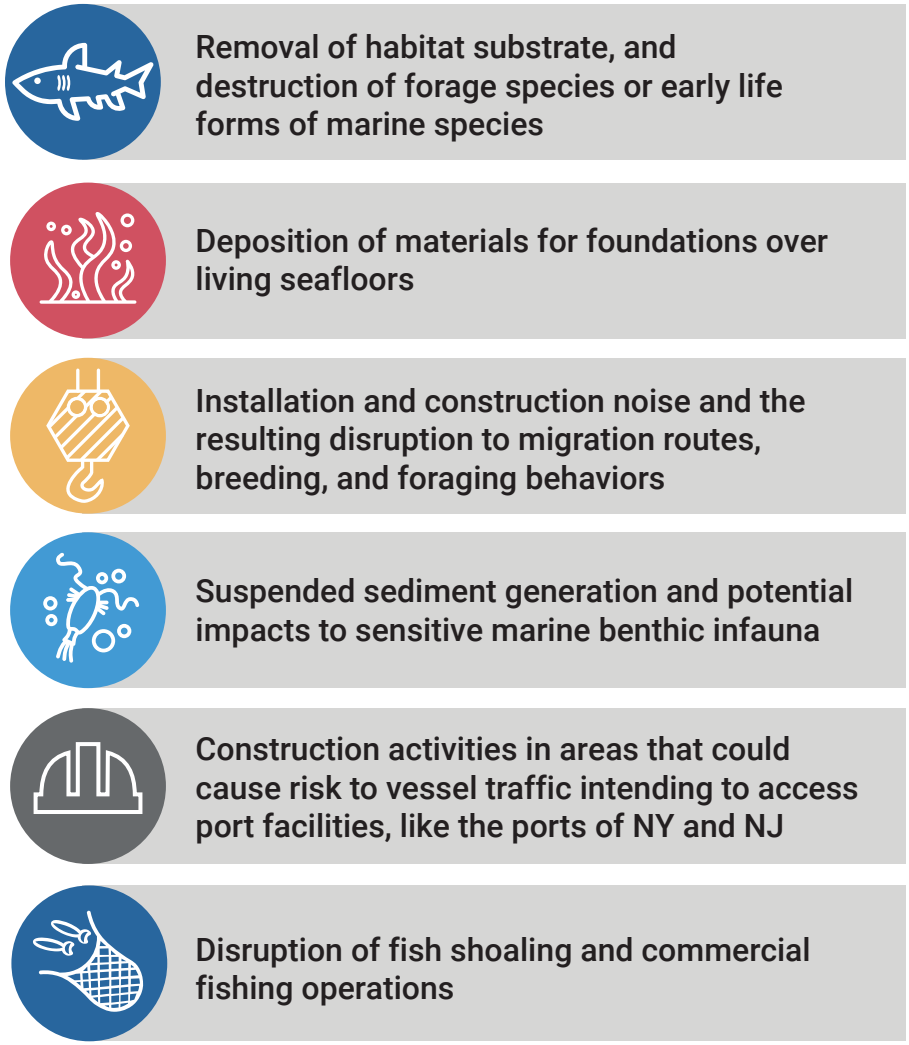


Figure 7-23. We will take a deep dive into the project impacts to physical, chemical, and biological resources.

Understanding the scope of construction will inform the impact analysis. Once the impact analysis has taken place and we have a better understanding of exact project location and preferred construction methods to install cables and appurtenant structures, we will have a better definition of the study areas, potential resources present, impacting factors, permitting level and requirements, relevant agencies with regulatory authority, and level of effort and probability of obtaining approvals and permits.

Assessment and management of impacts to commercial fisheries

Commercial fisheries are complex. Catch rates are seasonal and variable, fish and fuel prices vary, vessels often target a variety of species and can switch gear if needed, boats can sail from and offload at different ports, the number of crew members can vary, the weather has implications for catch and safety, and regulations often impact harvest costs and market prices. Given these complexities, correctly analyzing the economic impacts that offshore cable installation and operation may have on commercial fisheries requires economic modeling.

Figure 7-24. Commercial fishing in New Jersey is a complex industry and will require an economic impact model.

We will develop a commercial fishing model to estimate the economic impacts of the potential offshore wind project on commercial fishing. The model will evaluate changes in commercial fishing supply resulting from changes in harvest costs or access caused by simulated changes in fishing conditions in the project area.

Economists use baseline and counterfactual modeling techniques to evaluate the economic implications of changes to commercial fisheries. Baseline represents things as they would be without the project, and counterfactuals represent scenarios being evaluated. The model will interact changes in supply with demand functions for the major commercial fish species harvested. Differences between the baseline and counterfactual conditions will be estimated as changes in economic conditions.

An integrated model specification will provide the best representation of potentially affected ports and vessel types for modeled species under baseline and counterfactual conditions. Using the model, we will conduct simulations of the commercial fishery under baseline and counterfactual conditions for important species that could potentially be affected by the cable project. We will present the results as changes in annual revenue and profit for each species and each port evaluated in each species' model.

As part of this effort, we will also assess baseline economic exposure for the project area using available information from other appropriate and available sources. Data may include state and federal landings, revenue, and effort statistics. These data are publicly available by interfacing with web-based data portals and by submission of tailored requests from appropriate state and federal agencies. We will complete reports of the proposed assessments for submission to the relevant agencies.

Assessment and management of impacts to recreational fishing

We will estimate the economic effects of the project on recreational fishing. As with the commercial fishing model, we will develop a recreational fishing model and use the model to evaluate differences between baseline and counterfactual conditions. This difference will serve as the basis of quantified impacts on recreational fisheries.

Economists refer to recreation as a "nonmarket" good. This terminology recognizes that recreation does not have a traditional supply component like commercial fishing. As a result, the economics of recreational activities are typically evaluated using only demand functions.

Although detailed baseline information is limited, and the only recent data available is aggregate information from the Marine Recreational Information Program, which collects recreational saltwater fishing catch and effort data. We will design our baseline model to be consistent with the program's data on fishing sites specified as sandy bottom sites based on sample locations, and artificial reefs based on their known location. In the counterfactual evaluation, we will specify that the offshore wind site no longer contains sandy bottom sites and instead is modeled as an artificial reef. The modeler can then estimate recreational fishing impacts by comparing differences in trips and economic welfare across the baseline and counterfactual scenarios.

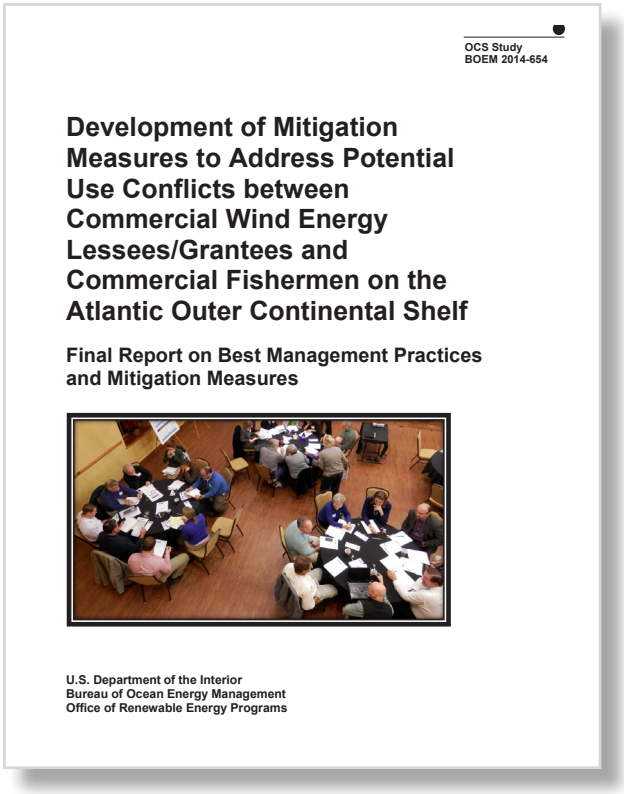
Best management practices for mitigating impacts to fisheries

We will prepare reports in accordance with BOEM Guidelines for Construction and Operations Plans related to evaluating socioeconomic impacts and best management practices for fisheries, focusing on identification of project activities that could result in socioeconomic impacts to fisheries. We will describe the data, models, and results for evaluating the socioeconomic impacts and evaluating changes to commercial and recreational fisheries. Our natural resources economist will provide summaries of stakeholder outreach and baseline economic exposure for commercial and recreational fishing. The summaries will consider multiple design options under the project design envelope to provide a range of risks and impacts. We will review data from existing and field sources.

Clean Link New Jersey will provide a Fisheries Communication Plan that will include fisheries stakeholder engagement strategies to collect essential information about the local commercial and recreational fisheries and to enhance understanding of the project and the efforts made to minimize impacts to the fisheries community. This will include assessing fishery-related economic impacts to regional commercial fisheries from the cable route project and preliminary estimates of fishing values, economic exposure, and assessment of impacts on fishing trip revenues.

Fish and fisheries impact avoidance, minimization, and mitigation measures

Clean Link New Jersey will prepare a comprehensive mitigation plan in accordance with the 2014 "Development of Mitigation Measures to Address Potential Use Conflicts between Commercial Wind Energy Lessees/Grantees and Commercial Fishermen on the Atlantic Outer Continental Shelf Final Report on Best Management Practices and Mitigation Measures," related to evaluating socioeconomic impacts and best management practices for fisheries, focusing on identification of project activities that could result in socioeconomic impacts to fisheries.


OCS Study
BOEM 2014-654

Development of Mitigation Measures to Address Potential Use Conflicts between Commercial Wind Energy Lessees/Grantees and Commercial Fishermen on the Atlantic Outer Continental Shelf

Final Report on Best Management Practices and Mitigation Measures

U.S. Department of the Interior
Bureau of Ocean Energy Management
Office of Renewable Energy Programs

Figure 7-25. In accordance with the standards set by the Final Report on Best Practices and Mitigation Measures, we will develop a comprehensive mitigation plan.

We will describe the data, models, and results for evaluating the socioeconomic impacts and evaluating changes to the commercial and recreational fishery developed in previous tasks. We will initiate stakeholder contact to obtain information regarding baseline economic exposure for commercial and recreational fishing. The summaries will consider multiple design options under the project design envelope to provide a range of risks and impacts. We will review the results of scientific data gathering of existing biological and habitat information and collection of additional information as required.

Preliminary proposed mitigation of impacts to benthic/fishery resources

Table 7-26 on the next page provides a preliminary list of the potential impacts and risks to benthic/fishery resources and proposed mitigation measures. The potential for impact and the applicability of the proposed mitigation measures may vary depending on the project phase. The list of potential impacts and mitigation measures will be vetted through impact analyses, data collection, and agency and stakeholder engagement.

Preliminary proposed mitigation of impacts to the recreational and commercial fishing industry

Table 7-27 provides a preliminary list of the potential impacts and risks to recreational and commercial fishing and proposed mitigation measures. The potential for impact and the applicability of the proposed mitigation measures may vary depending on the project phase. The list of potential impacts and mitigation measures will be vetted through impact analyses, data collection, and agency and stakeholder engagement.

Potential impacts	Proposed mitigation measures	Phase[1] 1	2	3	4
Physical disturbance and habitat loss, including sensitive habitats	• Avoid, to the extent possible, siting structures (e.g., offshore wind turbine foundations) in areas of sensitive benthic habitat. • Avoid, to the extent possible, sensitive benthic habitats through the planning of routing export cable corridors. • Include NOAA National Marine Fisheries Service in survey plan review in coordination with BOEM to address potential impacts to threatened or endangered species. • Bury electrical cables to sufficient depth to minimize surface protection requirements that modify the existing condition. • Apply real-time measures to avoid intrusive sampling of sensitive habitats, using drop-down cameras. • Make appropriate and reasonable use of foundation scour protection where needed as identified in modeling. • Calculate extent of potential habitat loss as part of COP assessments and share results with agencies and stakeholders.	●	●	●	●
Underwater noise	• Select gravity-based substructure (GBS) foundations that do not require percussive pile driving during foundation installation. • If pile driving is used, apply a "soft start." • If pile driving is used, use noise-reducing technologies if required by regulators as appropriate to the impacts, and commercially and technically available.	●	●		
Increased suspended sediment concentration and deposition	• Apply best management practices and timing during cable installation to minimize sediment suspension and dispersal during sensitive periods (e.g., spawning). • Undertake sediment transport modeling to quantify sediment concentrations and affected areas for COP assessments, which will be shared with agencies and stakeholders. • Use scour protection around wind turbine foundations as appropriate to reduce sediment resuspension.		●	●	
Exposure to accidental spills, pollution, or trash from project related vessels and structures	• Apply best management practices for vessel operations. • Implement an Oil Spill Response Plan (OSRP).	●	●	●	●
Potential exposure to electromagnetic fields (EMF)	• Armor cables. • Bury cables to sufficient depths to the extent possible. • If sufficient burial depth is not feasible, provide further barriers through surface cable protection. • Conduct EMF modeling and assessments to identify potential additional mitigation requirements. • Post construction surveys at an appropriate interval to monitor for exposed cables.			●	
Water quality	• To the extent possible, avoid existing and historic dumping grounds in routing cable to avoid resuspension of materials during construction.		●		

[1] Phase 1 (Survey/design), Phase 2 (Construction), Phase 3 (Operation), Phase 4 (Decommission).

Table 7-26. Preliminary list of the potential impacts and risks to benthic/fishery resources and proposed mitigation measures.

Potential impacts	Proposed mitigation measures	Phase[1] 1	2	3	4
Impacts to commercial fish species	• See Table 6-26 above.	●	●	●	●
Temporary displacement/loss of access to traditional fishing grounds during survey activities	• Avoid, to the extent practicable, areas being fished during survey activities. • Conduct pre-survey consultation with fishing industry to determine upcoming spatial and temporal use, which is to be avoided by survey vessels where feasible. • Plan export cable routes that avoid heavily fished areas, for example static gear, prior to surveying. • Time offshore surveys to avoid seasonal fishing where feasible. • Disseminate information related to offshore survey activities, with contact details for further information. • Provide real-time adaptive management and monitoring of fishing activity using Offshore Fisheries Liaison Representatives (OFLRs), real-time Automatic Identification System, and consultation with the fishing community to modify survey areas of coverage as appropriate. • Engage with recreational fishermen in the field by the OFLR.	●	●	●	●
Temporary displacement/loss of access to traditional fishing grounds during construction phase	• To the extent possible and reasonable, actively avoid areas being fished during construction activities by pre-planning the timing and location of activities. • Disseminate construction scheduling information as early as possible with fishermen. • Use real-time fisheries monitoring and adaptive management of construction timing and location, to the extent possible. • Potentially use construction practices such as rolling construction safety zones in consultation with regulators and the fishing community, to minimize overall area of temporary closed areas.		●		
Displacement/loss of access to traditional fishing grounds during operations phase	• Clean Link New Jersey does not intend to restrict or apply for broad-based restrictions on fishing activities along the cable route. To the extent that any restrictions are necessary, these may be limited to standard safety zones around manned or sensitive offshore platforms or access points. • Bury cable sufficiently to facilitate continued seabed-penetrating fishing activity.			●	
Navigational safety concerns and loss of fishing gear from construction activities and the presence of structures and cables and subsequent decommissioning	• Consider use of rolling construction safety zones. • Disseminate information to fishermen on wind turbine and cable locations. • Provide cable location for inclusion on navigational charts. • Bury cable where feasible based on Cable Burial Risk Assessment. • Conduct periodic post-installation cable surveys as appropriate, sharing of information on identified navigational risks as appropriate.		●	●	●
Navigational safety concerns due to increased project related vessel traffic	• Disseminate information of planned construction vessel activities, timing, location, routes, vessel details, etc. • Notify fishing community of any unscheduled O&M activities. • Create communications plan with emergency contacts and procedures. • Prescribe transit routes for development construction and support vessels between ports and offshore sites. • Follow best practice guidance for project-related construction and support vessels, including Convention on the International Regulations for Preventing Collisions at Sea (COLREGS). • Make project-related vessels aware of final Fisheries Management Plan (FMP) and mitigation measures. • Where appropriate and feasible, provide an OFLR on at least one project-related construction and support vessel in the field during construction to aid communications. • Fisheries Liaison Officer (FLO) for contact by fishers during construction, operations, and decommissioning activities. • Monitor fishing vessel activity in real time to apply adaptive management to project-related vessel movements.		●	●	●

[1] Phase 1 (Survey/design), Phase 2 (Construction), Phase 3 (Operation), Phase 4 (Decommission).

Table 7-27. Preliminary list of the potential impacts and risks to recreational and commercial fishing and proposed mitigation measures

Access to fishing grounds

Commercial and recreational fisheries and navigation safety management and communication plan

Clean Link New Jersey will seek input from commercial fishermen and applicable agencies, as noted above, and will engage with the USACE, USCG, and specialists in navigation safety. We will develop the above plan to apply through all project phases, including design, construction, operations, and decommissioning, to avoid conflicts with fishermen and to facilitate continued safe access to traditional fishing grounds.

During the early stages, we will meet with local fishery groups most likely to be affected by the cable route, describe our intentions and proposed schedule, and seek input regarding potential impacts to fishing access and success. We will develop detailed guidelines on safe navigation within and throughout the project site during construction and operations for their review and input.

Though the area for a cable corridor is limited, we will present the possible use of exclusion zones, potential hazards to vessels and gear, and other pertinent information associated with the cable route and converter station and any submerged structures in waters used by local fishermen, especially during construction. We will develop a detailed publicly available construction and operations schedule to reduce potential conflict with fishing activity. The construction schedule will be included in plans submitted to BOEM and will be part of an approved package.

We will work with the agencies to finalize the best schedule, which will be maintained and updated as changes occur during the construction period. The timing of construction will include consideration of fishing schedules, high-use fishing areas, seasonal species' distributions and time-of-year restrictions (i.e., spawning seasons), and current closure periods (e.g., specific days of the week closed to fishing and areas closed to fishing).

Processing claims for lost or damaged fishing gear or vessels

Clean Link New Jersey will work with stakeholders and the fishing community to establish the appropriate procedures for processing claims for lost or damaged fishing gear or vessels in advance of the start of construction activities.

General approach to avoiding and mitigating fishing gear loss

Possible mitigation measures include the following:

- Marking and lighting partially built structures following Private Aids to Navigations (PATONS)
- Disseminating charted locations of partially built and installed structures to the fishing community.
- Providing locations of partially built structures and installed structures in digital formats that can be uploaded to typical navigation equipment: for example, navigation plotters.
- Implementing USCG Notice to Mariners (NTMs).
- Providing locations of partially built structures and installed structures for updating NOAA Nautical Charts, as well as USCG Local Notices to Mariners at more frequency (i.e., weekly).
- Consulting with the fishing community with the potential to establish temporary safety exclusion zones around partially installed wind farm electrical cables.
- Providing safety vessels around high-risk structures.
- Prescribing transit routes for project-related vessels.
- Burying cables to depths below fishing gear penetration, where feasible, and making the position of cables available for the fishing community. Where burial is not feasible, using cable protection where appropriate, based on findings of the cable burial risk assessment and consultation.
- Avoiding use of concrete mattresses in areas of snagging risk.

7.4. Stakeholder engagement

> Clean Link New Jersey's goal is to be open and transparent, respond to questions or concerns, provide opportunities to engage community members, and build relationships of trust.

This section presents our overarching engagement strategy to achieve these objectives. While this overarching strategy will be broadly applicable, we recognize the need for a tailored outreach strategy for key stakeholder groups, such as the fishing industry or nongovernmental environmental groups. A specific section has been included to address key stakeholders and is focused on the fishing industry. However, the approach outlined herein can be broadly applied to other stakeholders on an as-needed basis.

General stakeholder engagement approach

Clean Link New Jersey has excellent existing relationships throughout New Jersey, along the proposed transmission route, and where other project facilities are proposed. Utilizing the existing reputations and relationships, the team will coordinate several methods of outreach, including direct outreach to residents and other stakeholders, direct mailings, open houses, and virtual events. These outreach campaigns can last years and cover all phases of project implementation and operation.

We have completed a preliminary review of potential stakeholders, developed from years of experience operating in the community. Stakeholder lists will be continuously updated to reflect changes and additional stakeholders as the project progresses. Key stakeholders include those shown in Figure 7-28.

Figure 7-28. Stakeholders will be engaged early and often.

Our local community liaisons work at the grassroots level with community boards, political leaders, industry groups, and individuals. Local outreach and relationship building is integral to our development approach and project success. A range of tools may be used depending on the need. Typical outreach activities to build public acceptance for projects may include the ones listed in Figure 7-29 below.

While our project plan is to impact communities as little as possible, the public will be kept informed of project activities and be provided with opportunities for input throughout the project. Stakeholder outreach will commence early in the project design. Early outreach typically consists of mailings to the surrounding area of a given facility, or along the transmission line route, followed by open house events and public hearings. There are typically several cycles of mailings, open houses, and hearings as the design and permitting progress. One-on-one meetings are held with local officials and interested stakeholder groups, and any interested people who request more information. Presentations are regularly made at town board meetings of the host municipalities. Throughout the outreach process, contact information is provided.

Early stakeholder outreach is most intensive, to ensure that all parties who are interested in becoming involved in the planning process can engage. Once the permitting process is underway, general public mailings, meetings, and open houses continue, but are more focused on the parties most engaged in the process.

As a project gets closer to construction, there is a renewed level of interest in the project and a corresponding increase in outreach activities to the community in the immediate vicinity. Typically, this outreach effort communicates essential information, such as the timeline to construction, and the contact information for the community liaison for questions or concerns. Lastly, there is always a point of contact established for an operating project, to ensure a clear channel for communication of questions or concerns.

To ensure timely communication, a telephone hotline and email portal will be established to reach the project team. The hotline and telephone number will be noted on project collateral, the project website, and direct mailings. The local hotline number and message system will operate 24 hours a day. The message system will be checked every business day by the project team, who will respond to inquiries within 24 hours or the next business day. As appropriate, direct in-person contact will be made. We will document all incoming communication and corresponding responses and/or resolutions. All correspondence will be entered into a communications log for future reference and reporting to appropriate regulatory bodies.

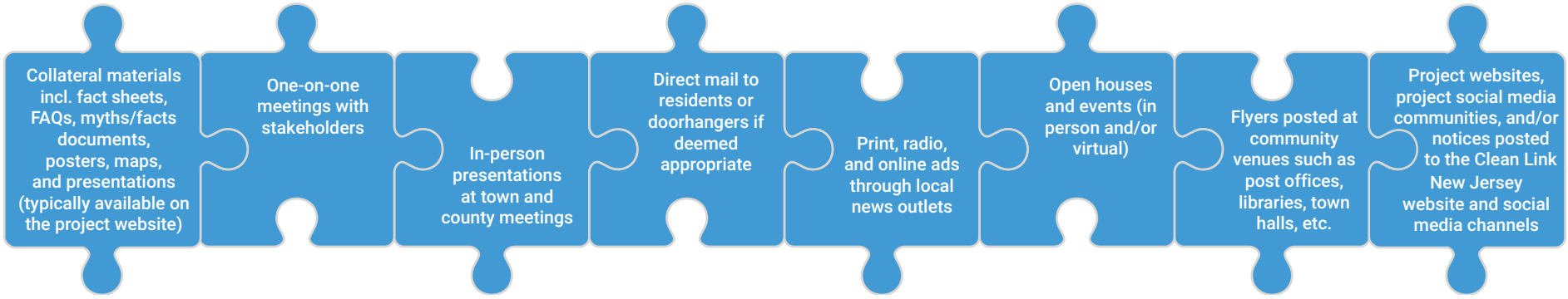


Figure 7-29. Relationships with stakeholders will be pieced together using a variety of outreach methods.

Representative key stakeholder engagement

Clean Link New Jersey recognizes that certain stakeholder groups may require additional coordination during planning and permitting activities. These groups are generally identified early on during initial stakeholder outreach. For example, we have identified fishery stakeholders as one such group.

Our outreach to fishery stakeholders will be as inclusive as possible, including engagement with local and regional fishery associations, societies, groups, individual fishermen, and the various industry organizations. Several methods may be employed to identify relevant stakeholder groups, which may include, but are not limited to:

- Contacting fishing industry leaders
- Contacting fishing industry association leaders
- Attending NJDEP Marine Fisheries Council meetings and Mid-Atlantic Management Council Meetings or contacting these organizations to obtain recommendations for relevant stakeholders
- Attending meetings related to offshore wind and fisheries interactions
- Reviewing commercial and recreational fishing forums online

Sources of information may include:

- Recommendations from state and federal fisheries staff
- Fisheries Management Council Advisory Panel lists online
- Word of mouth from the fishing community
- Automatic Identification System monitoring including ship identification and/or Federal Vessel Monitoring System (VMS) data
- NOAA Fisheries federally permitted fishing vessel trip reports
- New Jersey Commercial Harvester Trip Reports
- Fishing vessels identified offshore during surveys
- National Marine Fisheries Service permit holder lists online
- Dock visits

Information gathered during this effort will be used to craft outreach activities and methods that respond to the needs of these stakeholders. For example, open house venues and time frames will be planned to account for typical fishing schedules and in locations that best accommodate ease of access. Commercial and recreational fishery stakeholder workshops will benefit the project by providing a platform to hear from fishermen about their concerns early in the process to facilitate early planning to mitigate these issues. For example, before significant effort has been made in siting cable routes in areas where fishermen frequent, we will work with the fishery stakeholder groups to refine our project design and location to accommodate concerns.

7.5. Community impact analysis

Clean Link New Jersey completed a preliminary analysis to determine whether the project would disproportionately impact overburdened communities as defined within Environmental Justice Law (N.J.S.A. 13:1D-157), signed by Governor Phil Murphy on September 18, 2020. As discussed later in this section, we also assessed environmental justice using the EPA's published standards.

An Overburdened Community (OBC), as defined by the law, is any census block group, as determined in accordance with the most recent United States Census, in which one of the following is true:

- At least 35% of the households qualify as low-income households (at or below twice the poverty threshold as determined by the United States Census Bureau).
- At least 40% of the residents identify as minority or as members of a state-recognized tribal community.
- At least 40% of the households have limited English proficiency (without an adult who speaks English "very well" according to the United States Census Bureau).

Source: https://www.nj.gov/dep/ej/communities.html

The project team reviewed publicly available information including published lists, maps, GIS data, technical notes, and FAQs provided by NJDEP, Office of Environmental Justice, at www.nj.gov/dep/ej/communities.html. This information was used to assist in siting the landfall and onshore cable route.

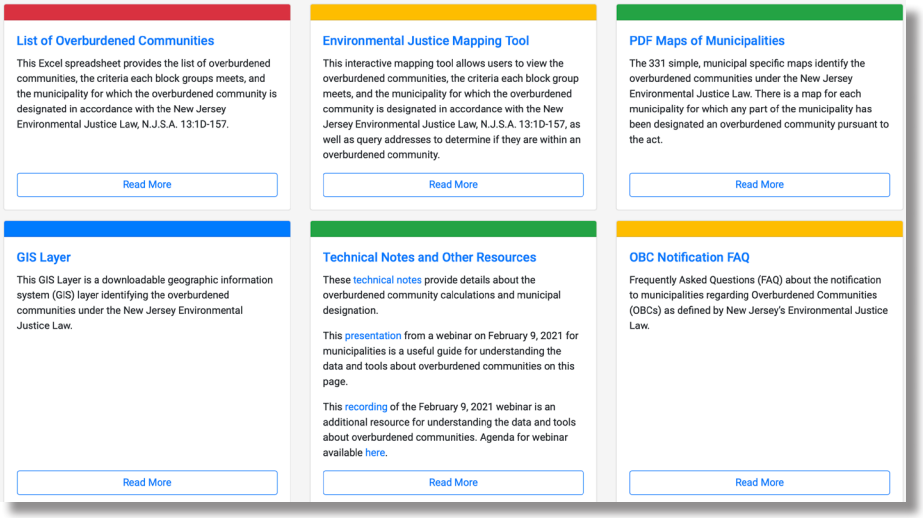


Figure 7-30. Environmental Justice overburdened communities resources.

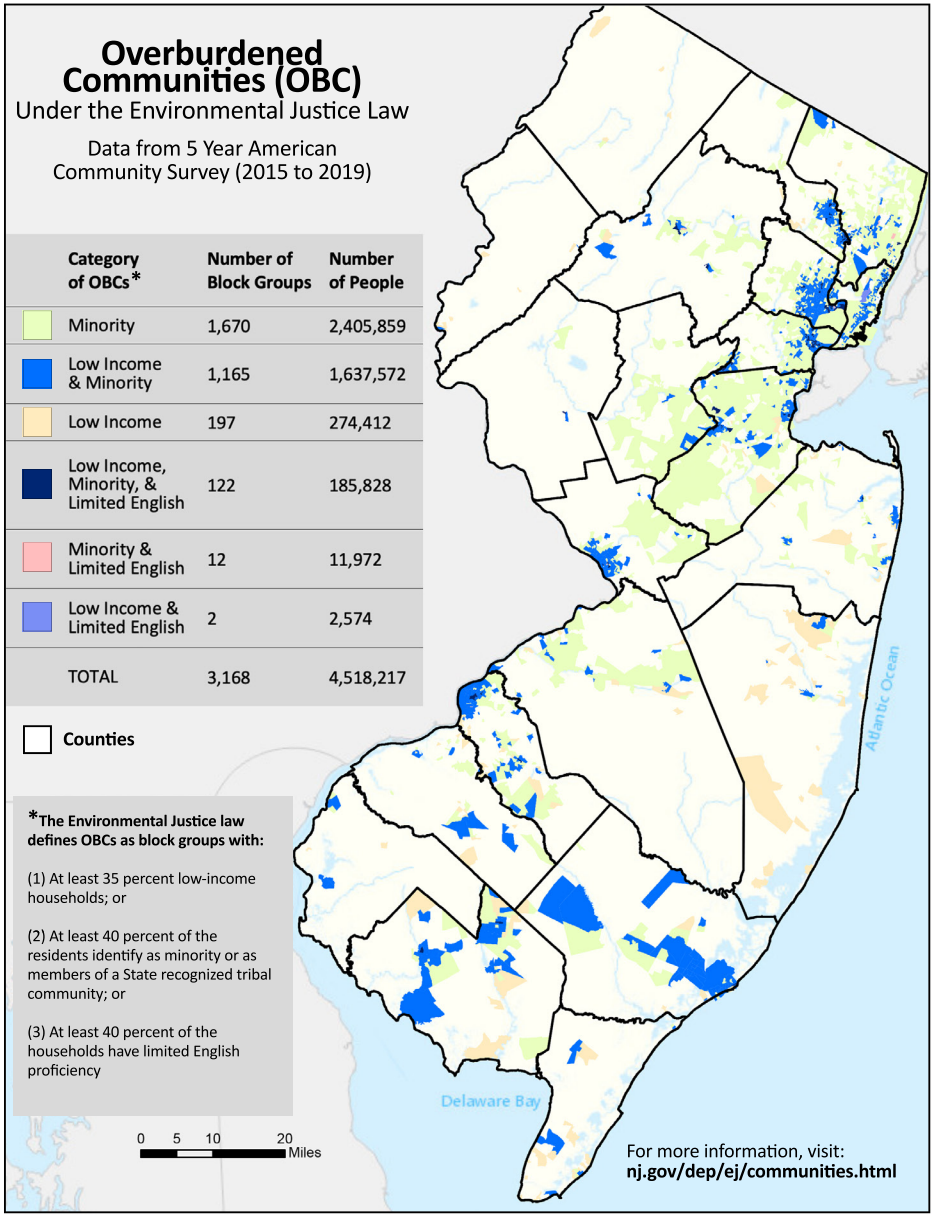


Figure 7-31. Statewide overburdened communities map.

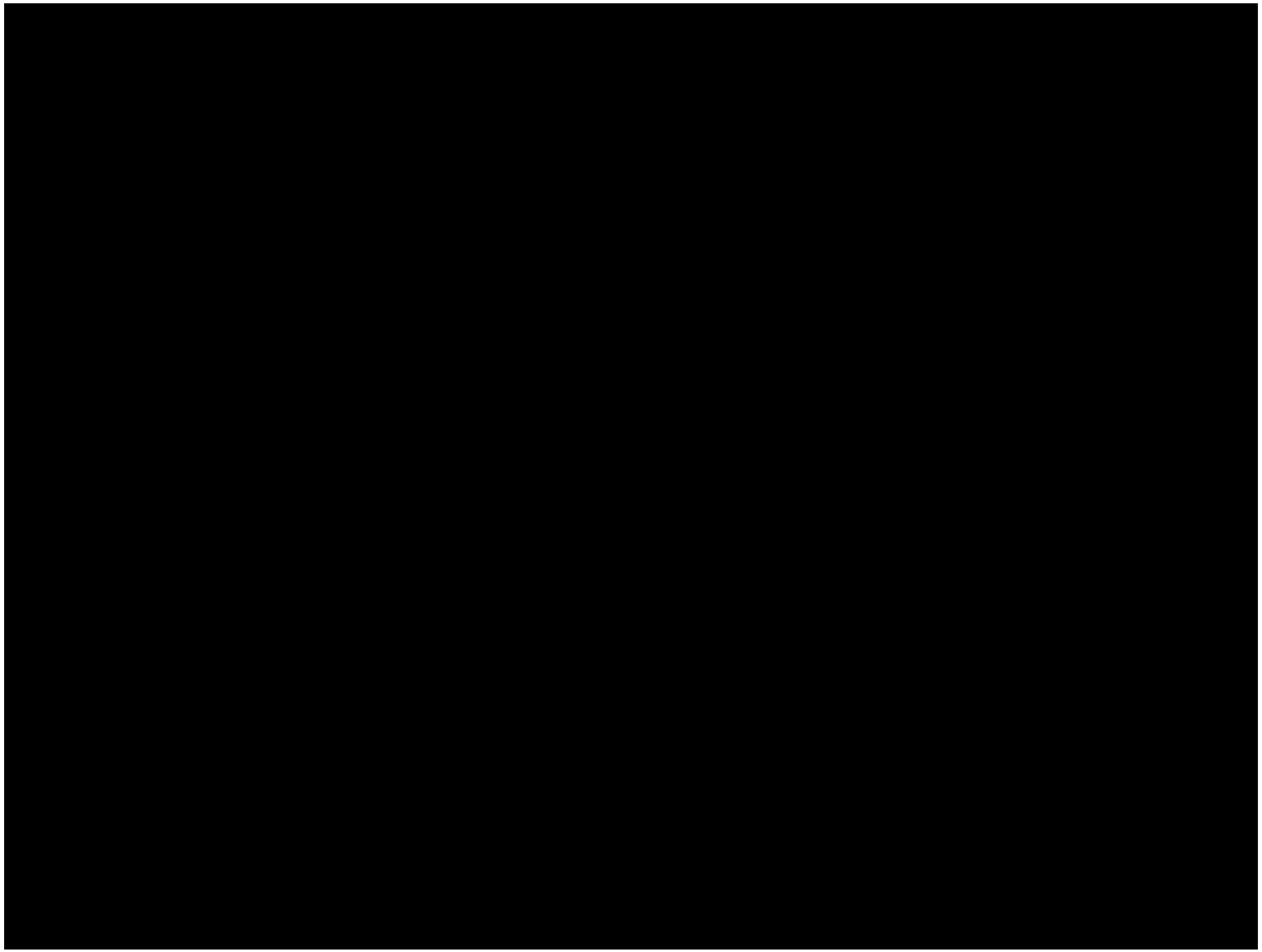
Figure 7-32 identifies overburdened communites in relationship to the proposed project route. As shown, no overburdened communities are impacted by the project.

Figure 7-32. Environmental Justice overburdened communities.

Although overburdened communities were entirely avoided, the proposed cable route [redacted] which are classified as overburdened communities. However, it is important to note that the cable is colocated with existing overhead transmission lines in this area and will be buried, thereby minimizing long-term impacts to nearby residents.

Figure 7-33. Abutting OBCs.

[redacted]



In addition to evaluating overburdened communities, we understand that Executive Order 12898, issued February 11, 1994, directs federal agencies to identify and address the disproportionately high and adverse human health and environmental impacts federal actions make on minority and low-income populations. We used EPA's Final Guidance for Incorporating Environmental Justice Concerns in EPA's National Environmental Policy Act Compliance Analyses (EPA 1998) in our evaluation.

Environmental Justice Areas are defined by the EPA as locations that have a "meaningfully greater" percentage of minorities than the general population has, or locations in which minorities make up more than 50% of the affected area's population (EPA, 1998). Low-income populations are defined on the basis of the US Census poverty statistics. In general, the New Jersey standards for defining overburdened communities are more rigorous than the EPA standards. Therefore, the overburdened communities analysis will serve to adequately address federal environmental justice standards, However, we will continue to consider both standards as the project progresses.

As discussed in the Stakeholder Engagement Plan, we will reach out to the abutting overburdened communities to gather input during the siting and permitting process.

7.6. Permitting plan

Our team has extensive experience permitting large, complex, phased projects. Successful projects require engaging regulatory agencies and other stakeholders in honest, open, and meaningful dialogue early and often throughout the life of a project. Identifying the least environmentally intrusive and permittable project is the goal of such a program.

> Existing relationships between the project team and agency staff and other stakeholders are important; however, the project team is committed to building relationships of trust specific to this project.

Building trust with agency personnel and other stakeholders will take time and dedication. We have successfully used the permitting approach outlined herein on numerous infrastructure projects in New Jersey. Building on the overarching stakeholder engagement plan, this permitting plan strives to build understanding and acceptance of this project among the stakeholders who may participate in or influence the project. To accomplish this goal the project team will do the following:

- Identify permitting agencies and other stakeholders with regulatory jurisdiction of the project. Nongovernmental organizations will be identified to determine potential project concerns and address them as appropriate.
- Coordinate activities with key internal disciplines: land and right-of-way, communication, regulatory, and engineering to quickly respond to agency and other stakeholder input.
- Meet with nongovernmental organizations and special interest groups, including potential project opponents early to hear their concerns and express to them that the project team is interested in their input. These discussions often allow the project team to alleviate and minimize concerns. If an organization declines to meet, we can demonstrate to regulators that efforts were made to solicit their input. The project team will attempt to meet early with potential project opponents when concerns can be readily addressed in the project planning.
- Inform agency personnel ahead of project milestones.

Early identification of issues, concerns, and opponents is extremely important and often results in a more positive outcome for all parties. Being proactive allows the project team to work with regulators and other stakeholders to identify meaningful solutions to environmental concerns.

At a minimum, the project team will adhere to the following overarching principles when conducting consultation for the project:

- **Proactive.** The project team will communicate early and often with agency personnel and stakeholders.
- **Open and transparent.** The project team will provide appropriate information to ensure agency personnel and other stakeholders have the data required to provide meaningful input.
- **Credible and professional.** The project team will share accurate and timely information to build relationships of trust and establish credibility.
- **Responsive.** The project team values input received and will ensure that input is considered. The project team will be responsive to information requests and questions and will communicate in an appropriate manner when information is available.
- **Flexible.** The project team will be flexible in its engagement process to accommodate the needs of individual regulatory bodies and stakeholders.
- **Respectful.** The project team will respect all who may be interested in or who are affected by the project.

Clean Link New Jersey's permitting strategy has been developed to maintain efficient permitting workflows throughout the project as stakeholder comments are incorporated during the project execution. This strategy has been developed based on the current proposed route and construction methods.

Federal, state, and local permits, consultations, and approvals that may be required for the project include the following:

- Zoning approvals and variances
- Site Plan approvals
- Conditional use permits
- Public utility defined use
- Wetland/aquatic permits
  - Floodplain permits
  - MS4 approvals

An assessment of land use compatibility and local zoning laws for each jurisdiction crossed is provided in Table 7-37 on the next page. Final permitting requirements, consultations, and schedule will be developed collaboratively as project planning progresses.

Coastal Zone Management Act compliance

New Jersey's coastal zone includes tidal and nontidal waters, waterfronts, and inland areas with unique and related significance in its economic and natural resource value to the state. Because of the great importance of the New Jersey coast, we emphasize the importance of compliance with the state's Coastal Zone Management Plan. The plan addresses some of today's most pressing coastal issues, including sustainable and resilient coastal community planning, climate change, ocean planning, and planning for energy facilities and development.

Figure 7-36. The project team will be guided by several principles when consulting for this project.

[redacted]

Table 7-37. Preliminary municipal land use controls, permits, and approvals.

The coastal zone boundary encompasses approximately 1,800 miles of tidal coastline, including the section along the Atlantic Ocean where the Clean Link New Jersey project is located.

[redacted]

This coastal zone consists of coastal resources on land and within marine areas. Associated with the coastal zone in New Jersey are lands beneath navigable waters, which are also overseen by the USACE. Navigable waters include the following:

- All lands within the boundaries of each of the respective states that are covered by nontidal water that were navigable under the laws of the US at the time the state joined the union.
- All lands permanently or periodically covered by tidal waters up to but not above the line of mean high tide and seaward to a line three geographical miles distant from the coastline of each state and to the boundary line of each state, where in any case such boundary as it existed at the time of such state became a member of the union.
- All filled, made, or reclaimed lands that formerly were lands beneath navigable water which may be subject to the anticipated policy which will replace the NWPR previously discussed.

Recent changes (2020) in the organization of the New Jersey permitting program have resulted in combining all permit programs relative to coastal resources under the Coastal Zone Management Rules. These rules establish the use and development of coastal resources, which include all tidal waters. As listed in the permit matrix, the following rules will be used in reviewing the applications for authorization for the project:

- Coastal Area Facility Review Act, NJSA 13:19-1 et seq. (CAFRA permits)
- Wetlands Act of 1970, N.J.S.A. 13:9A-1 et seq. (coastal wetlands permits)
- Waterfront Development Law, N.J.S.A. 12:5-3 (waterfront development permits)
- Section 401 of the federal Clean Water Act for water quality certification
- Federal consistency determinations under Section 307 of the Federal Coastal Zone Management Act
- Basis for Program to the Tidelands Resource Council on applications for riparian grants, leases, and licenses

Because these rules cover regulatory programs over a broad expanse of New Jersey resources, we will mobilize an interdisciplinary team to understand the direct, indirect, and cumulative impacts caused by the project on these resources.

The program covers all planning resources, including building zones, economic zones, and other designated zones unique to the state with values ranging to ports, parks, and scenic resources. Therefore, Clean Link New Jersey will work with the appropriate agencies to prepare and submit the relevant documentation for the State of New Jersey, and potentially other states (as explained below) to obtain consistency certifications to the NJDEP in accordance with New Jersey Coastal Zone Management Program Policies and subsection 307(c)(3)(B) of the CZMA (16 U.S.C. 1456(c)(3)(B) and 15 CFR.

Potential for other states to require coastal zone consistency for work in the NJ coastal zone

The federal consistency process serves as an important tool that provides states the ability to protect their coastal, marine resources, and uses by ensuring that federal actions are consistent with the states' coastal policies. Federal actions subject to federal consistency review fall into three categories, projects that are conducted by federal agencies, authorized by federal agencies, or funded by federal agencies. Activities in federal waters (such as on the OCS) could affect the coastal zone management plan in more than one state. Therefore, activities in one state may require federal consistency with more than one state.

According to 15 USC15 930.53, a state other than New Jersey may be able to require coastal zone management consistency, if the state could claim that the "federal license or permit activities" associated with an offshore wind project or OCS activity could have "reasonably foreseeable" "coastal effects." In describing when the geographic location description is outside of the state's coastal zone but should still affect a coastal use or resource including reasonably foreseeable effects, the state may require a review for consistency with its state management program.

In New Jersey, the enforceable policies contained in the Coastal Zone Management rules (NJAC 7.7) are listed in the permit matrix (Table 7-39 at the end of this section).

We have addressed our strategy for state permitting for impacts that would occur to wetlands and waterways or the coastal zone within areas of New Jersey jurisdiction. We understand that project compliance with the coastal rules, the Waterfront Development Rules, CAFRA, and the freshwater wetlands rules, as well as the other cited rules and policies, will concurrently demonstrate consistency with the Coastal Zone Management Rules of New Jersey.

NJ's Coastal Areas Facility Resources Act (CAFRA)

The state law authorizes the NJDEP to regulate and approve the location, design, and construction of major facilities in certain coastal areas. Regulated development includes marine terminals and public projects (such as new roads, wastewater treatment systems, parking lots, and landfills). CAFRA was recently amended to include all development on beaches and dunes, as well as first uses adjacent to and landward of beaches, dunes, and tidal areas.

Coastal areas regulated under CAFRA are from mean high water inland to an irregular line drawn along public roads, railroads, and other features. The inland boundary is shown in a generalized map that can be accessed through the Plan Development Toolkit. At www.state.nj.us/dep/legal/coastal_rule/maps/cafplngmap.pdf, there is an oversized, detailed map, and at www.state.nj.us/dep/gis/imapnj/imapnj.htm, NJDEP's *iMapNJ* has an interactive map in which a CAFRA boundary is superimposed on aerial photos showing greater detail and other features in Figure 7-38.

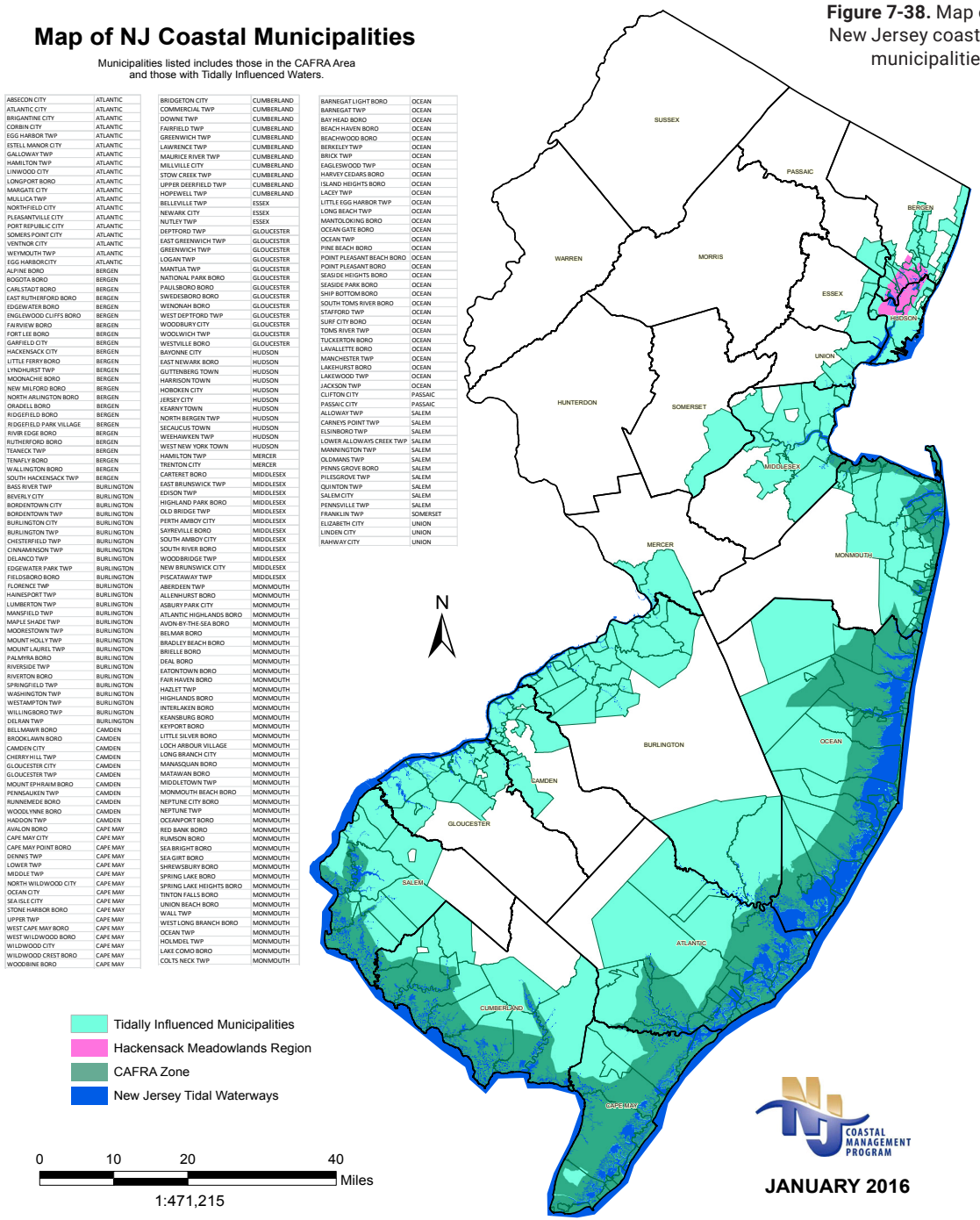


Figure 7-38. Map of New Jersey coastal municipalities.

CAFRA and waterfront development permits may be required under the Coastal Zone Management Rules for development in the state coastal zone areas. CAFRA permitting in New Jersey can be complicated, especially with novel projects.; Although a CAFRA permit may be required, installation methods for the cable landing have not been finalized and, therefore, it is not clear what activities the state will regulate under CAFRA. Since the cable will be located a significant distance below the surface of the ocean bottom, this results in a unique project that deviates from the standard projects envisioned when the CAFRA regulations were developed. Regardless, Clean Link New Jersey's project planners and designers fully understand coastal zone requirements and jurisdiction and how these requirements may affect our project.

Coastal Barrier Resources System (CBRS) areas

The Coastal Barrier Resources Act is overseen by the USFWS and restricts federal expenditures and financial assistance (including federal flood insurance) that encourage development in a defined set of undeveloped coastal areas, known as CBRS areas, as well as Otherwise Protected Areas (OPAs). In New Jersey, there are 31 CBRS communities in seven counties. There are no CBRS areas or buffers in and near the currently proposed landing of the cable.

Although all requirements are not yet known, we will coordinate early and closely with NJDEP to obtain a clear understanding on how to comply and expeditiously obtain permits and approvals under the Coastal Zone Management Rules.

We have not contacted nor submitted any materials or applications to regulatory agencies regarding this project to date. As the project progresses, we will submit permit applications, approvals, issued permits, copies of filings, and records of agency contacts as this documentation becomes available. Documentation of all communications and issued permits or other regulatory approvals will be maintained throughout the project. Commitments made in any correspondence will be communicated to the project team and documented for follow-up action and/or resolution.

Permitting authority	Regulatory authorization	Actions and areas that are jurisdictional	Review time period [1]	Site plan notes
Federal				
U.S. Department of Interior (USDOI), BOEM	30 CFR § 585 Outer Continental Shelf Lands Act (OCSLA) (43 USC 1331 – 1356a)	BOEM issued regulations (30 CFR § 585) "Renewable Energy and Alternate Uses of Existing Facilities on the Outer Continental Shelf" (REAU regulations) for alternate or marine related activities on the Continental Shelf, which include offshore wind and transmission development. BOEM has authority over leases and ROW/right-of-use easements on the Outer Continental Shelf. To demonstrate OSW development adherence to federal requirements for a responsible offshore development BOEM requires submission of a COP.	1-3 years	A Site Assessment Plan (SAP), COP, and GAP will be required for submission to BOEM. BOEM will conduct environmental review of SAP/COP/GAP pursuant to NEPA.
President's Council on Environmental Quality and Lead Agency, (BOEM is likely Lead Federal Agency)	NEPA 1969 (42 USC 4321 et seq.)	The NEPA Review requires federal agencies to integrate environmental values into its decision-making processes (in this case authorizations) by considering the environmental impacts of proposed actions and reasonable alternatives to those actions. This project's NEPA review will assess the potential impacts of issuing the COP and/or the federal Clean Water Act Section 404 permits. The NEPA process is typically documented through either an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) and its accompanying Record of Decision (ROD), which describes the agency's rationale in its decision-making.	2 years	To be initiated and guided by Lead Agency (assumed to be BOEM).
USACE, Philadelphia District	Clean Water Act (CWA), Section 404 (33 USC 1344)	Requires authorization for discharge of dredged or fill material into waters of the U.S., including wetlands; on the coast, federal Clean Water Act jurisdiction extends from the state's 3-mile limit up to the spring high tide line, and continues with adjacent wetlands and in tributaries with adjacent wetlands. The CWA includes both General (Regional and Nationwide) and Individual permit programs depending on the activity and the size of the impact. Under Section 401 of the Clean Water Act a state must certify that the 404 permit is consistent with the state's water quality standards.	≤ 18 months	Because of the length of cable likely an individual Joint Permit will be required, and possibly other permits for geotechnical sampling. The USACE will decide what areas are in jurisdiction and what level of permit will be required. Pre-application meeting required.
USACE	The Rivers and Harbors Appropriation Act (RHA) of 1899, Section 10 (33 USC 403)	Section 10 of the Rivers and Harbors Act of 1899 prohibits the obstruction or alteration of navigable river or water of the U.S. without authorization of the Secretary of War, including excavation or fill or modification of the course or location of the navigable water.	≤ 18 months	Because the project occurs in navigable waters, a RHA permit will be required and is usually issued concurrently with the Section 404 permit.
USACE	RHA, Section 408 (33 USC 408)	Section 408 provides that USACE may grant permission for another party to alter a Civil Works project upon a determination that the alteration proposed will not be injurious to the public interest and will not impair the usefulness of the Civil Works project; Applies to alteration of a Civil Works project (e.g., federal channel).	1-3 years	To be determined based on export cable routing and proximity to Civil Works projects, like a federal channel or a beach fill area.
USFWS, NOAA, NMFS	ESA 1973 (16 USC 1531-1544, as amended)	USFWS and NMFS are charged with protecting and initiating the recovery of imperiled species and the ecosystems upon which they depend by prohibiting "take" of listed species; USFWS has primary responsibility for terrestrial and freshwater organisms while NMFS oversees mainly marine wildlife such as whales, anadromous fish and salmon. Federal actions are required by the ESA to avoid destruction or adverse modification of designated critical habitat.	Concurrent with permit development and review	To be initiated by Lead Agency and compliance will be required with both terrestrial and marine species.
USFWS	Migratory Bird Treaty Act (MBTA) (16 USC 703–712, MBTA and proposed updates)	MBTA prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service.	6-12 months	May require breeding bird surveys and limit construction during nesting of certain birds
USFWS	Bald and Golden Eagle Protection Act (16 USC 668-668c)	The Act prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald or golden eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."	4-6 months	If no nests are close by proposed project area likely no requirements for consideration of this Act

[1] All referenced review time frames are subject to change based upon agency consultation and approval.

Table 7-39. Preliminary permit matrix.

Permitting authority	Regulatory authorization	Actions and areas that are jurisdictional	Review time period [1]	Site plan notes
NOAA Fisheries Office of Protected Resources	Marine Mammal Protection Act (MMPA) of 1972, (16 USC 1361-1407)	MMPA under 50 CFR 216 regulations prohibits the "take" of marine mammals, including harassment, hunting, capturing, collecting or killing in U.S. waters and by U.S. Citizens on the high seas. NOAA is charged with managing the "take" of marine mammals, that may also be protected under the ESA, through permits and authorizations, including Incidental Harassment Authorization (IHA), and Letter of Authorization (LOA) which will apply to both survey and construction activities.	8-12 months	Consultation required to determine what level of study would be needed.
NOAA NMFS	Magnusen-Stevens Fishery Conservation and Management Act, Sustainable Fisheries Act including amendments (16 USC 1811)	Primary law governing marine fisheries management in the US Federal waters including facilitating the long-term protection of EFH.	6-8 months	Complete Essential Fish Habitat Study.
Sponsoring Agency with the SHPO	Section 106 National Historic Preservation Act 1966, (54 USC Subtitle III)	Section 106 of the NHPA requires that each federal agency identify and assess the effects its actions may have on historic buildings. Under Section 106, each federal agency must consider public views and concerns about historic preservation issues when making final project decisions.	11-24 months	To be initiated by Lead Agency at different levels, considering, terrestrial historic/archaeology and maritime historic/archaeology and landscape, as well as consultation with Native American Tribes.
Office of Ocean and Coastal Resource Management (OCRM), within the NOAA's National Ocean Service National Coastal Zone Management Program	Coastal Zone Management Act of 1972 (CZM) (16 USC 1451-1465)	This act, administered by NOAA, provides for the management of the nation's coastal resources, including the Great Lakes. The goal is to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone. The federal consistency provision gives states a strong voice in federal agency decision making when federal actions may have an effect on a state's coastal uses or resources.	12 months	To be initiated by Lead Agency however the NJ coastal program is very strong and adhering to it will likely satisfy the federal program.
EPA/NJDEP	The federal Clean Air Act 1970 (42 USC 7401 et seq) plus amendments, delegated to NJDEP under NJAC 7:27-30	Pursuant to Section 328(a)(1) of the Clean Air Act (CAA), 42 USC 7627(a)(1), the EPA is required to establish air pollution control requirements for sources on the OCS, which includes the submerged lands beyond the seaward boundary of coastal states. In April of 2020 the state of New Jersey adopted New Rules: NJAC 7:27-30 incorporating by refence the relevant Federal regulations at 40 CFR Part 55. in order for the EPA to delegate this authority under the CAA to the NJDEP Division of Air Quality.	< 6 months address before construction	CAA requirements will likely apply to construction equipment.
USCG District 5	Approval for PATON; BOEM/ USCG MOA between them--OCS-06 dated July 2011	PATON on navigable waters regulated by the federal government require a Coast Guard permit. USCG also serves BOEM as a subject matter expert according to the MPW. The USCG will provide subject matter expertise of OSW developments and ROWs on maritime safety, maritime security, maritime mobility (management of maritime traffic, commerce, and navigation), national defense, and protection of the marine environment during the development.	< 6 months, address before construction	Other navigation safety requirement must adhere to USCG standards for sampling, construction, and operations.
State				
NJDEP Office of Permit Coordination and Environmental Review (PCER)	Pre-application meeting	Voluntary consultation with the Office of PCER to understand the most efficient permitting pathway, initial feedback on route, and mitigation requirements.	N/A	PCER coordination will assist with project introduction and general consultation.
NJDEP Division of Land Resource Protection (DLRP)/USACE	Section 401 Water Quality Certification under the federal CWA (33 USC 1341)	NJDEP is responsible for issuing Water Quality Certification (WQC) for federal permits that result in a discharge into navigable waters including the discharge of dredged or fill material. States verify that the permit complies with water quality requirements of the state, or if certification is waived; Federal permits can be issued in waters of the state.	90 days	The proposed project will require a federal permit, and therefore WQC will be needed from the State of New Jersey.

[1] All referenced review time frames are subject to change based upon agency consultation and approval.

Table 7-39 (continued). Preliminary permit matrix.

Permitting authority	Regulatory authorization	Actions and areas that are jurisdictional	Review time period [1]	Site plan notes
NJDEP DLRP	Freshwater Wetlands Protection Act Permitting – Individual Permit or General Permit (NJAC 7:7A1-22)	A person undertaking any regulated activity under this chapter shall do so only in accordance with: • An authorization under a general permit-by-certification, pursuant to NJAC 7:7A-5 and 6 • An authorization under a general permit, pursuant to NJAC 7:7A-5 and 7 • A transition area waiver, pursuant to NJAC 7:7A-8 • An individual permit, pursuant to NJAC 7:7A-9 and 10 • An emergency authorization, pursuant to NJAC 7:7A-14	6 months	Impact analysis required to determine the type of FWW permit needed.
NJDEP DLRP	Freshwater Wetlands Protection Act Permitting (FWPA) – General Permit 12 (Surveying and Investigating)	General permit 12 authorizes activities in freshwater wetlands, transition areas and State open waters necessary for surveying and investigative activities (e.g., geotechnical or archaeological investigation).	90 days	The need for FWGP12 will be based on a review of the proposed boring plan.
NJ HPO	Review Procedures Under the New Jersey Register of Historic Places Act	The New Jersey Register of Historic Places Act (NJSA 13:1B-15.128 et seq.) law allows historic properties to be nominated and entered in the New Jersey Register of Historic Places, which is maintained by the HPO. Once a property is listed in the New Jersey Register, any public undertaking that would "encroach upon, damage or destroy" the registered historic property must by reviewed pursuant to this law and receive prior authorization from the Commissioner of the NJDEP.	TBD	Specific details will be based on design parameters and initial screening results.
NJDEP DLRP	NJAC 7:7 CZM Rules	Establishes the rules of the NJDEP regarding the use and development of coastal resources which include all tidal waters. The rules are used in reviewing applications for coastal permits under the following: • Coastal Area Facility Review Act, NJSA 13:19-1 et seq. (CAFRA permits) • Wetlands Act of 1970, NJSA 13:9A-1 et seq. (coastal wetlands permits) • Waterfront Development Law, NJSA 12:5-3 (waterfront development permits) • Section 401 of the federal CWA for water quality certification • Federal consistency determinations under Section 307 of the Federal CZMA • Basis for Program to the Tidelands Resource Council on applications for riparian grants, leases, and licenses A permit (as listed below) is required if regulated activities take place in jurisdictional areas, as listed, except for certain activities under CAFRA and the Waterfront Development Law are exempt requirement to obtain a coastal permit under this chapter. • A permit-by-rule, pursuant to NJAC 7:7-3 and 4 • An authorization under a general permit-by-certification, pursuant to NJAC 7:7-3 and 5 • An authorization under a general permit, pursuant to NJAC 7:7-3 and 6 • An individual permit, pursuant to NJAC 7:7-8 • An emergency authorization, pursuant to NJAC 7:7-21	12-24 months	Most coastal resources permitting is tied up in these rules recently finalized (July 2021). Likely the project will require multiple authorizations under these rules.
NJDEP DLRP	CAFRA 1973 NJSA 13:19-1 et seq	The Department's Division of Land Resource Protection regulates the use and development of coastal resources though CAFRA, NJSA. 13:19-1 et seq., the Wetlands Act of 1970, NJSA 13:9A-1 et seq., the Waterfront Development Law, NJSA 12:5-1 et seq., and the Coastal Zone Management Rules at NJAC 7:7. The Division determines whether an activity is regulated based on the activity itself and its location within the coastal zone. CAFRA established the CAFRA zone as the bounds of CAFRA regulation. Identify "special areas" and demonstrate proposed development meets requirements for construction within that special area; Definitions of special areas in NJAC 7:7 Subchapter 9.	90-120 days	Pre-Application Conference is mandatory for installation of submarine cables in the Atlantic Ocean.
NJDEP DLRP	Wetlands Act of 1970, NJSA 13:9A-1 et seq. (coastal wetlands permits)	Coastal wetlands subject to tides of fresh or saltwater including those areas now or formerly connected to tidal waters whose surface is at or below an elevation of one foot above local extreme high water, preventing further deterioration and destruction by regulating the dredging, filling, removing or otherwise altering or polluting it.	90-120 days	Limiting impacts will limit the time to obtain permits

[1] All referenced review time frames are subject to change based upon agency consultation and approval.

Table 7-39 (continued). Preliminary permit matrix.

Permitting authority	Regulatory authorization	Actions and areas that are jurisdictional	Review time period [1]	Site plan notes
NJDEP DLRP	Waterfront Development Individual Permit (WFDIP) (Waterward of Mean High-Water Line [MHWL]) NJSA 12:5-3	All proposed project activities conducted within tidal waters (at or below the MHWL) that do not meet the requirements of any permit-by-rule, general permit-by-certification, or general permit. Identify "special areas" and demonstrate proposed development meets requirements for construction within that special area; Definitions of special areas in NJAC 7:7 Subchapter 9.	90 days	The need for WFDIP will be based on design parameters and location.
NJDEP DLRP	Federal Consistency Determination under Section 307 of the Coastal Zone Management Act Section 307 of the Federal Coastal Zone Management Act	Federal Consistency reviews are the responsibility of the lead State agency that implements or coordinates the State's federally approved CMP. At the federal level, OCRM, within NOAA's National Ocean Service, among other duties and services, interprets the CZMA and oversees the application of Federal Consistency; provides management and legal assistance to coastal States, Federal agencies, Tribes and others; and mediates CZMA related disputes.	90 days	The main review of permits and authorizations issued by the federal government for conformance with the state's coastal zone management plan. Adherence to Coastal Zone Management Rules will positively influence review
NJDEP Bureau of Tidelands Management; Tidelands Resource Council	Tidelands Grant and/or License (NJSA 12:3 1 to 28 NJSA 13:1B-13.1 to 13.14)	All proposed project activities conducted within tidal waters, tidal wetlands or areas formerly flowed by the mean high tide of a natural waterway are considered public lands and would require written permission from the State for use. A coastal consistency and tidelands project-specific application may be required if CET does not have an existing grant, lease, or license to perform work activities within the right-of-way. All tidelands are overseen by the Tidelands Resource Council, a board of twelve Governor-appointed volunteers, along with NJDEP staff at the Bureau of Tidelands Management. Some tidelands may be sold in the form of a Riparian Grant while others may only be rented through either a Tidelands License or Lease.	3-6 months	Further assessment of methods and locations required to determine the type of grant/license needed.
NJDEP Division of Land Resource Protection	Flood Hazard Area (FHA) Control Act (including stormwater management) Individual Permit (NJAC 7:13)	An FHA permit is required if any regulated activity is proposed in the regulated flood hazard area or the riparian zone. The NJDEP reviews applications that are major developments for compliance with the NJ Stormwater Management Rules.	90 days	Limited impacts for cable alignment but converter station locations out of the flood hazard areas will enhance permit review times.
NJDEP Division of Water Quality, Bureau of Stormwater Management	New Jersey Pollutant Discharge Elimination System (NJPDES) Construction General Permit (5G3)	The construction General Permit authorizes point source discharges from certain construction activities. Regulated entities are required to develop a soil erosion and sediment control plan aimed at eliminating the flow of contaminated rainwater into streams and rivers. Required for projects with over 1 acre of disturbance. Soil erosion and sediment control plans must be submitted to the Soil Conservation District for certification (see Local Permits below). Once the Soil Erosion and Sediment Control Plan Certification is acquired, the NJPDES 5G3 application will be e-filed through the NJDEP Portal for instant permit issuance.	30 days	Specific details will be based on design parameters but this is simply the E&S Control plan.
NJDEP Site Remediation Program	NJAC 7:26 Linear Construction Rules	Pre-sampling/planning may be required to determine necessity to conduct further investigations under Linear Construction Project (LCP) guidance in the Site Remediation Program. The trigger for the LCP program includes the excavation of 200 CY or more of impacted media over the duration of the project and includes one or more contaminated properties.	> 90 days; duration of project	The LCP would be triggered based on design criteria and presence of impacts.
NJDEP Green Acres Program	NJAC 7:36 Green Acres Program – Diversion of Parkland	The Bureau of Legal Services and Stewardship (BLSS) inventories and oversees lands that have received Green Acres funds and are subject to Green Acres rules (NJAC 7:36). In some cases, it may be appropriate to divert Green Acres-encumbered parkland from recreation or conservation use, and the BLSS handles the application packages set forth in NJAC 7:36-26. The BLSS, along with the Office of Leases, also handles proposed conveyances of NJDEP-held parkland, including easements across NJDEP property.	1-2 years	Most beach crossings and park crossings require a Green Acres Permit. This project will cross a beach and at least three public parks.
NJDOT	Highway Occupancy and Minor Access Permits	Property owners seeking traffic access to state roadways and transportation infrastructures must submit applications for access to NJDOT. Access applications with fewer than 500 daily trips are considered minor, while those with more than 500 are considered as major.	TBD	Consultation required to determine NJDOT jurisdiction along route.

[1] All referenced review time frames are subject to change based upon agency consultation and approval.

Table 7-39 (continued). Preliminary permit matrix.

Permitting authority	Regulatory authorization	Actions and areas that are jurisdictional	Review time period [1]	Site plan notes
NJDOT	Oversize/Overweight Truck Permits	NJDOT is now issuing permits on behalf of the New Jersey Motor Vehicle Commission (NJMVC) for all Oversize vehicles, Overweight vehicles, Code 23 registered trailers, and Annual Ocean Borne Container permits. This function has been transferred to NJDOT under the provisions of the newly adopted rules contained in NJAC 13:18, Subchapter 1: Permits for Over dimensional or Overweight Vehicles.	TBD	To be determined following determination of equipment size.
NJDOT	Environmental Services Permit	NJDOT has developed or adopted environmental policies ranging from soil and erosion control to highway noise management.	TBD	To be determined based on proposed installation methods and areas.
New Jersey Turnpike Authority (NJTA)	License to Cross Agreement	The Standard License to Cross Agreement contains the usual terms and conditions for a License to Cross, including provisions on the term, costs, insurance and indemnification. Requests for changes to the standard language are not usually granted. In order to apply, the application form must be fully completed and returned along with a non-refundable $900 application fee. The fee should be submitted in the form of a certified check, cashier's check, or money order payable to the NJTA. The application and payment should be submitted with eight sets of plans and specifications and other applicable supporting documentation, such as drainage calculations and luminaire photometrics along with a CD/USB of electronic file in PDF version of all documents including plan sets submitted to the Accounts Receivable Section of the Finance Department.	TBD	NJTA recommends License to Cross applications are made as soon as preliminary plans are developed.
NJBPU	Petition for proposed construction of transmission lines	In New Jersey, a developer may need approval from the BPU before constructing a transmission facility if the project crosses one or more municipalities or if the developer is unable to obtain local approvals.	TBD	Petition can be filed if project will impact more than one municipality or if local approval is not granted. NJSA § 40:55D-19; P.L. 2021, c. 178.
NJBPU	Petition to obtain property rights	If a developer is unable to obtain an easement, ROW, or other real property interests from a municipality, county, or political subdivision (other than public streets, thoroughfares or ROWs), it can file a petition with the NJBPU for authority to obtain the easement, ROW or property interest.	TBD	Petition can be filed under P.L.2021, c. 178, following conditions including municipal consultation and subject to payment of fair compensation.

[redacted]

[1] All referenced review time frames are subject to change based upon agency consultation and approval.

Table 7-39 (continued). Preliminary permit matrix.