Project Overview

New Jersey Board of Public Utilities ("Board") is tasked with ensuring safe, adequate, and proper utility services are provided at reasonable, non-discriminatory rates to all members of the public who desire such services. The Board is also tasked with developing and regulating a competitive, economically cost-effective energy policy that promotes responsible growth and clean renewable energy sources while maintaining a high quality of life in New Jersey.

In order to accommodate the growing energy needs of the state, the Board is inviting companies to place bids to help bring responsibly developed offshore wind power to New Jersey homes and businesses, by building essential onshore electric transmission infrastructure. The Prebuild Infrastructure project includes cable vaults and duct banks that will eventually connect offshore wind projects to our power grid. The planned path for this infrastructure starts at the Sea Girt National Guard Training Center and ends at the Larrabee Collector Station in Howell, New Jersey.

Like other local electric transmission projects, the Board is encouraging the use of existing utility pathways, road rights-of-ways, and previously disturbed areas to minimize community disruption and reduce environmental impact. Three out of the four planned duct banks and cable vaults will be used by existing offshore wind projects (two of the duct banks will be used by Leading Light Wind Project and one duct bank will be used by Attentive Energy 2 Project, both chosen by the Board). The fourth duct bank is available for a future wind project. While other projects may propose use of the Prebuild Infrastructure in their permitting applications, no other projects currently have an award from the Board to bring their projects through the Prebuild Infrastructure.

Developers interested in building this important infrastructure will work closely with state and federal agencies, as well as other stakeholders including municipalities, to minimize impacts on natural resources and ensure compatibility with surrounding land use and communities. If an award is made, the awarded developer will work with the Board, state environmental agencies, local governments, and community stakeholders to develop a project that minimizes impacts on the community and the environment.

The Board is anticipated to consider an award decision for the Prebuild Infrastructure project in fall 2024. If an award is made and after receiving all necessary design approvals and permits, construction is anticipated to start in 2027 and finish in 2029.

Learn more here! www.nj.gov/offshorewind

Key Terms

Circuit: A closed electrical path that carries electric power, may consist of multiple cables

Cable: An insulated wire or set of wires that makes up a circuit

Duct Bank: a set of pipes set in concrete underground that hold cables

Cable Vault: A concrete box underground where cable segments are spliced together

Voltage: The "pressure" that pushes electric power. Higher voltage requires more insulation.

Current: the movement of electrons through a cable. Higher current requires bigger wires.

Power: This is what we want! Voltage times current powers our electronics. Higher voltages allow use to transfer more power with less current, so we can use smaller wires.

Energy: How much power you use over time. Your utility bill is based on energy, measured in kilowatt-hours, which is produced by electric generators.

HVAC: High Voltage Alternating Current—used to transmit power over longer distances

HVDC: High Voltage Direct Current—used to transmit power over longer distance with less losses

AC: Alternating Current, current that is continuously changing direction. In the US at 60 Hz or 60 times a second.

DC: Direct Current, current that flows in one direction

Static Magnetic Fields from Prebuild Infrastructure

What kind of magnetic fields will be associated with the operation of direct current cables in the Prebuild Infrastructure?

The direct current cables installed in the Prebuild Infrastructure will produce **static magnetic fields, also referred to as direct current magnetic fields.** These are the same as produced by the Earth, permanent magnets (e.g., on your refrigerator), battery powered appliance, and light-rail and subway systems. Vastly stronger than all of these sources are the static magnetic fields produced from magnetic resonance imaging (MRI) diagnostic devices. These types of direct current fields operate at a frequency of 0 Hertz, meaning they do not change magnitude or direction over time

Are these static fields the same as the fields often referred to as electromagnetic fields?

No. The term electromagnetic field is frequently used to refer to alternating current electric and magnetic fields. Anything that generates, transmits, or uses alternating current electricity is a source of alternating current electromagnetic fields, including household electrical appliances and equipment. Because most of our electric system transports and uses alternating current electricity, alternating current electromagnetic fields are found nearly everywhere in modern society. The frequency of alternating current electromagnetic fields from most sources in the U.S. is 60 Hertz, meaning they oscillate in magnitude and direction 60 times per second. ***Unlike above ground alternating current electromagnetic field sources, the burial and cable construction of Prebuild Infrastructure will effectively block electric fields above ground.***

Are static magnetic fields also different from fields at frequencies higher than 60 Hertz?

Yes, very different. The alternating radiofrequency fields used in radio, television, and wireless communication (e.g., mobile phones) have frequencies that oscillate millions to billions of times per second (i.e., megahertz and gigahertz). At these frequencies, the electric field and magnetic field are linked together and propagate through space. This is how cellular phones or television/ radio stations can communicate over relatively large distances. These radio frequency electromagnetic fields also interact quite differently with the environment than static fields. Static magnetic fields are not able to break the atomic or molecular bonds which would result in the damaging effects of ionizing radiation (e.g., high-energy X-rays and cosmic rays).

What components of the Prebuild Infrastructure will transport the direct current electricity?

All the direct current electricity will flow through underground cables from the landfall at Sea Girt National Guard Training Center to the Larabee Collector Station where it will be converted to alternating current electricity before linking with the power grid for distribution across the region. Along this route, the cables will be buried below ground and protected in PVC pipes inside a concrete duct bank. The cables will periodically be spliced together in cable vaults, also installed underground. The exact route and configuration of the cables will be determined at a later stage of the project design process.

Should I be concerned about static magnetic fields and my health?

No, the levels of the static magnetic fields will be highest in the street above the Prebuild Infrastructure and will diminish quickly with distance. At nearby residences, the total static magnetic fields would likely be within the same range of magnetic field strength as earth's natural geomagnetic field above ground (i.e., between about 300 and 700 milligauss) and less than ½ of one percent of the International Commission on Non-Ionizing Radiation Protection's 2009 recommended limit for exposure of the general public. Furthermore, the World Health Organization's International Agency for Research on Cancer review of research on direct current magnetic fields did not identify exposures as possibly carcinogenic to humans.