

# Williams College-Mystic Seaport Maritime Studies Program's Marine and Coastal Policy Research Group

Protecting
New Jersey's
Meadowlands
and Local
Communities
from Floods and
Green House
Gas Emissions

# **EXECUTIVE SUMMARY**

Located in one of the nation's most densely-populated metropolitan areas, the New Jersey Meadowlands are one of the largest brackish estuarine systems in the northeastern United States.<sup>1</sup> For decades, these wetlands were used as landfills, contaminated with toxic waste, and drained for urban development—the latter which has significantly reduced the size of the Meadowlands. As global sea-level rise continues to threaten coastal communities, the biggest challenge facing the Meadowlands today is its inability to absorb surge water from storms and hurricanes, as seen during Hurricane Sandy in 2012. These flood events disperse pollutants found in the Meadowlands region from decades of pollution, threatening local communities with PCBs, "legacy" mercury, and other hydrocarbons.<sup>2, 3</sup>





WILLIAMS-MYSTIC RESEARCHER

Jeff Erazo, Williams College In a worst-case scenario projection, sea level is expected to rise more than 6 feet by 2100. The same areas of North Jersey and New York City that were flooded by Superstorm Sandy's surge would be inundated 26 times or more per year. Source and picture: Union of Concerned Scientists



In the event of storm surge and rising sea levels, the proposed NBLG power plant (illustrated here) is at risk of flooding as it lies on the banks of the Hackensack River in North Bergen, NJ. Image source: NBLG

In response to flood risks, environmental justice groups have opposed the construction of the North Bergen Liberty Generating (NBLG) project—a 1,200 megawatt, natural gas-fired power plant approximately 750 feet from the Meadowlands, located across the Hackensack River from these wetlands. The plant would be required to hold 1 million gallons of oil onsite, since natural-gas extraction becomes harder to extract during colder months.<sup>4</sup> Since high tide mark is a mere 3 feet from the power plant, a flood event could potentially release this fuel into the Hackensack, as well into the local businesses, homes, public transit routes, and industrial power plants located on or near the Meadowlands flood plain.<sup>5</sup>

The secondary core issue of the NBLG plant are greenhouse gas (GHG) emissions. Given that Hudson County received an F rating for air quality from the American Lung Association, the NBLG plant would further overwhelm the poor air quality present in New Jersey, whereas all of the power produced at this plant will go solely to New York.<sup>6, 7</sup>

This policy brief, in line with the proposals set forth by NJ environmental justice groups, such as NJ's chapter of the Sierra Club, recommends that Governor Phil Murphy declare a moratorium on building new fossil-fuel plants in the Meadowlands region, a measure that would protect low-income New Jersey residents from additional pollutants from the plant during flooding, as well as to maintain better air quality in the region.

#### **CONTEXT OF THE ISSUE**

Flood Risks at the Meadowlands

The Meadowlands are bound by two main waterways—Berry's Creek and the Hackensack River—the latter which empties into Newark Bay, a back chamber of New York Harbor. Of the original 21,000 acres of wetlands before WWII, only 7,000 acres remain as a result of landfill pollution, urban development, filling, draining, and sea level rise.8 The Meadowlands region serves as breeding grounds for roughly 40% of the nation's bird species, as well as being home to hundreds of plant and animal species.9 Likewise, the drained parts of the Meadowlands host large entertainment complexes, such as the MetLife Stadium and the recently-inaugurated megamall named American Dream. The mall will be equipped with indoor skiing facilities and an indoor waterpark, which is slated to draw 40 million visitors annually.10

According to a Rutgers University study, the New York metropolitan area could see up to three feet of sea level rise by 2080s, which would affect 114,000 residents, 68,000 homes, and 62,000 jobs. <sup>11</sup> The communities living closest to the Meadowlands tend to be low-income communities of color, and are located in flood-prone areas near the Meadowlands.

Critical road and rail lines would also be affected, which would impact interstate commerce in one of the most economically productive areas of the country; these bus, rail, and train lines, along with a network of highways, ties the economies of New York



Critical public transit infrastructure, highways, businesses, entertainment complexes, and homes located at or near the Meadowlands could be severely damaged in the event of storm surge and sea level rise. Image Source: Regional Plan Association

and New Jersey as workers commute into the city. On the other hand, researchers estimate that by 2050, 60% of the regions power generating capacity will be located in a flood plain.<sup>12</sup>

NJ has received federal money to build this infrastructure, but these projects are still far from completion.<sup>13</sup> While the US Fish and Wildlife Services, the New Jersey Sports and Exposition Authority (NJ-SEA), and NJ's Department of Environmental Protection Agency (NJDEP) have focused their efforts to wetland restoration and cleanup, respectively, another Rutgers University study discovered that "legacy" mercury in Berry's Creek sediments has spread through waterways across the Meadowlands estuarine system.14 Previous clean-up efforts have yielded some results, but these pollutants can still be traced throughout the Meadowlands. As a result, the EPA has designated several parts of the Meadowlands as Superfund sites, which will benefit from a \$332 million cleanup.<sup>15</sup>

The toxins present at the Meadowlands, however—which include PCBs, "legacy" mercury, and other hydrocarbons—are at risk of further being dispersed as SLR and storm surge threaten local communities. <sup>16, 17</sup> By law, the NBLG power plant would have to hold 1 million gallons of oil onsite—or about 2-3 days worth

of fuel—for the colder months of the year make fracking much more difficult.<sup>18</sup> In the event that the Hackensack River floods, this onsite fuel is at risk of spreading into the Meadowlands estuarine system, potentially endangering local businesses, homes, and natural habitats.<sup>19</sup> The power plant is slated to be built right at the edge of the Hackensack River.

## Local Air Quality

The NBLG plant proposal coincides with the projected 2020 closure of the Indian Point Power Center in New York, a nuclear plant that currently generates 2,000 megawatts of power. As New York transitions to renewable energy, the NBLG project seeks to meet the city's power needs by shifting energy production across state lines. The \$1.5 billion project would create 2,100 construction jobs, employ 30 full time employees, and generate millions of dollars of much needed tax revenue for the town of North Bergen. The project has the full support of the township's mayor, Nick Sacco, as well as the Hudson County Building & Construction Trades Union, and the Meadowlands Chamber of Commerce.

According to data collected by the EPA, this proposed power plant would be NJ's largest GHG emitter, releasing an estimated 2.6 million metric tons of CO<sub>2</sub>

Groups At Risk	
Total Population:	691,643
Pediatric Asthma:	11,603
Adult Asthma:	46,041
COPD:	29,693
Lung Cancer:	387
Cardiovascular Disease:	33,859
Diabetes:	50,884
Children Under 18:	139,805
Adults 65 & Over:	79,986
Poverty Estimate:	96,125

According to the American Lung Association, high ozone and particle pollution levels puts Hudson County residents at risk of developing respiratory diseases. The following groups of people in Hudson County will be most affected by poor air quality in the region. Image source: American Lung Association

into the atmosphere.<sup>21, 22</sup> The American Lung Association ranks the NY-NJ metropolitan area among the top 10 most ozone-polluted cities in the US; in fact, Hudson County, NJ received an F grade for air quality.<sup>23, 24</sup> Inhaling ozone "acts like a sunburn of the lung, and can trigger coughing and asthma attacks, and may even shorten life," a problem that will only worsen with the NBLG power plant.<sup>25</sup> Though ozone has steadily improved over many decades, the American Lung Association still grades Hudson County with an F.

The power plant would also utilize Bergen County's grey water to cool down the plant's steam turbines, which would evaporate into the air rather than be

absorbed by the Meadowlands.<sup>26</sup> This would disperse toxins found in grey water in the form of vapor not just across the Meadowlands region, but potentially farther as this water vapor makes its way to the atmosphere. Environmental advocacy groups, namely NJ's chapter of the Sierra Club, forty NJ townships, local property owners, and most recently NJ Governor Murphy, all oppose the NBLG plant.

### **CRITIQUE**

Sea-Level Rise in the Meadowlands

The New Jersey Sports and Exposition Authority (NJSEA), which oversees the restoration efforts and land use, details how communities near the Meadowlands are at risk of severe floods in their Master Plan for 2019, as seen after Hurricane Sandy.<sup>27</sup> According to NJSEA, the Meadowlands will likely experience high-tide flooding in low-lying areas, even in the absence of storm surge due to sea level rise.<sup>28</sup> Coupled with the projected six feet of SLR early in the next century, over 308,000 homes, 362,000 jobs, and 619 residents could potentially be inundated.<sup>29</sup> The loss of life, homes, and businesses would be astronomical. The NBLG plant's proposed site is located in a flood plain, right on the edge of the Hackensack; the Meadowlands, however, are unable to absorb storm surge from the Hackensack River. This is not solely a New Jersey problem, however. Rising sea levels threaten all coastal communities around the world.

The environmental coalition, "No Meadowlands Power Plant" and NJ's chapter of the Sierra Club have been major opponents to the project, and have worked towards informing NJ residents about the plant's risk factors. During an interview with Ace Case, Chair of the Hudson County Chapter of the Sierra Club, he drew attention how low-income and communities of color are disproportionately affected by already existing power plants in the area. North Bergen is over 73% Hispanic/Latino, and over 15% live below the poverty line.30 In the event of flooding, these communities could potentially have their homes inundated with polluted water Hackensack and oil from the power plant. The compounded effects of 1 million gallons of oil in the Hackensack storm surge would directly endanger the volatile resiliency of the Meadowlands, as well as potentially put communities in flood-prone areas at risk of being exposed to onsite oil. The NBLG website does not address these SLR risks.

# Poor Air Quality

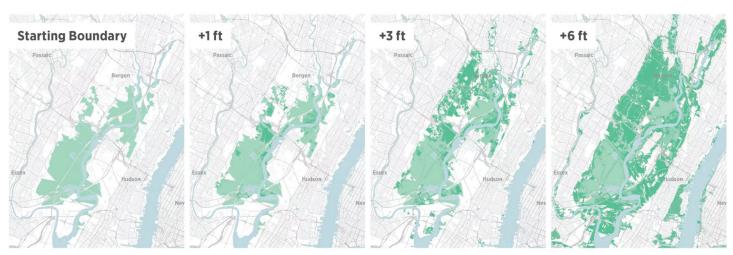
Though the plant would be located in New Jersey, NBLG will solely provide New York City with energy while exposing NJ residents to GHGs, heavy metals, and hydrocarbons.31, 32 NBLG, however, stresses that the power plant will be 34% more efficient than local power plants of similar size; likewise, they claim that if New Jersey joins the Regional Greenhouse Gas Initiative (RGGI), NBLG will be required to hold credits, or allowances, to emit GHGs-which would therefore offset 100% of the plant's GHG emissions.<sup>33</sup> While the building of a new power plant will not help NJ reach its goal of having 100% clean energy by 2050, NBLG explains that this plant could generate as much energy as a solar array six times the size of Central Park, given the efficiency of current clean energy infrastructure.34 For an area that does not count with large swaths of undeveloped land, this power plant would be located in an industrial zone currently being used to recycle concrete and asphalt.

A similar 1,200 megawatt natural gas plant in the Meadowlands area, called Bergen Generating Station, produced over 1.4 million metric tons of CO2, along with 655 metric tons of methane and 793 metric tons of nitrous oxide in 2017.<sup>35, 36</sup> While the NBLG plant will be 34% more efficient, it would emit more GHGs and other toxins in an area that already has poor air quality.

On the other hand, the plant could save the Meadowlands from absorbing hundreds of millions of gallons of grey water annually; instead, this grey water would be used to cool down the plant's steam turbines, meaning that the grey water would evaporate.<sup>37</sup> However, this creates another set of challenges, as Ace Case echoes. Given that grey water and its toxins would be present as water vapor in the metropolitan area, this would potentially worsen the poor air quality of the region. Likewise, this would undermine environmental strides accomplished over the last couple of years. In 2017, Sierra Club was successful in pressuring the State to shut down a coal plant in the region. But Ace Case stresses that the coal plant was just one of the many polluters in the area; for instance, there is still a garbage incinerator in Newark, not too far from the estuarine system. Case stated that respiratory ailments are quite common in the region, and the communities most affected are both low-income and communities of color. This claim seems to be supported by the American Lung Association, for the NY-NJ Metropolitan Area is among the top cities in the country in poor air quality.

#### *Iobs and Revenue*

The project would also create thousands of construction jobs, which has the backing of the Hudson Country Building & Trades union and North Bergen's Mayor Nick Sacco. North Bergen would count on millions of dollars of tax-revenue, as well as an estimated \$5 million in annual maintenance for the plant, which would be performed by local contractors. However, the tax revenue generated for the township would come at the expense of people's health, which has already been compromised from decades of air pollution in the area. The township has not stated whether any of this tax revenue will be used for residents facing respiratory problems.



Rising sea levels in the region place a disproportionate strain on low-income and communities of color. If sea level rise projections continue on their course, the Meadowlands will be unable to absorb this water, which will result in the flooding of large swaths of both Hudson and Bergen Counties. Onsite oil stored at the NBLG plant could potentially spread across this region if the power plant were to flood. Image source: Regional Plan Association

## Excess Electricity

The closing of Indian Point Power Center has often been used by NBLG as a reason to build a power plant in New Jersey, since they claim that additional power is demanded in New York. However, according to Ace Case, Governor Cuomo also stated that this energy is not needed, nor wanted in New York. In fact, the power plant would create excess energy, none of which would be used to power NJ homes or businesses. Rather, NJ residents would be burdened with unnecessary pollution.

## POLICY OPTIONS AND RECOMMENDATIONS

In order for the Meadowlands ecosystem to succeed—and therefore protect these local communities from storm surge, SLR, and air pollution—it is imperative that NJ continue to focus on restoration efforts, which have already been underway with NJSEA efforts and EPA Superfund money. The Meadowlands region cannot accommodate new a power plant at the ex-

pense of endangering a large and densely-populated region. Given that heavy metals found in the Meadowlands have spread through waterways, policies geared towards restoration and cleanup will also have positive net results for ongoing efforts to restore New York Harbor wildlife. Likewise, the closing down of power plants in the region, as was done with the coal plant a couple of years prior, will improve air quality in a region where respiratory ailments are common among low-income and communities of color.

Opponents of the NBLG project have suggested that Gov. Murphy declare a moratorium on building new fossil fuel power plants in the Meadowlands region. This policy brief concludes that this is the best course of action, for a moratorium would also prevent any future plants from being built in the region. This would also mean that another power plant slated to begin construction in 2021 in Kearny, on the southern Hackensack River, would also have to end. Similar to the proposed NBLG plant, Kearny's power plant faces similar issues to the ones raised in this policy brief.

# **END NOTES**

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