

The Port Authority of New York and New Jersey recognizes the importance of our bistate port as a resource for the region. The agency leads the way in creating a vibrant and engaging facility that not only enables efficient business operations, but also safeguards our natural resources for those who live and work in the region.

**JOBS** The port supports more than 296,000 jobs representing nearly \$18 billion in annual wages.

**TAXES** The port generates more than \$6.1 billion in annual tax revenues to federal, state, and local governments.

**GOODS** From beverages and food, to apparel and furniture, to cars and the parts they need to operate, the region depends on the port to get these commodities into stores and homes.

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## **ENVIRONMENTAL STEWARDSHIP:**

**A Continuous Commitment  
to Improving Our Air,  
Water, and Land**





Breaking new ground in safeguarding our land and open spaces.

Emitting fewer pollutants brings a breath of fresh air into our atmosphere.



OUR REGION'S AIR, WATER, AND LAND:

# CLEANER THAN EVER



Navigating the waters that keep our rivers and tributaries healthy.

# ENVIRONMENTAL STEWARDSHIP: RAISING THE BAR



Through leadership, partnership, and investment, The Port Authority of New York and New Jersey is transforming operations at its port facilities with environmental initiatives that safeguard our natural resources for today's generation and those to come. Because of our continuous commitment to improving our air, land, and water and the voluntary efforts of our dedicated industry partners, the Port of New York and New Jersey is cleaner and more environmentally friendly than ever before.

Environmental stewardship is not just about addressing one aspect of our operations. It's about creating a culture of improvement that addresses all aspects of our operations and continuously raises the bar on our environmental stewardship goals.

The foundation of environmental stewardship is the Clean Air Strategy, a set of voluntary actions to reduce emissions – despite any increase in port cargo. The goals are annual decreases of 3 percent in criteria air pollutants and 5 percent in greenhouse gas, leading to an 80 percent greenhouse gas reduction by 2050.

In addition to the Clean Air Strategy, the port implements a variety of sustainable development initiatives with multiple

environmental benefits. For example, when we invest in greater rail capacity we can reduce transportation costs and roadway congestion, which in turn reduces truck idling emissions that affect air quality.

For environmental initiatives to succeed, however, they must make good business sense. That is why the Clean Air Strategy offers terminal operators, ocean carriers, harbor craft, shippers, truckers, and rail operators innovative ways to reduce environmental impacts. By helping businesses to embrace environmental issues, sometimes through the use of incentives, the port's industry partners voluntarily incorporate new practices that effectively address global environmental challenges.

The port also collaborates with our partners through the Council on Port Performance, which is made up of more than 60 companies and organizations. This group works together to identify specific solutions to maximize the port's efficiency. The port is also ISO 14001 certified. This certification, which was renewed in 2015, informs our comprehensive Environmental Management System with internationally recognized standards of excellence in environmental management.

# ENVIRONMENTAL STEWARDSHIP: IN ACTION

The Port of New York and New Jersey and its partners have invested millions of dollars to further environmental stewardship initiatives, with far-reaching results on the quality of air, land, and water within the port district and surrounding areas. Today, our port comprises cleaner ocean going vessels and harbor craft, greener cargo handling equipment, newer trucks, an expanded rail system, new and better roads, modern terminals, and restored lands.

The Port Authority of New York and New Jersey recognizes the importance of safeguarding our natural resources for those who live and work in the region. The agency goes beyond the minimum requirements set by local, state, and federal agencies, authorizing more than \$68 million in Clean Air Strategy initiatives and an additional several hundred million dollars invested in sustainable development initiatives. The port also allocates funds from grants it receives from federal agencies,

The following are the results of the port's steadfast commitment to the environment and the voluntary efforts of dedicated industry partners.

## A NEWER FLEET OF TRUCKS

- Our \$34 million Truck Replacement Program provided truck owners a financial incentive and, if needed, a low-interest loan to replace their trucks that have engines 2003 and older with newer vehicles. Results: Roughly \$8.6 million in federal grant funds have been awarded to replace 429 old trucks with newer, cleaner, and more fuel-efficient trucks. The old trucks are scrapped and permanently removed from the area's roadways.
- The port's Truck Loan and Retrofit Program provided zero percent interest financing for newer trucks that are equipped with diesel particulate filters. The filters were free. The program was funded by the Port Authority, ACCION East, and a \$750,000 grant from the U.S. Environmental Protection Agency.
- In November 2014, the Port Authority Board of Commissioners authorized an additional \$2.42 million for the Truck Replacement Program, which will allow replacement of 80 older trucks serving port terminals, providing significant environmental benefits.

## PORT INITIATIVES REDUCE AIR POLLUTANTS AND GREENHOUSE GASES



**NEWER, CLEANER, AND MORE FUEL-EFFICIENT CARGO HANDLING EQUIPMENT REPLACE OLDER ONES**



**RUBBER TIRED GANTRY CRANES OPERATE WITH ELECTRICAL POWER**



**EXPRESSRAIL REDUCES TRUCKS AND CONGESTION ON THE ROADS**

- The Truck Phase Out Plan restricts drayage trucks with engines older than 1993 from accessing Port Authority Marine Terminals. Effective January 1, 2017, only trucks equipped with 2007 emission compliant or newer engines will be granted access. A Radio Frequency Identification Device (RFID) tag and reader system ensures 100 percent compliance with Truck Phase Out Plan requirements.

### GREENING CARGO HANDLING EQUIPMENT AND RAIL

- The port's \$2.24 million Cargo Handling Fleet Modernization program reduced

emissions by replacing old equipment with new units that meet the latest emissions standards. The Port Authority provides 20 percent of the cost of the replaced equipment.

- A \$3 million program funded by the Port Authority, federal grants, and one switch locomotive owner installed Generator Set technology on switcher locomotives (railroad locomotives used to move railroad cars to assemble and disassemble trains), thereby replacing a single large older diesel engine generator with a set of three smaller clean-burning diesel generators. Retrofit of a second switcher locomotive is under way with

completion expected in early 2016. Clean Air Strategy partner, the NJ Department of Environmental Protection, has retrofitted three additional switcher locomotives to Generator Set technology.

### EXPANDING OUR RAIL SYSTEM

- The port's \$600 million program to expand the on-dock ExpressRail system reduces trucks and congestion on the roads. When completed, ExpressRail will have the capacity to handle 1.7 million cargo containers annually. For every container placed on a rail car, 1.5 truck trips and the emissions they generate are eliminated.

- The Port Authority's \$80 million ExpressRail overpass and flyover construction projects eliminate truck congestion caused by trains moving cargo into and out of the port. To date, a rail overpass at the Elizabeth-Port Authority Marine Terminal and a truck flyover in Port Newark have been completed.

- The \$100 million Enhanced Cross Harbor Rail Freight Program will reduce freight trucks on the George Washington Bridge. The program provides an enhanced corridor for the movement of goods between Port Jersey and Brooklyn via water rather than highways.

## PORT INCENTIVE PROGRAMS DECREASE POLLUTANTS THAT ENTER OUR WATERS



**THE CLEAN VESSEL INCENTIVE PROGRAM ATTRACTS THE CLEANEST SHIPS TO OUR PORT.**



**SHORE POWER CAPABILITY ENABLES CRUISE SHIPS TO SHUT DOWN THEIR DIESEL GENERATORS AT BERTH.**



**STATEN ISLAND FERRIES WERE RETROFITTED WITH NEW EXHAUST EMISSION REDUCTION DEVICES.**

### CLEANER OCEAN GOING VESSELS

- The \$6.36 million Ocean-going Vessel Low-Sulfur Fuel Incentive program reimbursed ocean carriers 50 percent of the difference between conventional bunker fuel and low-sulfur fuel at 0.2 percent sulfur content. To qualify, ships must also have participated in vessel speed reduction (VSR), limiting their speed to 10 knots on inbound and outbound transits. The Port Authority provided over \$340,000 in incentives to over 700 vessels that participated in this program.
- The Clean Vessel Incentive (CVI) Program is a \$4.875 million program designed to

attract the cleanest ships to our port. CVI provides a financial incentive to ships based on the World Port Climate Initiative Environmental Ship Index (ESI) score they achieve. Vessels that participate in VSR earn an additional five points, and vessels with Tier 2 and Tier 3 engines receive additional financial rewards. In its first two years, CVI provided \$2.25 million in incentives to nearly 1,200 qualifying vessels and achieved estimated annual emission reductions totaling 182.2 tons of nitrogen oxide, 38.3 tons of particulate matter, and 264.1 tons of sulfur dioxides.

- The \$19.3 million project to install shore power capability at the Port Authority's Brooklyn Cruise Terminal will enable

cruise ships to shut down their diesel generators while at berth and plug into shore side electricity. When shore power goes on line in 2015, it is expected to result in annual emissions reductions of 1,500 tons of greenhouse gases, 95 tons of nitrogen oxide, 93 tons of sulfur dioxide, and 6.5 tons of particulate matter, all of which will result in roughly \$9 million in annual health effect benefits for local residents.

- Cleaner tugs and high-speed ferries now traverse the Hudson River. In partnership with NY City Department of Transportation and the NJ Clean Cities Coalition, 26 old engines were replaced with newer, cleaner more fuel efficient units on several

private ferries, tugs, and harbor craft. In addition, 31 harbor craft were retrofitted with diesel oxidation catalysts.

### MODERNIZING TERMINALS

- Port tenants continue to install electric cranes and electronic gates, while extending gate hours to reduce idle times. They also transitioned to ultra low-sulfur fuel for off-road equipment more than two years before such measures were required by federal regulations.
- The Port Authority purchased and is redeveloping Greenville Yards, a century-old rail yard in Jersey City, NJ. The new

## THE PORT IS RESTORING THE REGION'S GREEN SPACES AND HABITATS



**DREDGE MATERIALS FROM THE PORT'S HARBOR DEEPENING PROJECT RESTORE LANDS AND CAP BROWN FIELDS.**



**THE HUDSON RARITAN ESTUARY RESOURCES PROGRAM PROVIDES PUBLIC ACCESS WHILE PRESERVING OPEN SPACE AND WETLANDS.**



**INVESTMENTS IN WATERFRONT PARKS BENEFIT THE LOCAL COMMUNITY AND THE ENVIRONMENT.**

terminal will remove up to 360,000 trash trucks annually from trans-Hudson crossings and New Jersey highways by transporting New York City's sealed containerized solid waste and other commodities by barge and rail.

### NEWER, BETTER ROADS

- In 2009, the Port Authority constructed a rail facility at Corbin Street to serve Port Newark Container Terminal (PNCT). In May 2013, the Port Authority completed construction of a flyover that links the PNCT with the Corbin Street facility, providing a dedicated conduit by which the PNCT operator can move containers

to rail without transiting port roadways, thus reducing congestion and associated idling emissions.

- The Port Authority will invest \$400 million over the next 10 years to realign, widen, and improve key roadways at the port. These projects also serve to reduce congestion and associated emissions.

### RESTORING OUR LANDS

- The Port Authority's \$120 million Harbor Estuary Resources Program preserves and protects land in New York and New Jersey. Since it was started in 2001, nine properties in New York City and nine in New Jersey, (totaling more

than 394 acres), have been protected, providing wildlife with woodlands and wetlands necessary for survival, and the public with new park lands.

- The Port Authority spearheaded the effort to obtain a special authorization for the reuse of clean dredge material from the port's Harbor Deepening Project to restore regions along the harbor. As a result, several severely eroded marsh islands in Jamaica Bay, NY, have now been restored.
- The Port Authority is a key sponsor of U.S. Army Corps of Engineers' Hudson-Raritan Estuary Ecosystem Restoration Feasibility Study, which provides a comprehensive strategy for coordinated restoration and

habitat improvements. Projects within the Port District include Jamaica Bay and the Lower Passaic.

- The Port Authority has provided financial support for research efforts, including the New York Academy of Science for its Industrial Ecology Study, the Contaminant Assessment and Reduction Program, the New Jersey Marine Science Consortium, and the Institute of Marine Coastal Sciences. These research efforts help to determine sources of contaminants in the estuary and ways to prevent them, as well as to provide key innovations needed to support marine industries and strengthen efforts to protect marine and coastal environments.

As the third largest port in the nation and the largest port on the East Coast, the Port of New York and New Jersey serves as an industry leader in designing and implementing initiatives that reduce emissions, decrease water pollutants, and protect natural habitats.

But environmental leadership is more than a set of policies and initiatives. It's ensuring that goals are met. That is why the port monitors and reports the results of our efforts to the public.

As shown in the table on the right, 2012 criteria air pollutant (CAP) emissions decreased across the full spectrum of pollutants when compared to those of 2006. The average decrease was 27.5 percent in tons/year and 33 percent when calculated in tons/million TEU, despite an 8.6 percent increase in cargo volume at the port.

## TOTAL PORT-RELATED EMISSIONS COMPARISON 2006 – 2012

<b>CRITERIA AIR POLLUTANT (CAP)</b>	<b>CHANGE %</b>
NOx	28% decrease
PM10	34% decrease
PM 2.5	33% decrease
VOC	7% decrease
CO	13% decrease
SO2	56% decrease
CAP (Ave)	25% decrease
Cargo Volume (TEU)	8.6% increase
CAP/TEU (Ave)	31% decrease
Green House Gases (CO2 Eq)	11% decrease

## ENVIRONMENTAL STEWARDSHIP:

# REPORTING OUR RESULTS

At the Port of New York and New Jersey we measure the success of our environmental initiatives. Despite record increases in cargo volume, today's port continues to experience reductions in port-related air emissions due to its Clean Air Strategy programs and sustainable development initiatives.

### CLEAN AIR STRATEGY REPORT

The Clean Air Strategy lays out practical actions that the port and industry stakeholders can take to reduce diesel and greenhouse (GHG) emissions. The Clean Air Strategy Implementation Report, published in December 2013, identified key markers. It notes that since 2009, when the last Clean Air Strategy was published, 80 percent of the near term/committed actions were completed or under way. It also stated that substantial emission reductions were achieved across the full spectrum of criteria pollutants when comparing the 2010 emissions inventory, the latest available inventory, with the 2006 baseline inventory.

### MULTI-FACILITY EMISSIONS INVENTORY

Emissions are reported in the agency's Multi-Facility Emissions Inventory, which began in 2006 (the inventory baseline). The 2012 Multi-facility Emissions Inventory comprises total emissions from port-related sources, including ocean-going vessels and harbor craft, cargo handling equipment, trucks, and railroads serving the Port Authority marine terminals.

These reports and others are available on our website at

<http://www.panynj.gov/about/port-initiatives.html>