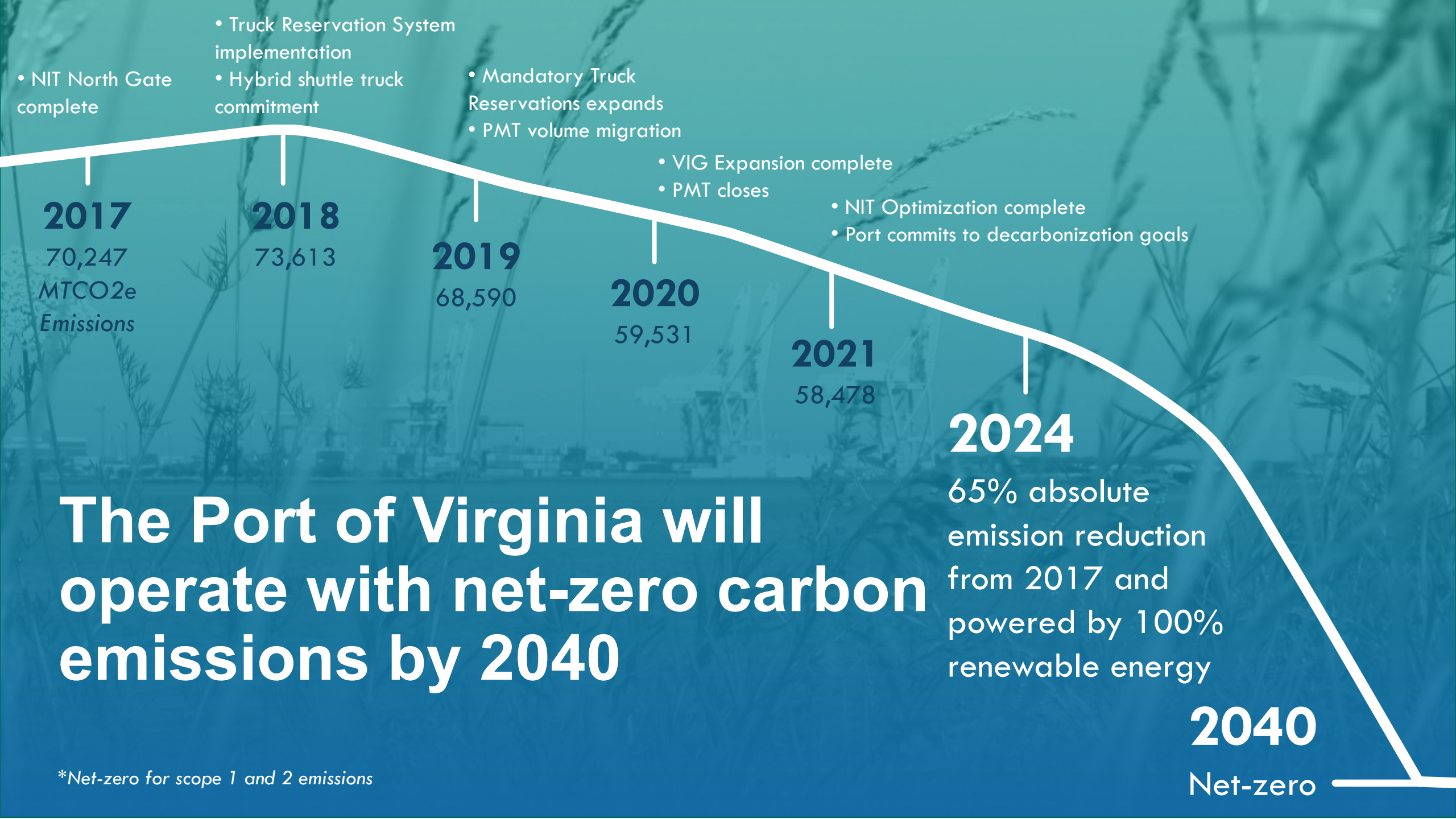




Getting the Port to Net-Zero by 2040

Scott Whitehurst,
Environmental Director
April 17, 2023





2017
70,247
MTCO₂e
Emissions

2018
73,613

2019
68,590

2020
59,531

2021
58,478

2024

65% absolute
emission reduction
from 2017 and
powered by 100%
renewable energy

**The Port of Virginia will
operate with net-zero carbon
emissions by 2040**

2040

Net-zero

*Net-zero for scope 1 and 2 emissions

Decarbonization Commitments



2024

65% absolute reduction in green house gas emissions from 2017



2024

Power port operations with 100% clean energy

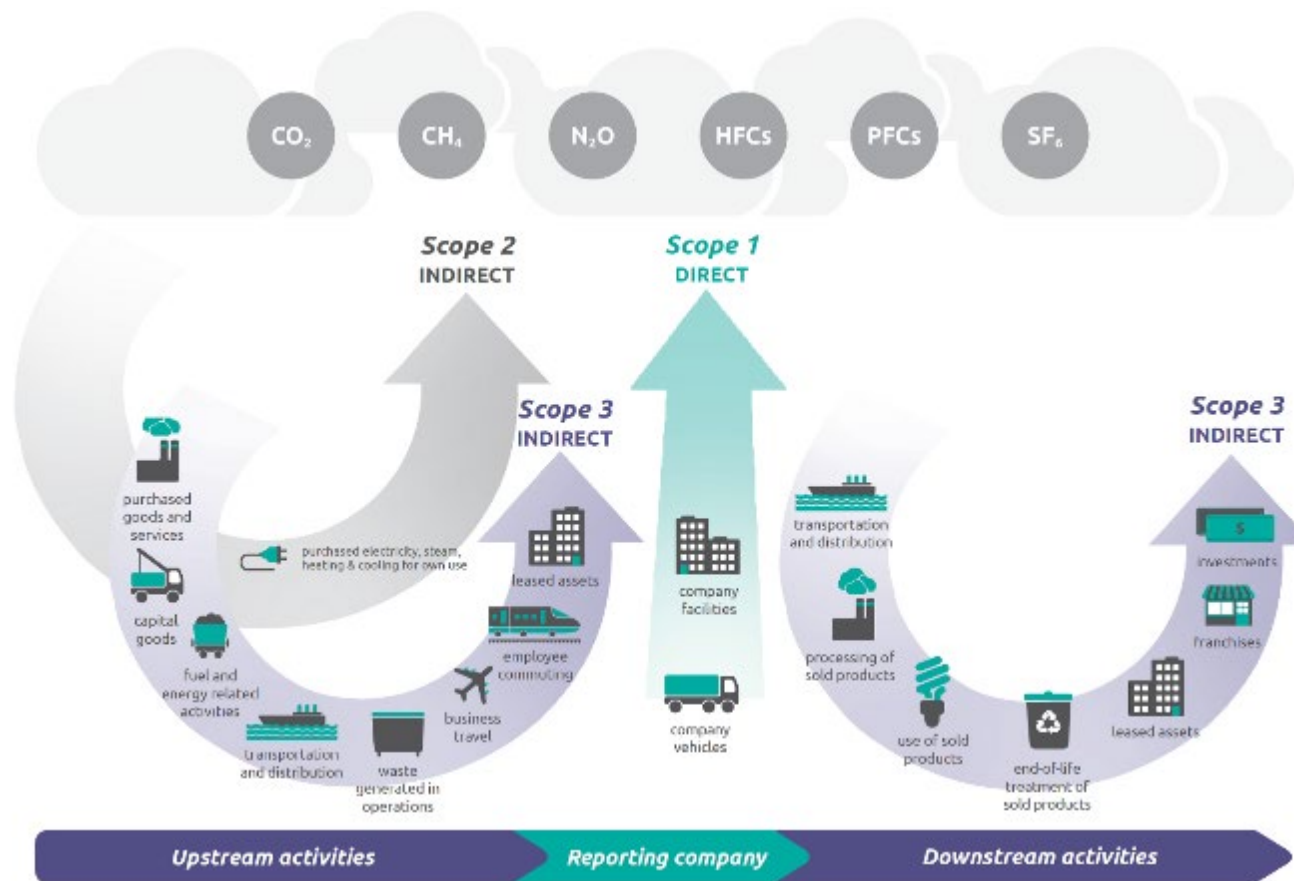


2040

Net zero carbon emissions

Green House Gas Emissions Sources

GHG sources are classified into 3 “scopes”



For The Port of Virginia



Scope 1



Direct emissions from port owned or operated assets (tailpipe emissions)

- Buildings
- Shuttle and straddle carriers
- Yard tractors
- Forklifts
- Fleet vehicles
- Sequestration Projects

Scope 2



Indirect emissions from the generation of purchased energy from a utility provider (emissions from electricity purchased from power grid)

Scope 3



Indirect emissions that occur in the value chain of the company, both upstream & downstream

- Trucks
- Rail
- Marine vessels
- Tenant and stevedore equipment
- Water/Sewage treatment
- Employee commuting
- Business Travel
- Purchased goods

Electrification of Container Yard



**4,000' Wharf
(1,219M)**
Aggregate Length

50' (15.24m)
Berth & Channel
Access

30
Truck Gate
Lanes

56
RMG
Cranes

1,212
Reefer
Plugs

28
Semi-Automated
Stacks

12 STS Cranes
Super Post
Panamax

19,000'
Rail Track
Servicing
CSX & NS



Hybrid Shuttle Carriers



- The port started replacing diesel straddle carriers with hybrid shuttle carriers in 2015
- We currently have 100 hybrid shuttle carriers in operation
- Hybrid shuttle carriers provide a 90% reduction in NOX and a 50% reduction in diesel



Electric Yard Hustlers



- The port received four new Mafi T30e electric yard hustlers in December 2022 which are currently in operation at NIT
- Each unit is currently in operation for 12 hours/day



Power Purchase Agreements



- Currently operating on 69% clean power
- Power Purchase Agreement with Dominion Energy to supplement their renewable portfolio standard projects with 5 dedicated solar projects across the Commonwealth
- 100% Renewable Energy Rider for the Virginia Inland Port (VIP) through Rappahannock Electric Cooperative powered by Virginia based solar facilities owned by Old Dominion Electric Cooperative.

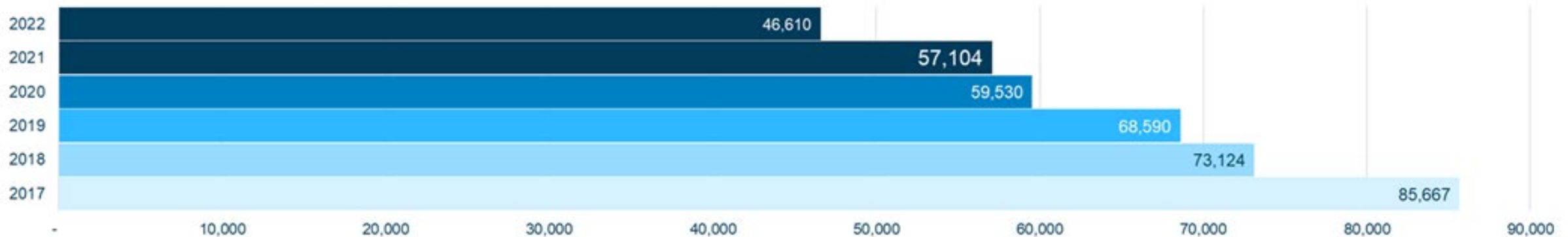


POV Total CO2e Emissions



58% reduction of scope 1 & 2 emissions since 2017

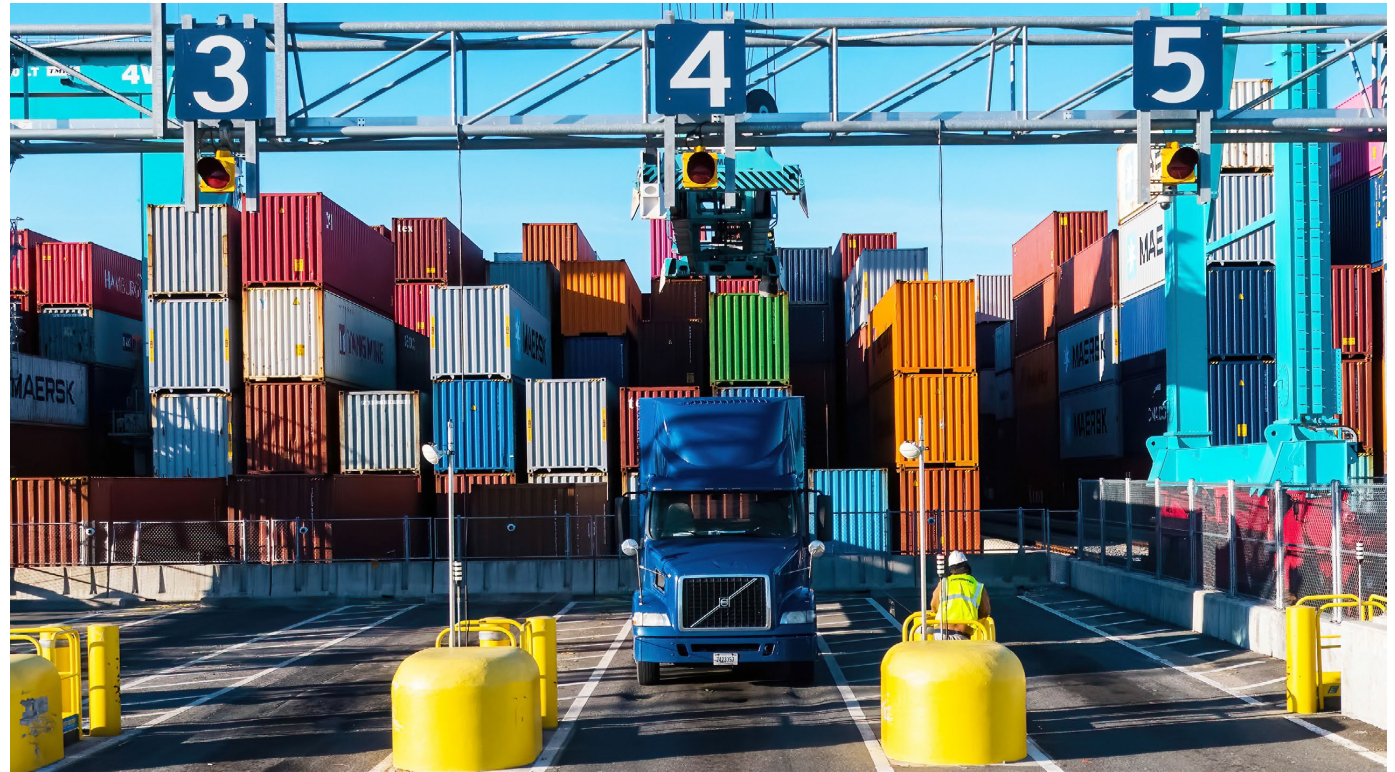
Total CO2e Tons



Truck Reservation System & Green Operator Program



- Improved turn times from our truck reservation system have reduced over 160,000 truck idling hours on our terminals
- Our longstanding Green Operator Program has reduced emissions by incenting the replacement of over 400 older model diesel trucks in 2022.
- Updating the program to include new Zero-Emission engines this fall.



Barge Service to Richmond Marine Terminal



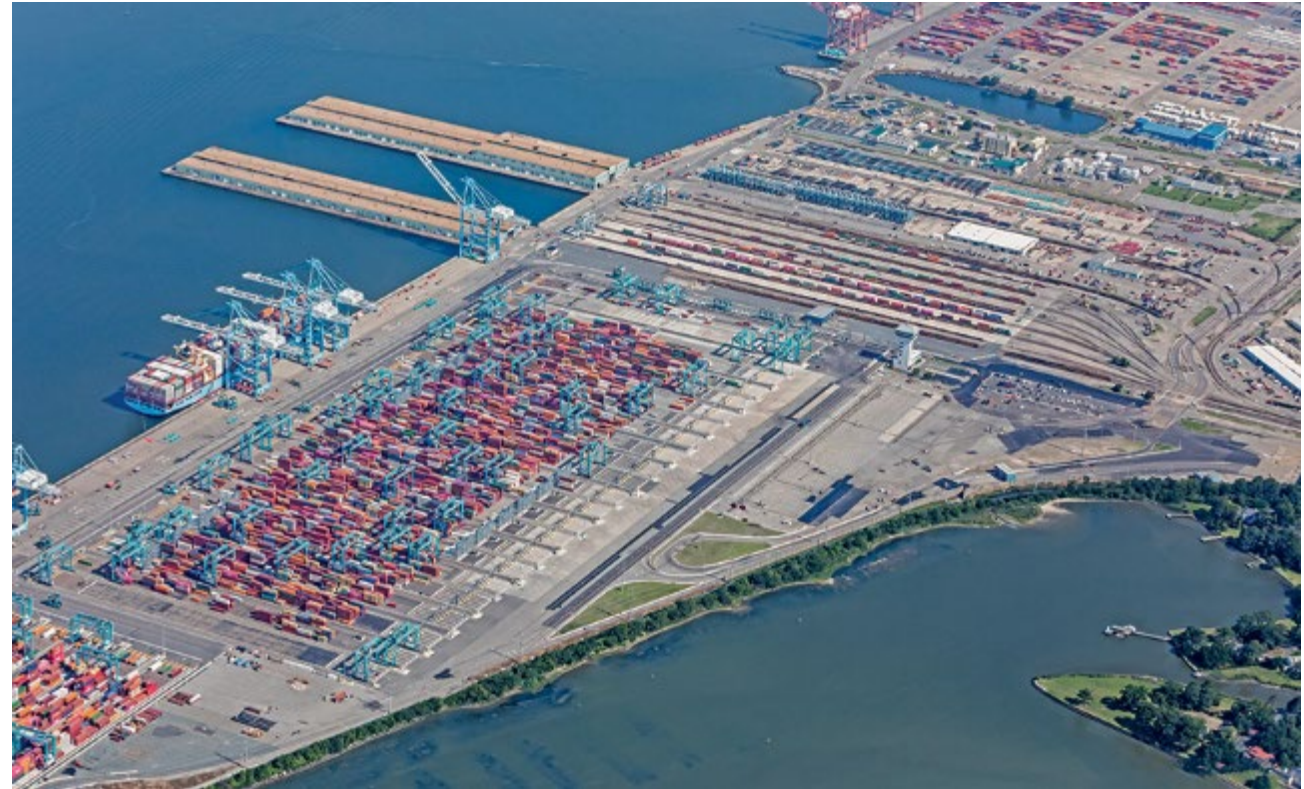
- Since 2017, the port has increased container moves by barge by 67%.
- Each barge trip saves more than 10,000 truck miles on Virginia's highways.
- Using barges results in 35% less oxides of nitrogen and 60% less CO2 emissions as compared to moving freight by truck.
- 660,000 truck trips since we started this service.



Living Shoreline



- The Port of Virginia has completed the design of its NIT Living Shoreline Project
- Construction to restore 3600 linear feet of native wetland grasses, oyster reefs, and native plantings will begin in 2023



Beneficial Reuse of Dredge Material



- Regular dredging of our channels prevents vessel idling offshore
- During our recent deepening and widening of Thimble Shoals Channel we partnered with the Cities of Norfolk and Virginia Beach to beneficially reuse the dredge material to replenish their beaches





Portsmouth Marine Terminal

The Wind Energy Hub of the Future



Sustainability Certificate Program



- Have established a 6 week Sustainability Certificate Program in partnership with Virginia Wesleyan
- 23 colleagues completed the program in September 2022
- Next program cohort begins in May



Clean the Bay Day



- Colleagues & partners participate annually in the Chesapeake Bay Foundation's Clean the Bay Day
- Averaging 50 volunteers and the collection of 10,000 pounds of waste from two sites along the Elizabeth River.



Alignment of Port Actions to Sustainability Goals



Climate Action

- Increase use of clean energy
- Facilitate offshore wind hub development
- Reduce fossil fuel consumption
- Expand use of alternative technology

Life Below Water

- Build and monitor oyster reefs
- Design & build a shoreline restoration project

Industry, Innovation, and Infrastructure

- Create gate efficiencies
- Expand use of alternative technology
- Barge and rail service to inland ports
- Beneficial reuse of dredged materials

The Road to Carbon Neutrality by 2040



- 58% of shuttle and straddle carriers are hybrid
- 33% of all equipment are electric
- 100% clean energy by 2024, **currently at 69% clean energy**
- Gate efficiencies and reservation system automation
- Richmond marine barge service reduces truck vehicle miles traveled
- Portsmouth Marine Terminal Offshore Wind Hub
- Pilot programs bringing lower emitting equipment to Port operations
- Undertaking comprehensive GHG emissions inventory