



STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION

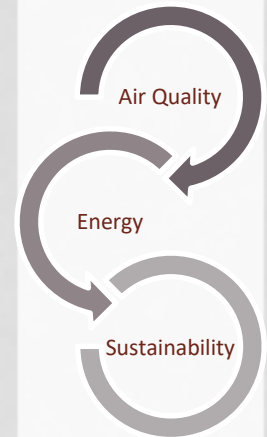


DIVISION OF AIR QUALITY

AIR QUALITY, ENERGY, AND SUSTAINABILITY

CARGO HANDLING EQUIPMENT REGULATORY CONCEPTS

BUREAU OF MOBILE SOURCES



Stakeholder Meeting - September 16, 2020

OVERVIEW

- Concepts we are considering
- Types of cargo handling equipment
- CARB's regulations
- Answer questions and discuss issues



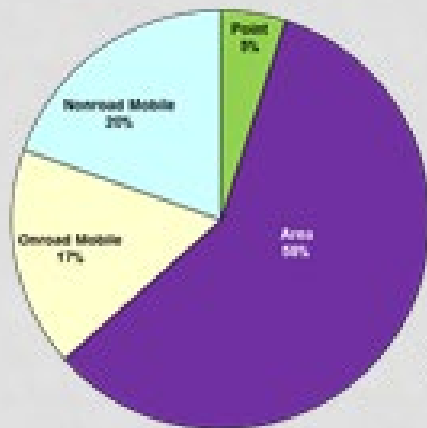
POLLUTION IMPACTS

Adverse health effects in surrounding communities at much higher rates:

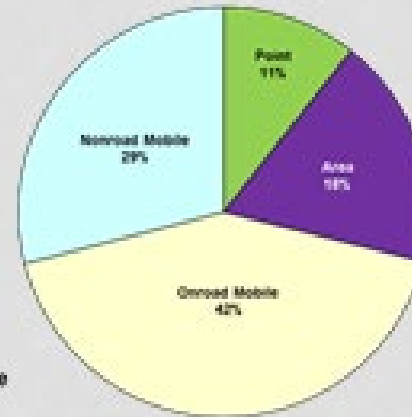
- Premature mortality.
- Increased hospitalization rates for heart and lung disease.
- Increased cancer risk.
- Increased respiratory symptoms for sensitive populations.

CONTRIBUTION OF MOBILE SOURCES TO AIR POLLUTION

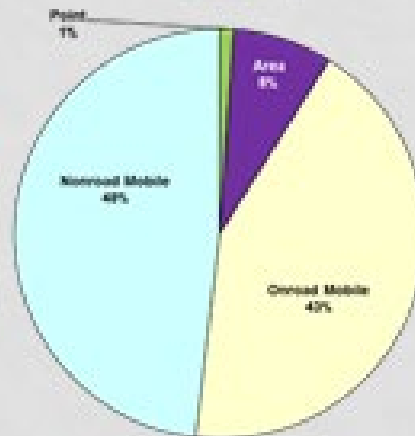
**New Jersey 2017 Volatile Organic Compounds
Projected Emissions Inventory
Tons Per Year**



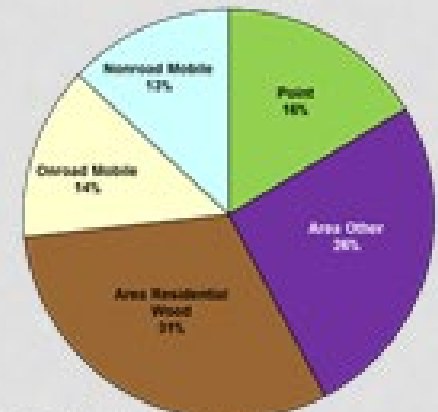
**New Jersey 2017 Nitrogen Oxides
Projected Emissions Inventory
Tons Per Year**



**New Jersey 2017 Carbon Monoxide
Projected Emissions Inventory
Tons Per Year**



**New Jersey 2017 Fine Particulate Matter
Projected Emissions Inventory
Tons Per Year**



Note:
Area Source fugitive dust emissions are not adjusted

CARGO HANDLING EQUIPMENT AT MARINE TERMINALS

Yard/terminal tractor



Rubber tire gantry crane



Container handlers



Straddle carrier



Reach stacker



Forklift



CARB

EXISTING CHE REGULATIONS

All diesel-fueled equipment used at a port or intermodal rail yard to lift or move containers, bulk or liquid cargo.

- Adopted December 2005
- Effective December 2006
- Applies to new and in-use equipment

Equipment Type	Option 1	Option 2	Start of Phase In	Compliant by
New Yard Truck	certified on-rd engine meeting the current engine emission standards OR certified Tier 4f off-road		2007	2017
New Non-Yard Truck Equipment	certified on-rd engine meeting the current engine emission standards OR certified Tier 4f off-road	If option 1 is not available, verified diesel emission control strategy must be installed within 1 yr.	2007	2013
In-use Yard Trucks	Meet BACT performance stds through accelerated turnover of older trucks to those equipped with certified engines meeting current on-road engine emission standards or Teir 4f off-road stds.	Compliance phase in for owners and operators who have more than 3-yard trucks in their fleet	2007	2017
In-use Non-Yard Trucks	Meet BACT per a phased compliance schedule. Includes replacement to cleaner on-rd or off-rd engines and/or the use of retrofits.		2007	2013

CARB

PROPOSED CHE AMENDMENTS

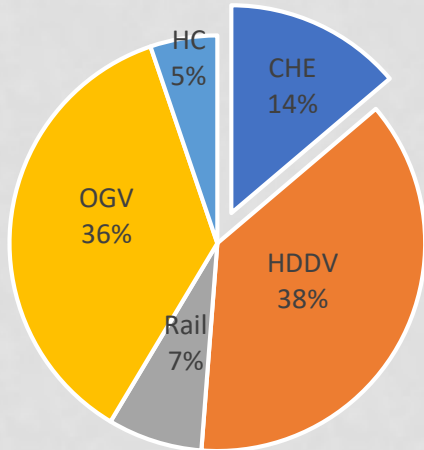
- All CHE transition to zero emissions
- Amendments propose phase in for new equipment as well as infrastructure

Equipment Type	Proposed amendment	Board Consideration	Proposed Compliance Start	Proposed Completion Date
All mobile equipment	Located at ports and railyards. *Considering warehouses	2022	2026	2031

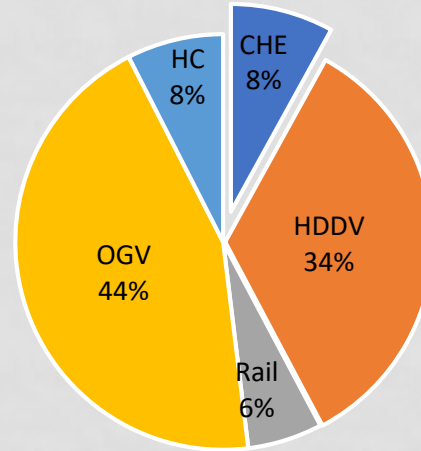
- Emission Benefits
 - Criteria pollutants
 - Air toxics
 - Greenhouse Gases

CONTRIBUTIONS AT THE PORT - CARGO HANDLING EQUIPMENT

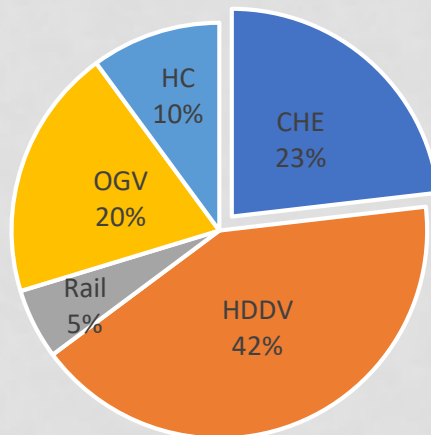
PANYNJ 2018 VOC TPY



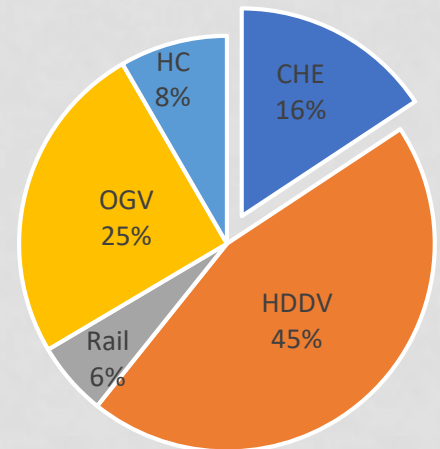
PANYNJ 2018 NOx TPY



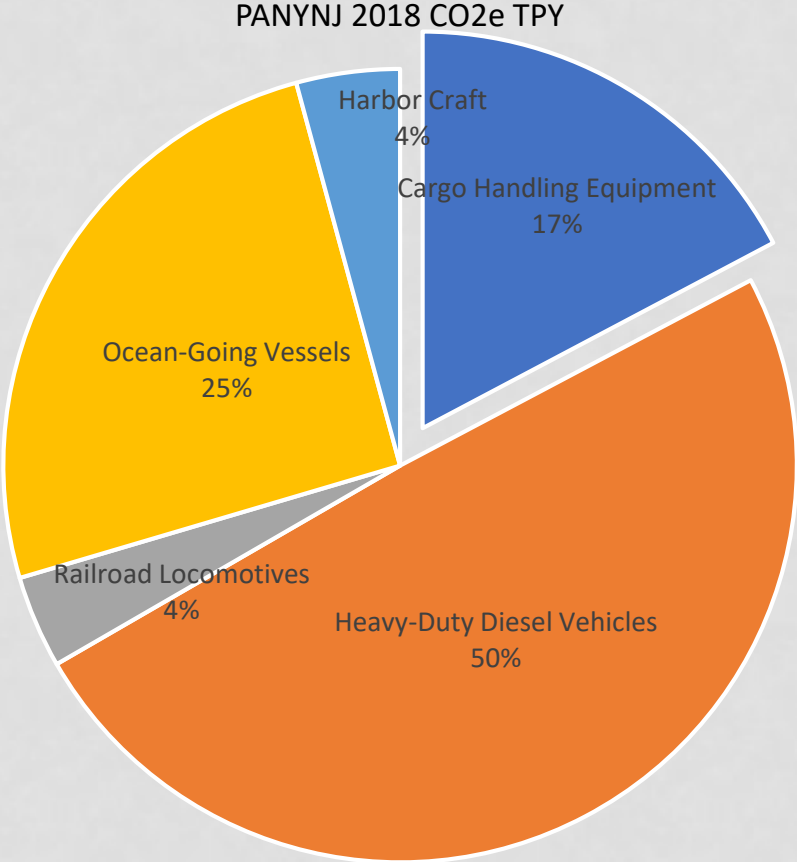
PANYNJ 2018 CO TPY



PANYNJ 2018 PM2.5 TPY



GHG FROM CARGO HANDLING EQUIPMENT



2018 PORT AUTHORITY OF NY AND NJ PORT DEPARTMENT CHE INVENTORY

Equipment Type	Count	% of Pop	Avg MY	Avg hp	Avg hrs/yr	NOx	PM10	PM2.5	VOC	CO	CO2e
Terminal Tractor	432	34.30%	2011	175	1,486	64	6	6	4	27	25,465
Straddle Carrier	371	29.50%	2011	288	2,889	172	14	14	23	91	55,331
Forklift	185	14.70%	2006	88	707	22	1	1	4	106	3,631
Empty Container Handler	64	5.10%	2009	200	2,828	52	3	2	3	12	9,245
Rubber Tired Gantry Crane	53	4.20%	2005	516	2,270	36	2	2	3	10	7,244
Loaded Container Handler	58	4.60%	2008	317	1,550	62	4	3	7	33	8,961
Reach Stacker	14	1.10%	2007	329	1,410	17	1	1	1	4	2,737
Stacker	19	1.50%	2005	275	736	15	1	1	1	4	5,487
Primary Equipment	1,196	95.00%	2010	223	1,898	441	31	30	45	287	118,100

GROUND SUPPORT EQUIPMENT AT AIRPORTS

Baggage tug



Aircraft tractor



Belt loaders



Cargo loaders



CARB

PROPOSED GSE REGULATIONS

- All GSE transition to zero emissions
- Amendments propose phase in for new equipment as well as infrastructure

Equipment Type	Proposed amendment	Board Consideration	Proposed Compliance Start	Proposed Completion Date
Airport ground support equipment (GSE)	Zero-emission airport GSE	2020	2023	2032

- Emission Benefits
 - Criteria pollutants
 - Air toxics
 - Greenhouse Gases

PORT AUTHORITY OF NY/NJ

Summary of Selected Ground Support Equipment at Newark Liberty International Airport (10/2019)

Type	Estimated #
Forklift	193
Cargo Loader	71
Baggage Tugs/Other Tugs	693
Belt Loaders	316
Tractors (aircraft tractors, other undefined tractors)	89

2017 GSE Emissions from Port Authority				
	NOx	PM10	PM2.5	CO2e
EWR	769.39	34.26	33	66,775

NJ POSSIBLE CONSIDERATIONS

- Phase in approach
 - Focus on CHE/GSE that can easily be electrified now.
 - Tier 4 for CHE where electrification is not currently an option
- CHE operations – beyond ports
 - Warehouses/distribution centers
 - Airports
 - Bulk terminals
 - Landfills

STAKEHOLDER FEEDBACK OPPORTUNITIES

Looking for feedback

- CHE regardless of location
- Define equipment type
 - CHE – yard tractors, hostlers, jockey trucks
 - GSE – baggage tug, tractor, aircraft tractor
- Technology Availability
 - Tier 4
 - Hybrid/Electric
- Return on investment
- Planning for infrastructure
- Automation

COMMENTS

Please send comments and/or technical support information to:

NJAirrulesmobile@dep.nj.gov

Subject Line of the email: Cargo Handling Equipment

By September 30, 2020