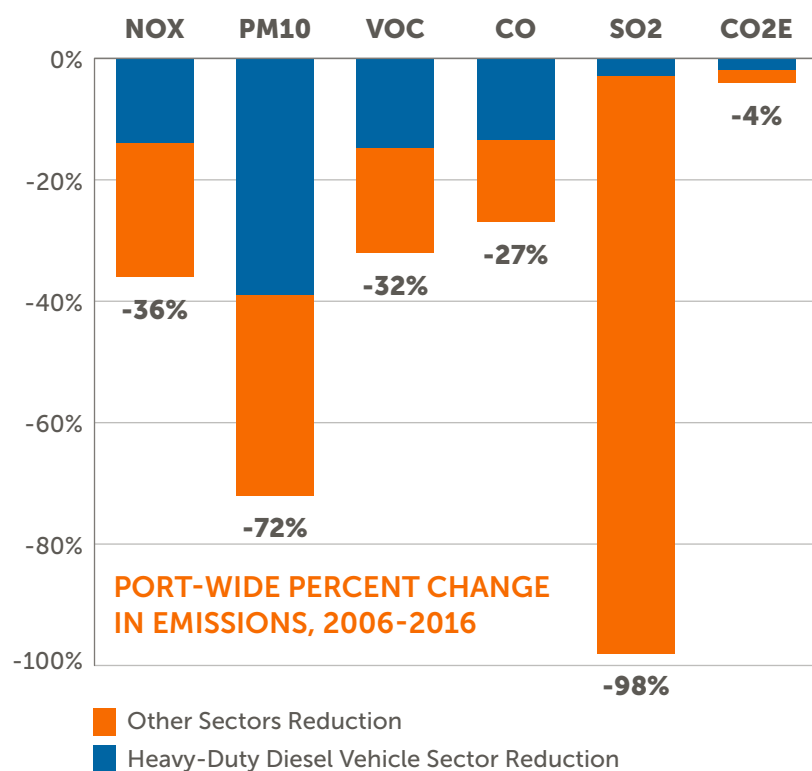


HEAVY-DUTY DIESEL VEHICLES

CONTAINER DRAYAGE TRUCKS (LONG- AND SHORT-HAUL)

PROGRESS



Truck Replacement Program

- Replaced over 500 trucks to date with model year (MY) 2007 or newer engines
- Achieved 70% reduction in NOx and 64% reduction in PM over the fleet replaced

Reduced Dependency on Trucks

- ExpressRail lifted over 4 million containers onto rail cars between 2006-2015, replacing over 6 million truck trips
- Cross harbor barge service moved over 400,000 containers between Brooklyn and Port Newark between 2006-2015, replacing over 600,000 truck trips

Truck Phase Out Program

- Jan. 1, 2011: Denied access to trucks with 1993 and older engines
- Jan. 1, 2018: Denied access to trucks with 1994 and 1995 engines
- As of Mar. 1, 2016, only trucks with 2007 or newer engines are permitted to register to serve the Port

Appointment System

- Launched in Global Container Terminal Bayonne in January 2017
- The system reduces turn time by an average of 45%

OPPORTUNITIES

Replacing older diesel vehicles with...

- Engine model year 2010 or newer diesel vehicles
- Natural gas vehicles
- Hybrid electric or plug-in hybrid electric vehicles
- Fully electric, battery-powered vehicles

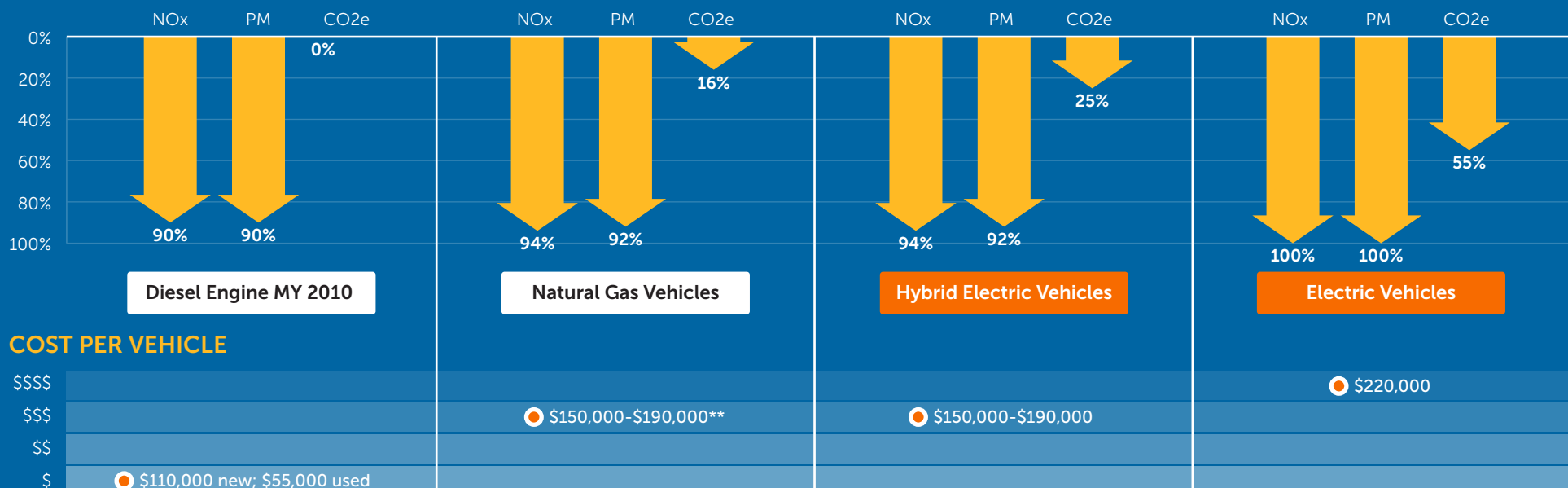
Reduce turn time with more efficient terminal operations



- Emissions can decrease 2-3% port-wide for every 10% reduction in turn time
- Appointment systems can reduce turn time

EMISSIONS REDUCTION POTENTIAL FROM ENGINE MODEL YEAR (MY) 2006 BASELINE*

Technology Status: Available Emerging



CO2e measured as well-to-wheels; all other emissions expressed as tailpipe.
* Since the average truck serving the Port is 10 years old, each emission reduction strategy is compared to a 2006 engine MY truck as the baseline, rather than the oldest engine MY available.
** Does not include infrastructure costs; LNG fueling station: \$1-4 million

SOURCES

US EPA Office of Transportation Air Quality. (2016). National Port Strategy Assessment: Reducing Air Pollution and Greenhouse Gases at U.S. Ports. Accessed 28 June 2017 from <https://nepis.epa.gov/Exe/ZyPDF.cgi?DockKey=P100PGK9.pdf>.
US DOE. (2017). "Natural Gas Fueling Infrastructure Development." Alternative Fuels Data Center. Accessed 11 Aug 2017 from https://www.afdc.energy.gov/fuels/natural_gas_infrastructure.html.

OVER 5,800 FREQUENTLY CALLING TRUCKS SERVING THE PORT HAVE ENGINES OLDER THAN 2010