

REPORT

Report: 2017 Seaport Air Emissions Inventory Summary (Engineering)

<u>MEETING DATE:</u>	10/25/2018
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SUMMARY

The Port of Oakland published its 2017 Seaport Air Emissions Inventory Final Report at the end of August 2018, following the annual emissions inventories prepared for 2005, 2012, and 2015. Periodic emissions inventories are part of the Maritime Air Quality Improvement Plan (MAQIP) Accountability, Monitoring, and Reporting program. Using periodic emissions inventories, the Port can track progress toward the MAQIP goals of an 85% reduction in Diesel Particulate Matter (DPM) emissions between 2005 and 2020, an 85% reduction in sulfur oxides (SOx) emissions between 2005 and 2020, and a 35% reduction in nitrogen oxides (NOx) emissions between 2005 and 2020.

The emissions inventories cover six major categories of air emissions sources: ocean-going vessels (OGV), harbor craft, cargo-handling equipment (CHE), on-road trucks, locomotives, and other off-road equipment. The Seaport Air Emissions Inventory draws on vessel call data, vessel movement data from the Automatic Identification System (AIS), operational data provided by Port tenants and operators, and other activity data to develop an inventory of criteria air pollutant, toxic air contaminant, and greenhouse gas (GHG) emissions for calendar year 2017. The California Air Resources Board (CARB) and the Bay Area Air Quality Management District (BAAQMD) met with the Port in January 2018 to discuss the emissions inventory protocol, and the 2017 Seaport Air Emissions Inventory uses the most recent CARB tools and methods.

The 2017 Seaport Air Emissions Inventory is included as Attachment 1 to this Report.

Major emissions reductions were achieved through the use of lower-sulfur fuel (0.1% S marine distillate oil) and shore power by OGV. The shore power plug-in rate in 2017 was 68% Portwide, including fleets that are not subject to the California Air Resources Board (CARB) At-Berth Regulation. This high usage of shore power resulted in DPM emissions reductions of 56% and GHG emissions reductions of 28% while at berth.

Since the 2005 inventory, drayage trucks with engines older than the 2007 model year have been denied entry to the Port's marine terminals. The continued implementation of the CARB Drayage Truck Regulation, which will require all trucks to have 2010 model year and newer

engines by 2023, has resulted in reductions of both DPM and NOx emissions from on-road heavy-duty trucks.

The Port's marine terminal operators and off-dock tenants have also had to retrofit and replace CHE to comply with the CARB CHE Regulation, resulting in further emission reductions at the seaport.

RESULTS

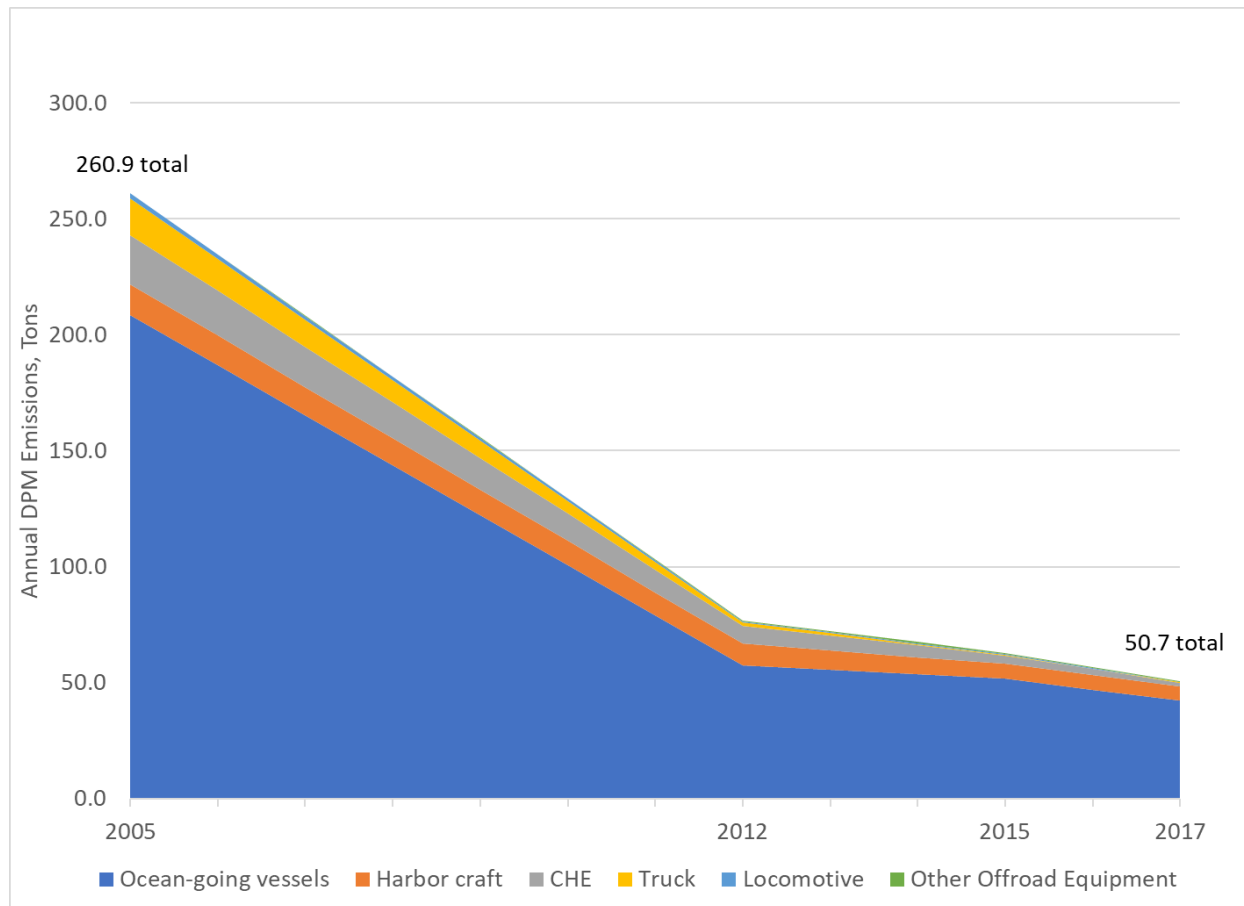
The 2017 Seaport Air Emissions Inventory summarizes emissions of criteria air pollutants, toxic air contaminants, and GHG for calendar year 2017 and compares the 2017 emissions estimates to earlier inventories. Reductions in each category are discussed below.

DPM Results

The 2017 Seaport Air Emissions Inventory shows that emissions of diesel particulate matter (DPM), a toxic air contaminant, are down 81% from 2005 levels. The emissions reductions come from all source categories: the use of low-sulfur fuel on OGV, the use of shore power while OGVs are at berth, engine repowers and replacements on harbor craft and locomotives, and turnover to cleaner CHE and on-road truck fleets. The DPM emissions reductions achieved show substantial progress toward the goal of an 85% reduction in 2020 set by the Board of Port Commissioners in 2008 in its Air Quality Policy Statement and elaborated on in the 2009 Maritime Air Quality Improvement Plan (MAQIP).

Figure 1, below, shows the trends in DPM emissions between 2005 and 2017.

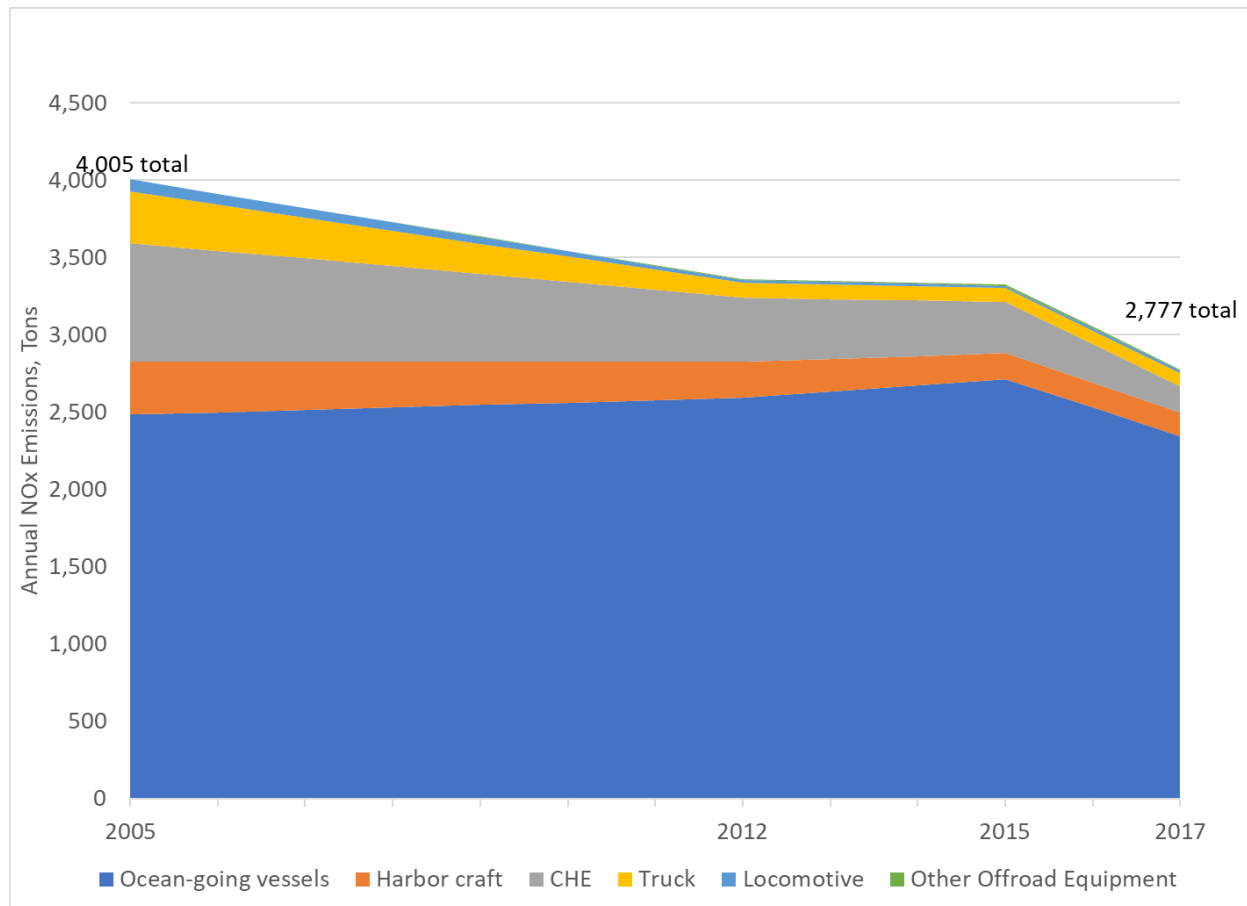
Figure 1: DPM Emissions by Source Category



NOx and SOx Results

The 2017 Seaport Air Emissions Inventory also shows that emissions of nitrogen oxides (NOx), a smog-forming criteria air pollutant, are down by 31% from 2005 levels, showing progress toward the MAQIP goal of a 34% reduction. Figure 2, below, shows the trends in NOx emissions between 2005 and 2017. The emissions inventory for 2015 reflects atypical operations, particularly of OGV. Other source categories showed a reduction in NOx emissions between 2012 and 2015.

Figure 2: NOx Emissions by Source Category



Sulfur oxides (SOx) emissions are down 91% from 2005 levels, exceeding the MAQIP goal of an 85% reduction in SOx.

NEXT STEPS

The Port continues to reduce emissions pursuant to the MAQIP, through the increased use of shorepower and turnover to cleaner equipment, and is in the process of completing the draft Seaport Air Quality 2020 and Beyond Plan. To further reduce emissions, the Port will work with tenants and stakeholders to select and implement emissions reduction measures proposed in the Seaport Air Quality 2020 and Beyond Plan.

ATTACHMENT 1

2017 Seaport Air Emissions Inventory Final Report