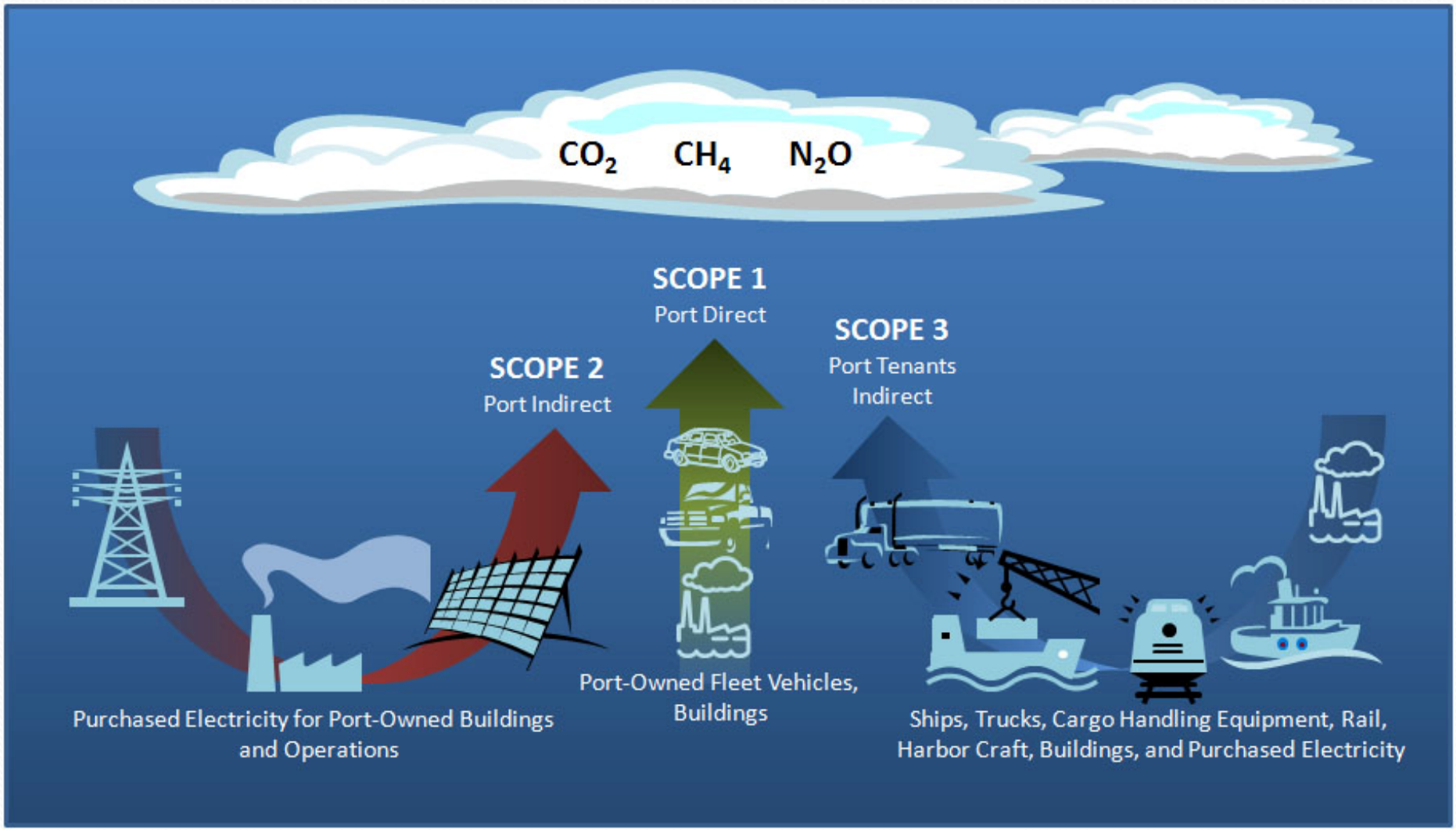
CO_2 CH_4 N_2O
SCOPE 1
Port Direct
SCOPE 2
Port Indirect
SCOPE 3
Port Tenants
Indirect
Purchased Electricity for Port-Owned Buildings and Operations
Port-Owned Fleet Vehicles, Buildings
Ships, Trucks, Cargo Handling Equipment, Rail, Harbor Craft, Buildings, and Purchased Electricity

International Highlights - Background

- IMO MARPOL Annex VI
  - 2008 MEPC 57th Meeting Results (31 Mar to 4 Apr)
    - 3-Tier NOx Engine Standards for Diesel Engines on New Ships
      - Tier I - 17 g NOx/kW-hr (1 Jan 2000)
      - Tier II - 14.4 g NOx/kW-hr (1 Jan 2011)
      - Tier III - 3.4 g NOx/kW-hr (1 Jan 2016)
    - NOx Engine Standard for Existing Ships
      - 17.0 g NOx/kW-hr (Power >5 MW & 90 l Displacement) - Ships Built 1 Jan 1990 to 1 Jan 2000

International Highlights - Background

- IMO MARPOL Annex VI
  - Proposed Draft Amendments from MEPC 57 to Annex VI & NOx Technical Code to be Submitted to MEPC 58 (October 2008) for Adoption - Unanimously Adopted
  - Revisions Would Enter Into Force in 2010
  - Work on Greenhouse Gases Scheduled for 2009 Completion w/ Presentation of Paper at the Copenhagen Conference (Dec 2009)
  - Currently Developing a "Coherent & Comprehensive Future IMO Regulatory Framework on GHG Emissions from Ships"

  - MARPOL Annex VI Has Been Ratified by 52 Countries Representing ~80% of the World Fleet's Gross Tonnage

Revised Annex VI - Impacts

- New Ship Engine Standards
  - By 2011 - New Ship Engines Will Emit ~22% Lower NOx Than Pre-2000 Built Ships (Global Transits & At-Berth)
  - By 2016 - New Ship Engines Will Emit ~81% Lower NOx Than Pre-2000 Built Ships (Global Transits & At-Berth)
  - Actual Impact on PHA Emissions Will Depend on How Fast the Cleaner Ships are Integrated Into Routes Servicing the Port

- Existing Ship Engine Standards
  - Ships Built Between 1990 & 2000 Will Have to Reduce NOx From Their Diesel Engines by ~8%
  - Implemented on Next Major Engine Service
  - No Change for Ships Pre 1990

Revised Annex VI - Impacts

- Global Fuel Cap
  - 2012 - SOx Probably No Major Reductions in Fuel Sulfur Content
  - 2020 - ~80% SOx Reduction & ~75% PM Reduction Emissions During All Transits (Global) & At Berth

- EPA is Working With Canada & Mexico on the Feasibility of a North American ECA
  - After March 1, 2010 - ~63% SOx Reduction & ~56% PM Reduction During Transit & At-Berth Within ECA
  - Starting 2015 - ~96% SOx Reduction & ~83% PM Reduciton During Transit & At-Berth Within ECA
  - ECA Designation Allows Additional NOx, PM, & SOx Controls