Fact Sheet

December 2006

California Environmental Protection Agency
Air Resources Board

Statewide Strategies to Reduce Locomotive and Associated Rail Yard Emissions

The Air Resources Board (ARB) has developed an integrated approach to reduce statewide locomotive and rail yard emissions through a combination of voluntary agreements, ARB and United States Environmental Protection Agency (U.S. EPA) regulations, funding programs, and early replacement of California's line haul and yard locomotive fleets. Below are California's key locomotive and rail yard air pollution control measures and strategies:

South Coast Locomotive NOx Fleet Average Agreement (1998): Signed in 1998 between ARB and both Union Pacific Railroad (UP) and BNSF Railway (BNSF), it requires the locomotive fleets that operate in the South Coast Air Quality Management District (SCAQMD) to meet, on average, U.S. EPA's Tier 2 locomotive emissions standards by 2010. Tier 2 locomotives became commercially available in 2005 and provide a 65 percent reduction in oxides of nitrogen (NOx) and 50 percent reduction in diesel particulate matter (PM) emissions. This Agreement will provide locomotive fleet benefits in southern California 20 years earlier than the rest of the country.

Statewide Railroad Agreement (2005): ARB and both UP and BNSF signed a voluntary statewide agreement in 2005 which does not change any federal, state, or local authorities to regulate railroads. When fully implemented, the Agreement is expected to achieve a 20 percent reduction in locomotive diesel PM emissions in and around rail yards through a required number of short-term and long-term measures:

- Phase-out of non-essential idling on all locomotives without idle reduction devices (60 minute limit);
- Install idling devices on 440 California-based locomotives by June 30, 2008 (15 minute limit);
- Identify and expeditiously repair locomotives with excessive smoke and ensure that at least 99 percent of the locomotives operating in California pass smoke inspections;
- Require all locomotives that fuel in the state use at least 80 percent federal or California ultra low sulfur (15 parts per million) diesel fuel by January 1, 2007, (six years prior to federal requirement);
- Prepare new health risk assessments for 16 major rail yards, based on the UP Roseville Rail Yard health risk assessment (completed in 2004) and Office of Environmental Health Hazard Assessment (OEHHA) guidelines; and
- Identify and implement future feasible mitigation measures based on the results of the rail yard health risk assessments,

The public has numerous opportunities for involvement. The ARB, UP, and BNSF have committed to a process of outreach and communication with the local communities and air districts affected by the operations at the 17 major rail yards:

- Under the Statewide Railroad Agreement, UP and BNSF have established toll-free systems to enable local residents to report locomotives that do not comply with smoke limits or idling restrictions (UP: 1-888-877-7267 BNSF: 1-800-832-5452);
- Periodic meetings with local communities and air districts to identify measures to reduce the impacts of rail yard emissions on adjacent residential neighborhoods are held;
- Meetings with local communities and air districts on the results of the draft railyard health risk assessments and to discuss future mitigation measures are planned; and
- Semi-annual meetings to discuss ongoing efforts to develop and deploy new technologies to reduce locomotive emissions will be held.

ARB Diesel Fuel Regulations Extended to Intrastate Locomotives (2007): This regulation, approved in 2004, requires intrastate locomotives that operate 90 percent of the time in the state to use only California ultra low sulfur (15 parts per million) diesel fuel. This diesel fuel provides on average a six percent reduction in NOx and 14 percent reduction in diesel PM emissions. The regulation takes effect January 1, 2007.

ARB Cargo Handling Equipment Regulations (2007): This regulation, approved in 2005, requires the control of emissions from more than 4,000 pieces of mobile cargo handling equipment, such as yard trucks and forklifts that operate at ports and intermodal rail yards. This regulation is expected to reduce diesel PM and NOx emissions by up to 80 percent by 2020. The regulation takes effect January 1, 2007.

U.S. EPA Locomotive Emission Standards: Under the Federal Clean Air Act, U.S. EPA has sole authority to adopt and enforce locomotive emission standards. This federal preemption also extends to the remanufacturing of existing locomotives. The ARB has been encouraging the U.S. EPA to expeditiously require the introduction of the next generation or Tier 3 locomotive emission standards. ARB supports the introduction of Tier 3 locomotives built with diesel particulate filters and selective catalytic reduction, which combined, are expected to provide up to a 90 percent reduction in NOx and PM emissions. U.S. EPA is in the process of developing the draft Tier 3 rulemaking for release by early 2007. The final regulations are expected to be approved by early 2008.

ARB Goods Movement Emission Reduction Plan (GMERP): Approved in 2006, the GMERP provides goods movement emissions growth estimates and proposed strategies to reduce emissions from ships, trains, and trucks and to maintain and improve upon air quality. Based largely on the strategies discussed, one of the goals of the GMERP is to reduce locomotive NOx and diesel PM emissions by up to 90 percent by 2020.

California Yard Locomotive Replacement Program: One locomotive strategy identified in the GMERP is to replace California's older yard locomotives (about 800) that operate in and around rail yards statewide. Yard locomotives represent about five percent of the statewide locomotive NOx and diesel PM emissions, mostly occurring in rail yards located in densely populated urban centers. Multiple nonroad engine (gen-set) and electric-hybrid yard locomotives have demonstrated they can reduce NOx and diesel PM emissions by up to 90 percent. In January 2006, UP ordered 60 gen-set and 10 electric hybrid yard locomotives for deployment in southern California by 2007. BNSF has been operating four liquefied natural gas (LNG) yard locomotives in downtown Los Angeles since the mid-1990s.

For Information on California's locomotive emission reduction strategies, and details on locomotive emission control technologies for line haul and yard locomotives, please visit: http://www.arb.ca.gov/railyard/ & http://www.arb.ca.gov/msoffroad/locomotive/locomotive.htm. For information on the Goods Movement Emission Reduction Plan please visit: http://www.arb.ca.gov/gmp/gmp.htm.

You may obtain this document in an alternative format by contacting ARB's ADA Coordinator at (916) 323-4916 (voice); TTY/TDD/Speech-to-Speech users may dial 7-1-1 for the California Relay Service.