SECTION 10  LOOKING FORWARD

10.1 Anticipated Impacts of Control Programs on Emissions in 2010

As presented in this 2009 EI report, the Port-related mobile source emissions have continued to decrease over the last several years in part due to the reduced cargo throughput (reflective of global economic conditions) as well as the implementation of the CAAP and regulatory programs affecting these sources. For 2010, the trend in TEU throughput is expected to reverse and show an increase compared to 2009 as evidenced from the TEU throughput levels in the first quarter of 2010. Although the anticipated increase in throughput level in 2010 may offset some of the emissions reductions seen in 2009, the implementation of the CAAP measures and regulatory programs will continue to provide emissions benefits in 2010 and later years.

The following is a brief description of the anticipated impacts of control programs and measures in 2010 for each category, which will result in further reduction of emissions from these port-related sources:

**OGV**

In 2010, continued implementation of the CAAP measures including the increased use of shore power for vessels at-berth and the expansion of the Port’s vessel speed reduction program to 40 nm will result in significant emission benefits. In addition, CARB’s marine fuel regulation requiring the use of lower sulfur fuel (0.5% sulfur) in main and auxiliary engines and auxiliary boilers within 24 nm of the California coastline, which became effective on July 1, 2009 will be in full effect in 2010 resulting in substantial reductions in DPM and SO\textsubscript{x} emissions and to a smaller extent in NO\textsubscript{x} emissions. In addition, the trend toward newer vessels complying with new IMO standards and incorporating emission reduction technologies (e.g., slide valves) is expected in 2010 to continue offering additional emission benefits.

**Harbor Craft**

Under CARB’s regulation for commercial harbor craft, in-use, newly purchased, or replacement engines in ferries, excursion vessels, tug boats and tow boats must meet EPA’s most stringent emission standards per a compliance schedule set by CARB for in-use engines and from new engines at the time of purchase. For harbor craft with home ports in the SoCAB, the compliance schedule for in-use engine replacements begins in 2010 with the oldest model year engines (1979 and earlier). In addition, depending on the availability of state and federal incentive funding in 2010, existing older engines could be replaced with newer engines in advance of CARB’s regulation for affected engines or in vessels not subject to CARB’s regulation (e.g., crew boats, work boats).
CHE
In 2010, implementation of the CAAP measure for CHE and CARB’s in-use CHE regulation will result in continued emissions benefits due to the replacement of existing older equipment with newer and cleaner equipment powered by on-road engines or Tier 3 off-road engines. In addition, successful demonstration of electric-powered CHEs (e.g., RTGs, yard tractors) is expected to result in increased use of these units and additional emission reductions.

Rail
The 1998 MOU among the Class 1 railroads (UP and BNSF), CARB, and EPA requires the accelerated introduction of cleaner locomotives in SoCAB. Specifically, the MOU requires BNSF and UP to achieve fleet-wide average emission rates meeting EPA’s Tier 2 emission standards for their locomotives operating in SoCAB by 2010. The averaging provisions included in the MOU, which allow the railroads to average line haul and switching emissions to achieve the Tier 2 average, mean that the line haul locomotives may not average Tier 2 emission levels. However, additional reductions from line haul locomotives and off-port switcher locomotives are anticipated from implementation of the MOU in 2010.

HDV
Under the Port’s Clean Truck Program (CTP), following the first phase of the progressive ban of older trucks operating at the Port (banning pre-1989 trucks from port service) in October 2008, the second phase of the CTP will be implemented in 2010. Specifically, as of January 1, 2010, all 1989-1993 model year trucks as well as the non-retrofitted 1994-2003 model year trucks (i.e., not achieving CARB Level 3 PM reduction plus 25% NOx reduction) will have been banned from port service. Implementation of the CTP has already resulted in significant emissions reductions due to early turn-over of older trucks with newer trucks which will continue in 2010 under phase 2 of the CTP. The Port will continue the efforts to increase the population of alternatively-fueled trucks serving the Port.

The 2010 EI will reflect the Port’s actual throughput level in 2010 and the net emissions benefits associated with these programs and strategies. In addition, consistent with the Port’s EI development process, the latest available emission factors and methods as well as methodological improvements will be incorporated in the 2010 EI.
10.2 Future Improvements to Emissions Inventory Methodologies

This subsection describes the proposed improvements to methodologies for estimating emissions in future inventories, by category.

OGV

Improvements to the methodology to estimate OGV emissions will be considered in at least two areas: 1) engine modification technologies incorporated in new engines as standard practice and installed as retrofits in existing vessels. The ports will work with engine manufacturers and shipping companies, and through the TWG process, to further refine the emissions benefits associated with slide valves (new engines and retrofits) as well as other technologies being implemented; 2) in an effort to continue to improve the auxiliary engine loads by vessel mode, a new approach will be considered, in consultation with TWG, based on VBP reported auxiliary loads (actual power of the engine used), by vessel class and by mode instead of using the average installed auxiliary engine power adjusted by applying load factor by vessel class and mode. Under the new approach, default loads for auxiliary engines by operating mode will be based on the average of loads for each vessel subclass recorded for vessels boarded. Load Factors will no longer be used as installed power, as this is not a scalable variable by vessel owner and class, which may result in potential over/under estimates of auxiliary engine load. Information from CARB surveys, if available, will also be used for filling any data gaps.

Harbor Craft

The Port will work closely with vessel operators which provide activity data for the entire domain to separate out port-related activity, if possible. Proposed changes to CARB harbor craft methodology for crew boats will be reviewed to determine if any updates are deemed appropriate to the port’s harbor craft emissions estimating methodology.

CHE

The emission factors for yard tractors equipped with on-road engines for this inventory were provided by CARB based on CARB’s yard tractor emissions testing study, in which yard tractors equipped with model year (MY) 2004 on-road and off-road engines were tested on the same duty cycle. However, during the development of the 2009 CHE emissions inventory, it was recognized that the emission reductions obtained through CARB’s testing may not represent the reductions that would be achieved with some newer model year trucks (i.e., 2007+ model years) because of the differences in the timing of new standards for on-road and off-road engines. Accordingly, the emissions for on-road yard tractors for some of the newer model years may be overestimated. For future emissions inventories, the emission factors used for on-road yard tractors will be evaluated in more detail to ensure that they accurately represent the applicable standards and the yard tractors’ off-road duty cycle application.
Rail
The ports of Long Beach and Los Angeles have been in discussions with both UP and BNSF over the last year in order to improve the existing emissions calculation methodology based on more specific operating parameters for trains serving the ports. These parameters include, but are not limited to, specific train characteristics (e.g., number of locomotives, number of TEUs per train), fleet composition by Tier level (for assigning a more accurate fleet-based emission factor for locomotives serving the ports) and fuel consumption factor (gallons of fuel per gross ton-mile). The ports will continue to work with UP and BNSF to improve the rail emissions calculation methodology.

HDV
The RFID/DTR data may prove to be a valuable supplement to the OCR/DMV data in evaluating the model year distribution of future Port-related fleets. While incomplete for 2009 because the RFID monitoring commenced in February of that year, the data will cover all of the Port of Long Beach container terminals rather than the four that operate OCR systems, and may provide a more complete record of truck entries. Also, in order to better represent emissions from LNG trucks, a new methodology to estimate these emissions will be developed for future emissions inventories.