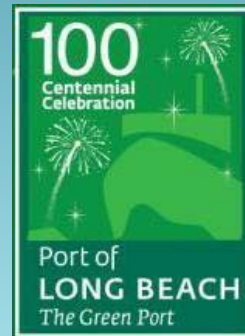


Zero Emission Technologies



What is the Roadmap?

- Steps and schedule to get started – local and regional
- Evaluation framework
- No “silver bullets” or “one-size-fits-all”
- Flexibility for future innovations
- Success requires collaboration

Roadmap for Moving Forward with
Zero Emission Technologies
at the Ports of Long Beach and Los Angeles



Technical Report

Updated August 2011

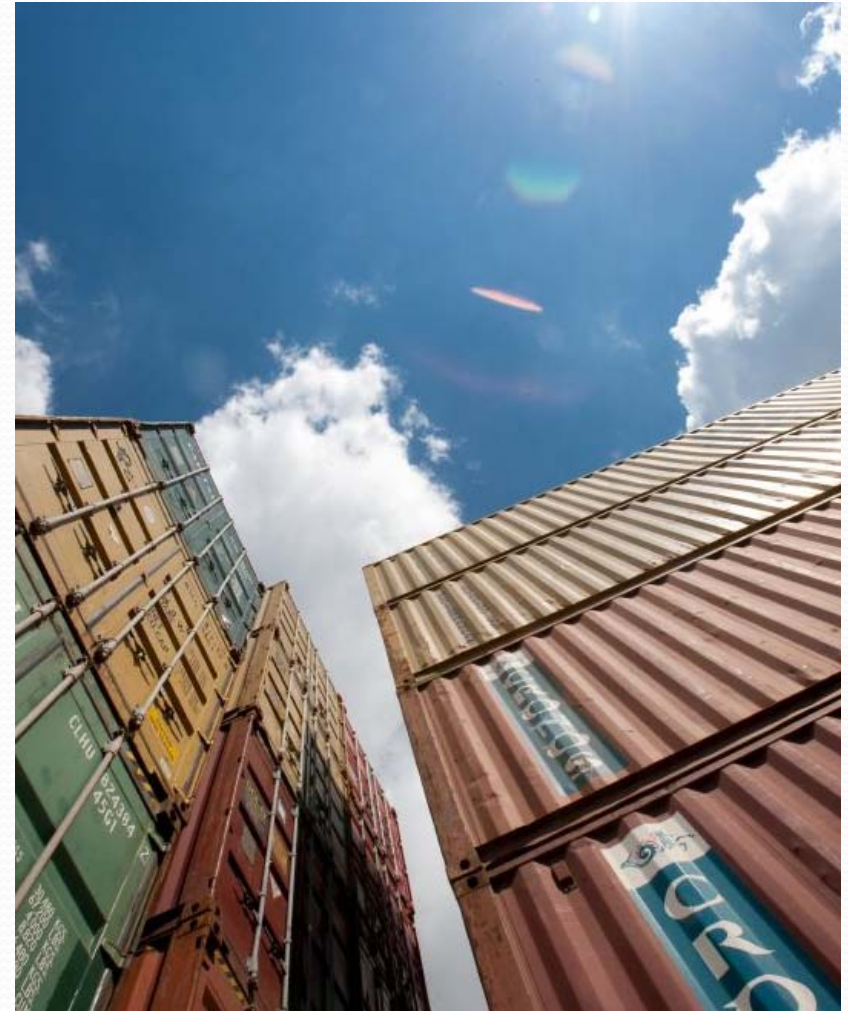
FINAL

Target Sources

- Focus on technologically feasible and economically viable options:
 - Drayage
 - Terminal Equipment
 - Locomotives
- What about ships and harbor craft?

Evaluation Criteria

- Emissions and Health Risk Reduction
- Constructability
- Technical Readiness
- Operations Compatibility
- Regional Scalability
- Cost and Economic Sustainability
- Timeline for Implementation



Drayage

- On-road zero emission trucks:
 - Seamless, incremental integration
 - No new infrastructure
 - Economically viable, sustainable costs
 - Ready for port demonstration
 - Flexibility for wayside power to extend range
 - Scalability to meet regional freight transport needs



Drayage

- Actions:
 - Conduct TAP demonstrations
 - Continue to seek improved technologies
 - Establish a regional partnership
 - Collaborate with stakeholders
 - Seek grant funding



Terminal Equipment

- Actions:
 - Conduct TAP demonstrations
 - Continue to seek improved technologies
 - Collaborate with stakeholders
 - Facilitate electrification of eRTGs and use of RMGs
 - Develop performance specifications
 - Seek grant funding



Locomotives

- Actions:
 - Collaborate with stakeholders
 - Participate in Phase 1 “Proof of Concept” Demonstration of Linear Synchronous Motor Technology
 - Continue to seek other zero emission technologies



Recommendations

- Act now
- Target trucks, terminal equipment and locomotives
- Fund technology demonstrations
- Collaborate with regional partners
- Return to Boards with funding guidelines and project recommendations in November 2011