

SOUTHERN CALIFORNIA



**ASSOCIATION of
GOVERNMENTS**

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Transportation

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No. 3 MEETING OF THE

GOODS MOVEMENT SUBCOMMITTEE

Monday, December 10, 2012

9:30 a.m. – 11:30 a.m.

**SCAG Los Angeles Office
818 West Seventh Street, 12th Floor
Los Angeles, CA 90017
(213) 236-1800
Room Policy B**

Videoconference Available

Orange County Office

**600 S. Main Street, Suite 906
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If members of the public wish to review the attachments or have any questions on any of the agenda items, please contact Ed Rodriguez at (213) 236-1863 or via email rodrigu@scag.ca.gov

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**Goods Movement Subcommittee
Member List**

- Los Angeles County: Hon. Barbara Messina, **Chair**/Member (LA)
 Hon. Paul Krekorian, 1st Alternate (LA)
 Hon. Jim Morton, 2nd Alternate (LA)
 Hon. Tim Spohn, 3rd Alternate (LA)
 Hon. Carol Herrera, 4th Alternate (LA)
- Riverside County: Hon. Russell Betts, **Vice Chair**/Member (Riv)
 Hon. Jim Hyatt, Member (Riv)
- Orange County: Hon. John Nielsen, Member (OC)
 Hon. Bert Hack, Alternate (OC)
- San Bernardino County: Hon. Ryan McEachron, Member (SB)
- Imperial County: Hon. Jack Terrazas, Member (Imp)

Ex-Officio Members

Paul Granillo, President & CEO, Inland Empire Economic Partnership
Wally Baker, President, Jobs 1st Alliance
Lupe Valdez, Director, Corporate Affairs, Union Pacific Railroad
Fran Inman, Majestic Realty
Michael A. Morris, Transportation Planner, Cal-South FHWA
Elhami Nasr, Caltrans District 7

GOODS MOVEMENT SUBCOMMITTEE

AGENDA

DECEMBER 10, 2012

The Goods Movement Subcommittee may consider and act upon any of the items listed on the agenda regardless of whether they are listed as information or action items.

CALL TO ORDER & PLEDGE OF ALLEGIANCE

(Hon. Barbara Messina, Chair)

PUBLIC COMMENT PERIOD – Members of the public desiring to speak on items on the agenda, or items not on the agenda, but within the purview of the Subcommittee, must fill out and present a speaker's card to the Assistant prior to speaking. Comments will be limited to three minutes. The Chair may limit the total time for all comments to twenty minutes.

REVIEW AND PRIORITIZE AGENDA ITEMS

	<u>Time</u>	<u>Page No.</u>
<u>CONSENT CALENDAR</u>		
<u>Approval Item</u>		
1. Minutes of October 29, 2012 Meeting	Attachment	1
<u>INFORMATION ITEMS</u>		
2. <u>2012 RTP/SCS Goods Movement Environmental Action Plan</u> <i>(Alison Linder, Associate Regional Planner and Annie Nam, Manager of Goods Movement and Transportation Finance, SCAG)</i>	Attachment	10 4
3. <u>A Roadmap and Action Plan for Advanced Technology Trucks</u> <i>(Fred Silver, Vice President, CALSTART)</i>	Attachment	20 8
4. <u>Overview of LA County Zero Emission Freight Collaborative</u> <i>(Frank Quon, Executive Officer, Highway Programs, Los Angeles County Metropolitan Transportation Authority, Metro)</i>	Attachment	10 21
5. <u>Clean Freight Movement Demonstrations</u> <i>(Matt Miyasato, Assistant Deputy Executive Officer, Technology Advancement Office, South Coast AQMD)</i>	Attachment	10 27
6. <u>Ports' Zero Emissions Roadmap</u> <i>(Heather Tomley, Assistant Director of Environmental Planning Port of Long Beach)</i>	Attachment	10 34

GOODS MOVEMENT SUBCOMMITTEE

AGENDA

DECEMBER 10, 2012

CHAIR'S REPORT

(Hon. Barbara Messina, Chair)

STAFF REPORT

(Annie Nam, SCAG Staff)

FUTURE AGENDA ITEMS

Any Subcommittee member or staff desiring to place items on a future agenda may make such a request.

ANNOUNCEMENTS

ADJOURNMENT

The next regular meeting of the Goods Movement Subcommittee meeting will be held on January 28, 2013 at the SCAG Los Angeles Office.



Goods Movement Subcommittee
of the
Southern California Association of Governments

October 29, 2012

Minutes

THE FOLLOWING MINUTES ARE A SUMMARY OF ACTIONS TAKEN BY THE GOODS MOVEMENT SUBCOMMITTEE. A DIGITAL RECORDING OF THE ACTUAL MEETING IS AVAILABLE FOR LISTENING IN SCAG'S OFFICE.

The Goods Movement Subcommittee held its meeting at SCAG's office in downtown Los Angeles. The meeting was called to order by Chair Hon. Barbara Messina, Alhambra. A quorum was present.

Members Present:

Hon. Barbara Messina (<i>Chair</i>)	Alhambra
Hon. Tim Spohn	City of Industry, SGVCOG
Hon. Carol Herrera	City of Diamond Bar
Hon. Russell Betts, (<i>Vice-Chair</i>)	Desert Hot Springs, CVAG
Hon. Jim Hyatt	Calimesa, District 3
Hon. Jack Terrazas	County of Imperial (via videoconference)
Hon. Jim Morton	City of Lynwood
Paul Granillo	Inland Empire Economic Partnership
Elhami Nasr	Caltrans District 7

Members Not Present:

Hon. Paul Krekorian	City of Los Angeles
Hon. Bert Hack	Laguna Woods, OCCOG
Hon. John Nielsen	City of Tustin
Hon. Ryan McEachron	City of Victorville, SANBAG
Fran Inman	Majestic Realty
Wally Baker	Jobs 1st Alliance
Lupe Valdez	Union Pacific
Michael A. Morris	FHWA

CALL TO ORDER

Chair Hon. Barbara Messina, Alhambra, began the meeting at 10:00 a.m. Hon. Jim Hyatt, Calimesa, led the subcommittee in the Pledge of Allegiance. Ms. Messina reviewed the subcommittee's mission to identify regional goods movement priorities and help with the implementation of the 2016 Regional Transportation Plan/Sustainable Communities Strategy.

PUBLIC COMMENT PERIOD

No members of the public requested to make a comment.

REVIEW AND PRIORITIZE AGENDA ITEMS

There was no requested prioritization of the agenda.

CONSENT CALENDAR

Approval Items

1. Minutes of the September 24, 2012 Meeting

A MOTION was made (Hyatt) to approve the consent calendar. The MOTION was seconded (Betts) and UNANIMOUSLY APPROVED. Motion passed.

INFORMATION ITEMS

1. Goods Movement Economics and Markets in the SCAG Region

Michael Fischer, Cambridge Systematics, gave a presentation on goods movement economics and markets in the SCAG region. Mr. Fischer noted regional goods movement activities and infrastructure are driven by various economic and consumer needs. Major goods movement markets include international, domestic and local trade. Understanding the modes and facilities used in regional goods movement is critical to supporting future growth and sustaining the economic benefits provided by the logistics industry.

2. International Trade and Economic Development in Southern California

John Husing, Chief Economist, Inland Empire Economic Partnership, provided information on the logistics industry and its importance to the regional economy. Mr. Husing emphasized the importance of the logistics industry in creating jobs. Logistics has added nearly 15,000 jobs in Southern California in the past two years and 16% of all regional jobs are associated with the logistics industry. Additionally, Mr. Husing emphasized the importance of E-Commerce as a critical emerging retail dynamic and a new and vital source of sales tax revenue for municipalities. Mr. Husing concluded by encouraging regulatory reform and governmental support for the important regional logistics industry as it serves as an important driver of wealth and employment.

3. Warehousing Operation Challenges

B.J. Patterson, CEO of Pacific Mountain Logistics, provided an update on warehousing operation challenges. Mr. Patterson noted the warehousing industry has evolved significantly in the past two decades and technology has changed the speed and efficiency of warehouse operations as well as changed the required skill sets of the labor force. E-commerce is also a significant change, and many large retail companies are shrinking their retail floor space in favor of warehouse space driven by today's highly efficient and technology driven logistics operations. Regulatory challenges for the logistics industry were also discussed.

CHAIR'S REPORT

Hon. Barbara Messina, Alhambra, noted there will be no meeting in November and the next meeting will be December 10, 2012.

STAFF REPORT

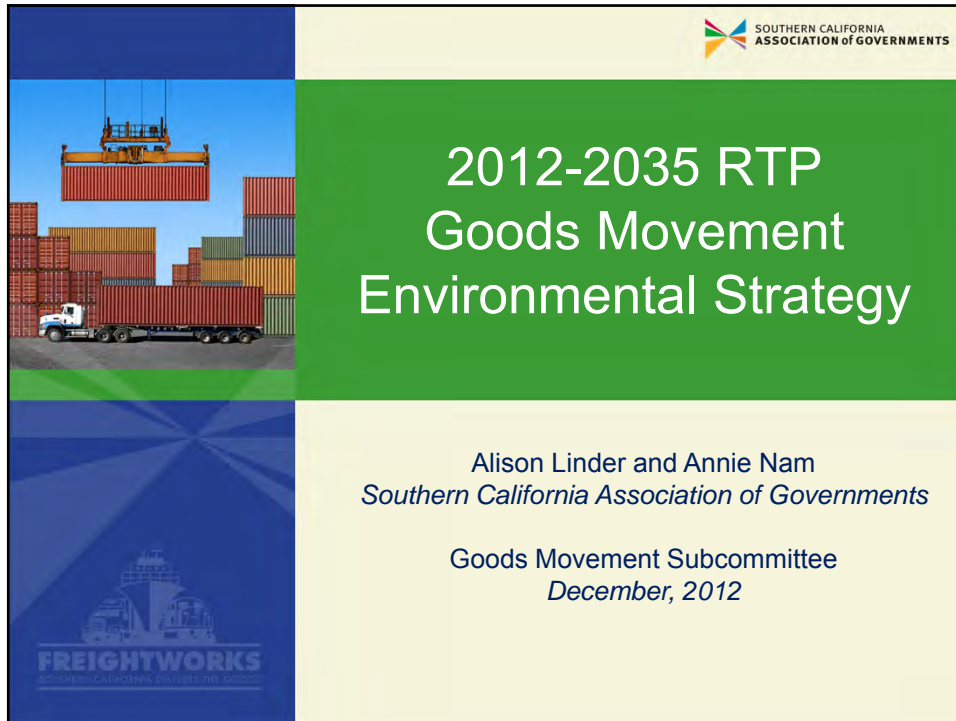
No staff report was given.

ADJOURNMENT

The meeting adjourned at 11:58 a.m. The next meeting of the Goods Movement Subcommittee will be December 10, 2012 at the SCAG Los Angeles office.



Alison Linder, Associate Regional Planner
Transportation Planning



SOUTHERN CALIFORNIA
ASSOCIATION of GOVERNMENTS

2012-2035 RTP Goods Movement Environmental Strategy

Alison Linder and Annie Nam
Southern California Association of Governments

Goods Movement Subcommittee
December, 2012

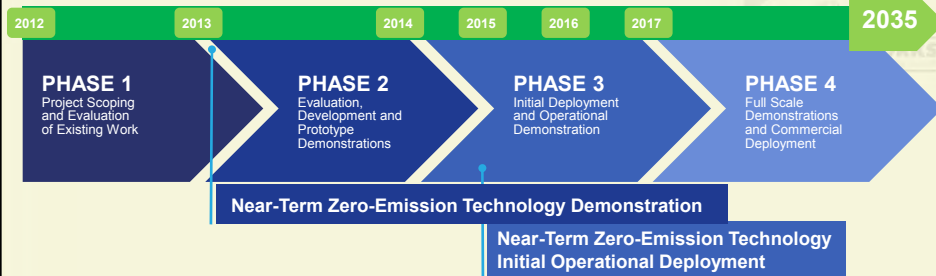
FREIGHTWORKS
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

SCAG Regional Comprehensive Goods Movement Plan and Implementation Strategy

- Related Products
 - Analysis of Freight Rail Electrification in the SCAG Region
 - Evaluation of Environmental Mitigation Strategies
 - New Technology Alternatives for Line-Haul Container Freight: Literature Review and Detailed Technology Implementation Strategy

2

Goods Movement Environmental Action Plan



Targeted Deployment Dates

- 2015-2020 for drayage trucks
- 2017-2035 for all regional trucks
- 2018-2035 for advanced rail technologies

Goods Movement in 2012-2035 RTP

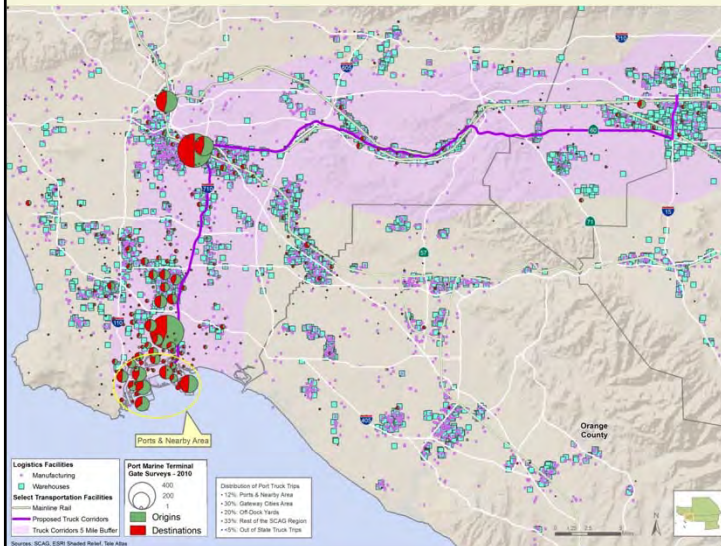
- RTP/SCS Identifies key Grade Separation & Goods Movement projects:
 - **\$6.0 Billion** for Grade Separations
(*\$5.6 billion for freight-intensive/\$0.4 billion for primarily commuter rail grade separations*)
 - **\$42.4 Billion** for Goods Movement Projects
(*e.g., freight corridors, truck climbing lanes, bottleneck improvements, rail capacity, and intermodal facilities*)
 - **\$35.0 Million** for Zero Emissions Technology Demonstration and Initial Deployment

Near-Term Zero-Emission Technology Demonstration and Initial Deployment

- **Project:** Zero emissions trucks using wayside power with extended zero emission range, truck types may include battery-electric, fuel-cell, and hybrid-electric trucks with all electric range
- **Project Cost:** \$35 million. This includes construction of infrastructure, design and build of demonstration trucks, and acquisition of a small fleet for initial operational deployment.
- **Schedule:**
 - *By 2013* – Demonstration: Develop and build trucks and wayside power infrastructure sufficient for demonstration
 - *By 2015* – Initial Operational Deployment: deploy maximum number of trucks possible with available funding
- **Potential Funding Partners:** AQMD to lead effort. Others may include: SCAG, local transportation agencies, and the ports

5

Possible Application: Regional Clean Freight Corridor



- Infrastructure provides wayside power and can serve multiple truck types.
- Facilities are within a 5 mile range of proposed corridor; can be served in zero-emission mode.
- 100 % zero-emission truck use removes: 2.7% to 6% of region's total NOx, PM2.5 and CO2

Conclusion

- This strategy will both rapidly commercialize available technologies and accelerate the development of advanced technologies.
- The region will work together to secure funding, define parameters and launch new technologies in the timeframe of this RTP.
- By Phase 4, a working group will collaboratively decide which technologies to advance to full deployment. These decisions will be formalized in the 2016 RTP and future SIP revisions.
- SCAG can play a role in advocating for more research funding and policies to incentivize technology advancement.

7



**SOUTHERN CALIFORNIA
ASSOCIATION of GOVERNMENTS**

To learn more about SCAG and our efforts to encourage a more sustainable Southern California now and in the future, please visit www.scag.ca.gov.

Annie Nam
Manager, Goods Movement and Transportation Finance
email: nam@scag.ca.gov



**A Roadmap and Action Plan for
Advanced Technology Trucks
Good Movement Subcommittee,
December 10, 2012
Fred Silver , CALSTART**

Agenda

- » **CALSTART Overview**
- » **CalHEAT Truck Research Center Market Transformation Roadmap**
- » **An Assessment of the Technologies Challenges & Opportunities: I 710 Zero Emission Freight Corridor**
- » **How to Spur the Market**

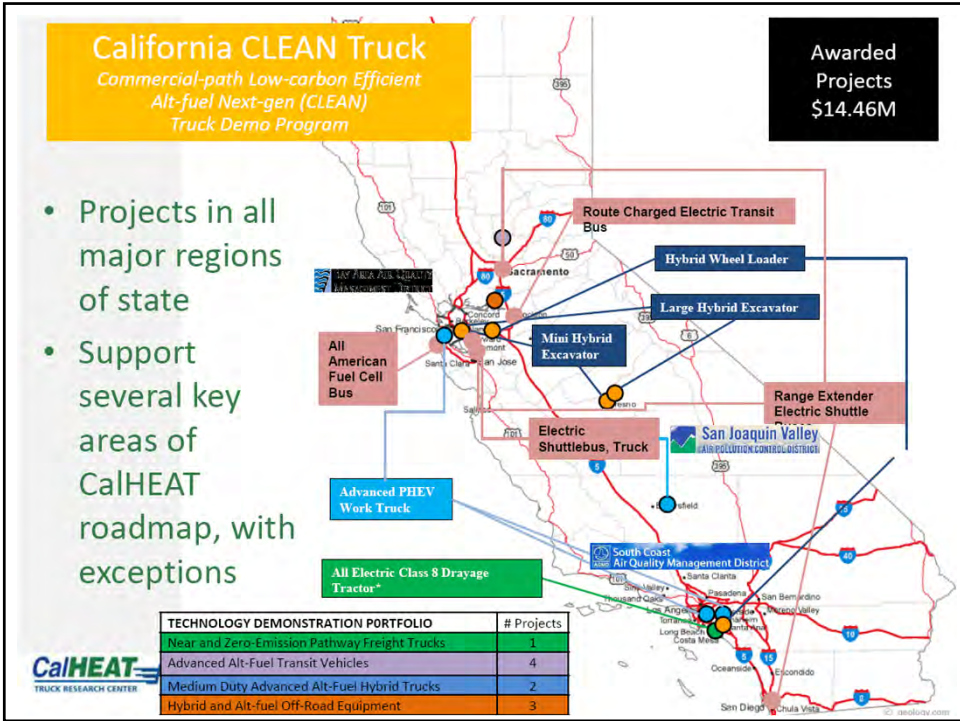
150 CALSTART Members- An Array of Fuels & Technology



CALSTART Medium & Heavy Duty Commercial Activities



- » National program and conf to speed hybrid and advanced truck commercialization funded by and in partnership with US Army
- » \$43M incentive program – purchase vouchers – for hybrid and electric trucks funded by CARB, CEC
- » Hybrid, Efficient and Advanced Truck Center to focus and drive effective R&D funded by California Energy Commission
- » National program to validate, speed fuel cell & low carbon bus technology with DOT/FTA
- » National conference on clean fuels and tech for trucks, partnership with NTEA
- » Program to build export and business opportunities for US M/HD tech companies in China



CalHEAT
 TRUCK RESEARCH CENTER

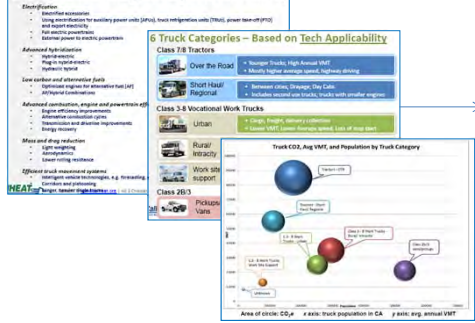
- Only dedicated State resource For “Advanced Truck Technology” to assure our climate and energy policy goals are met
- Statewide policymakers and technology providers working as a team through CalHEAT to meet goals in a collaborative process
- “Research and Market Transformation Roadmap” is identifying action and investments necessary to assure we meet statewide and regional goals

The CalHEAT Research and Market Transformation Roadmap is Providing the Pathway to Commercialization

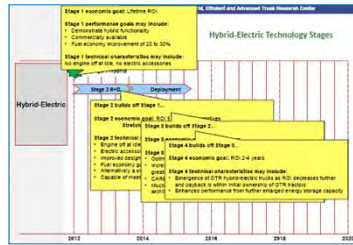
» Overview

- » Living action Agenda and Annual Research Plan
- » Roadmap charts course of what's needed to meet and exceed 2020 goals as well as drive solutions needed beyond 2020
 - » Achieve or exceed AB 32 and AB 2076 goals
- » Clear, actionable steps along pathways to commercialization
- » Recommend technology research, development, demonstration and market introduction milestones

Developed Technology Strategies in Six Pathway



Thirteen Technology Strategy Roadmaps and Action Plans Completed



Technology Strategies

Advanced Electrification

- Hybrid-electric
- Electrified accessories
- Full electric powertrains
- Electrified Power take-off (PTO)
- Plug-in hybrid-electric
- External power to electric powertrain for ZEV Corridors
- AF/Hybrid Combinations

Engine and Driveline Efficiency

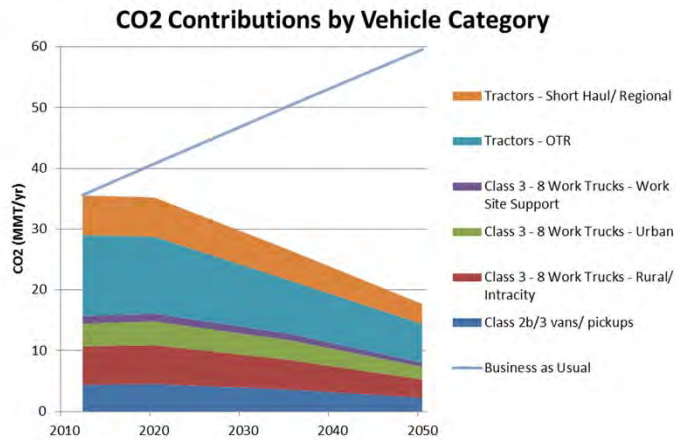
- Hydraulic hybrid
- Optimized engines for alternative fuel (AF)
- Energy recovery
- Engine efficiency improvements
- Alternative power plants and combustion cycles
- Transmission and driveline improvements

Chassis, Body, and Roadway Systems

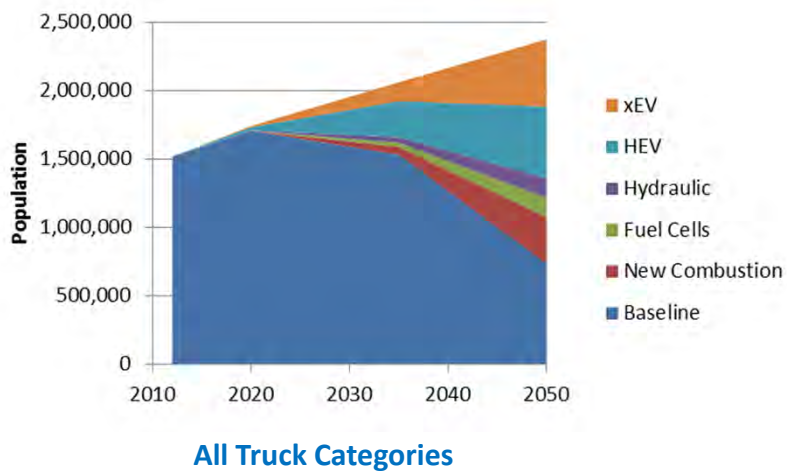
- Light weighting
- Aerodynamics
- Lower rolling resistance
- Intelligent vehicle technologies, e.g. forecasting, adapting
- Corridors and platooning
- Longer, heavier single trucks

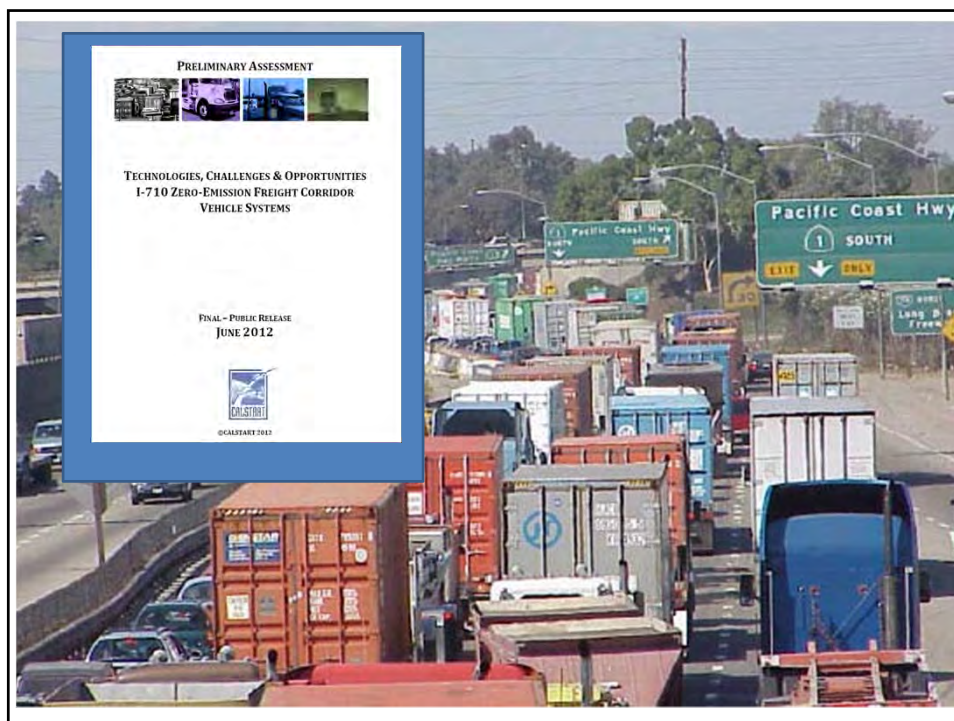


CO2 Reduction from Roadmap



Technology Adoption





Study Findings

Trucks CAN Deliver Zero Emissions Goods Movement in the I-710 Corridor, within the time frame of the project

»Several Options for Zero Emissions

- » Hybrid with Dual-Mode Operation (ZEV Mode)
- » Range Extender EV (Fuel Cell or Turbine w/ZEV mode)
- » Full EV (with fast charging or infrastructure power)
- » Road-Connected Power

»Additional Options for Near-Zero Emissions

- » Alt Fuel Hybrids
- » Zero NOx dedicated fuel engines (CNG, RNG, H2 ICE)
- » Range Extender EV (turbine)

Examples: Dual-Mode Hybrids (w/ Zero Emissions Mode)

Meritor – Navistar

- Electric drive at lower speeds (up to 48 mph), blended mode at higher speeds
- Can greatly reduce fuel use, cut idle emissions, provide partial zero emissions



Eaton

- Electric drive for short range, low speeds (prototype)



Transit (buses)

- King County Metro- Sleeper ZEV Mode and Ansaldo Dual Mode Buses



Examples: Series Electric/Hybrid – Range Extender

Artisan–Parker

- » Electric drive system with turbine range extender (with ZEV mode)
- » Much development in turbines, focus on NG



Vision Industries

- » Electric with fuel cell range extender (zero-emissions)



Examples: Full Battery Electric

Balqon

- » Yard Hostler



Transpower Tractor

- » Drayage Truck



Smith Electric

- » Box Truck



Examples: Road-Connected Power

- » Well known in transit industry (electric trolley-bus)
- » Used widely in mining with extremely heavy equipment
- » Now beginning testing in Europe (Siemens) for heavy-haul trucks
- » Other tests looking at in-road power alternative



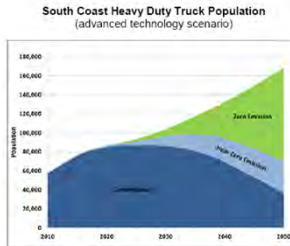
Siemens eHighways Concept



- **Lack of Near Zero Emission NOx definition has slowed NZEV Truck Technology Development**
- **Investment: CalHEAT Truck Action Plan Calls for \$287,000,000 thru 2020**

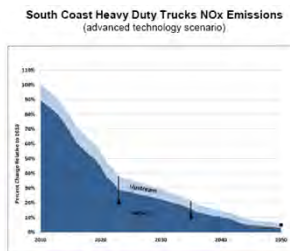
Barriers Going Forward

Near Zero Truck Emissions Standard Need a Formal CARB Definition



» CARB and SCAQMD “Vision Plan 2050” indicates we need NZEV trucks

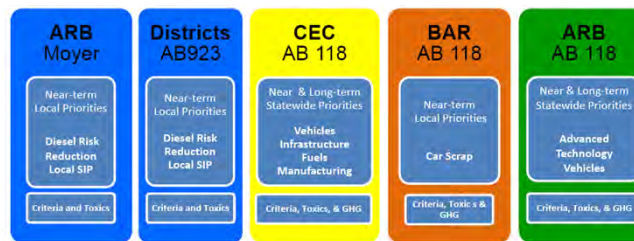
» Same vision Plan indicates we will be ten to 20 years late in meeting Federal NOx standards



» CalHEAT Workshops hosted “Voice of the Industry” on NZEV

» Industry has solutions for NZEV but no market determined since there is no NZEV Standard

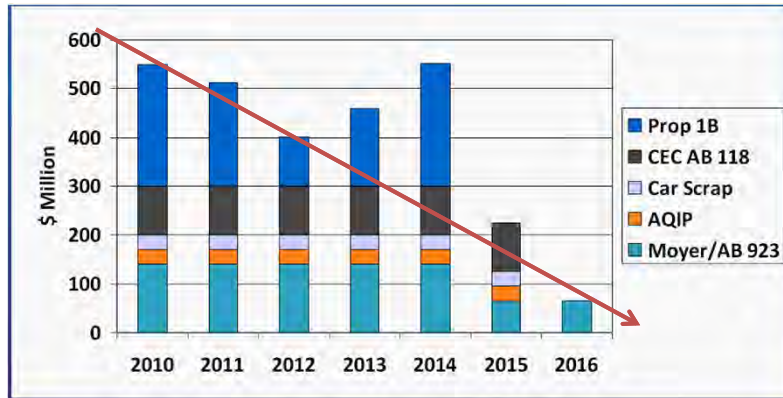
Current State Investment Program Clean Air and Energy Funding



Current Programs	Incentive Program Funding					
	2011	2012	2013	2014	2015	2016
Moyer & AB 923		\$105 - \$140 Millions/year			\$45 - \$60 Millions/year	
AB 118 AQIP ARB		\$30 - \$40 Millions/year				
AB 118 CEC		\$100 - \$110 Millions/year				
AB 118 BAR		\$15 - \$30 Millions/year				
Goods Movement ARB		\$1 Billion				

Note: Funding range reflects actual revenues (down ~25-30% in recent years) to funding authority.

California \$ Incentives Will Soon Decline- Need for Investments Continues



Support Needed to Extend Carl Moyer, AB923 & AB-118

- » **EXTENDS CARL MOYER PROGRAM UNTIL 2023.** This helps fleets transition to cleaner vehicles and has cleaned up 55,000 engines to date. It has also supported 9,000 jobs statewide, while helping improve air quality throughout California.
- » **EXTENDS AB 923 LOCAL AIR DISTRICT FUNDS UNTIL 2023.** The AB 923 funds can be used for Moyer-like projects, with a focus on diesel retrofit and replacement, agricultural equipment, and cleaner school buses. Like the Carl Moyer program, this is a win-win that cleans our air while helping local businesses clean up their fleets.
- » **EXTENDS AB 118 CLEAN TRANSPORTATION INVESTMENT PROGRAM UNTIL 2023.** The AB 118 program includes incentives for the purchase of zero- and near-zero emission cars and trucks, car scrap incentives, natural gas truck incentives, and funding for infrastructure. Additionally, the program supports California manufacturing and workforce training and has supported over 7,600 jobs to date.

Conclusion



- We are poised to meet California 2050 M-HD Truck Environmental Goals
- Trucks can be demonstrated and deployed in time for an I-710 ZEV Truck Corridor
- We need technology investments and an NZEV definition to spur the development of Truck Technology

QUESTIONS?



Clean Transportation Technologies
and Solutions
Fred Silver fsilver@calstart.org
626-744-5687

Mobility. Environment. Community. Economy. Technology

INTERSTATE CALIFORNIA 710

I-710 Corridor Project EIR/EIS

metro.net

Project Update and Overview

SCAG

Goods Movement Subcommittee

December 10, 2012

M Metro **GT** Caltrans **G** GATEWAY CITIES **5** **LA** THE PORT OF LONG BEACH **LA** THE PORT OF LOS ANGELES **A** ASSOCIATION OF GOVERNMENTS

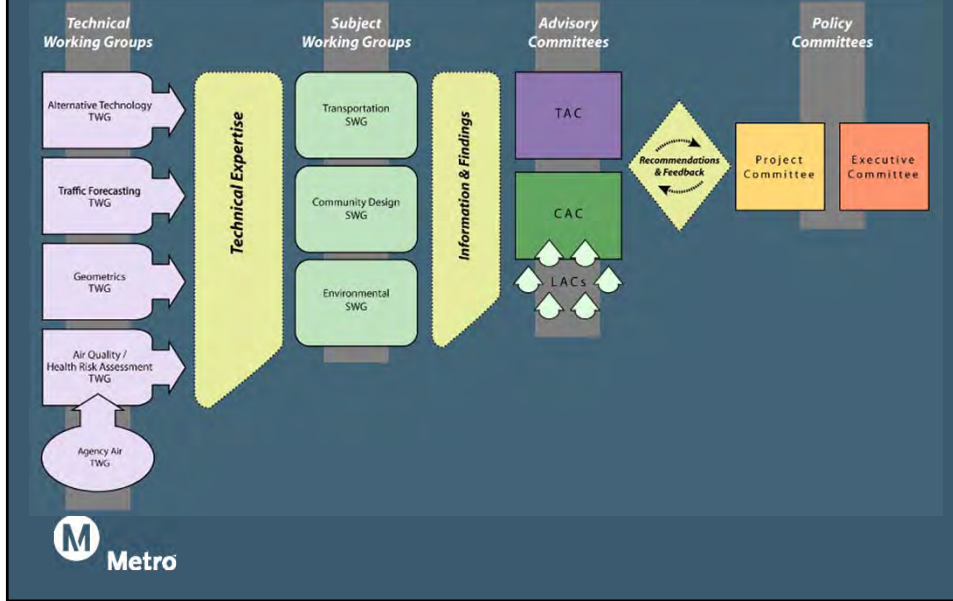
Study Area

I-710 Corridor Study Area

M Metro

The map displays the I-710 Corridor Study Area, a region extending from Los Angeles in the north to Long Beach in the south. The corridor is highlighted in purple. Various cities and areas are labeled, including Los Angeles, East Los Angeles, Compton, Bell Gardens, Bellflower, Lakewood, and Long Beach. A legend in the bottom right corner identifies the I-710 Corridor and the Study Area. A north arrow is also present.

Community Participation Framework



Project Purpose and Need

- Improve air quality and public health
- Improve traffic safety
- Provide a modern design for the I-710
- Address projected traffic volume increase
- Address projected growth in population, employment and economic activity related to goods movement



Project Alternatives

No Build Improvements

- Planned and Committed Projects in 2008 RTIP
- Enhanced Goods Movement by Rail
- Clean Trucks Program
- Expanded Night Gate Ops at Ports
- I-710 Pavement Rehabilitation
- Traffic Signal Coordination

TSM/TDM and ITS

- Ramp Metering
- Improved Arterial Signage
- Peak Period Parking Restrictions
- Increased Transit Service
- Upgraded Traffic Signals (ITS)

Arterial System Improvements

- Signal Timing Improvements
- Local Arterial Intersection Improvements at 42 Locations

I-710 Widening

- Widen the I-710 up to 10 Lanes
- Modernize Geometric Design of the Local I-710 Interchanges

Freight Corridor

- Separate Four-Lane Freight Corridor



Metro

Alternative 1

No Build Improvements



Alternative 5A



I-710 Widening

Modernize I-710 Geometrics

Arterial System Improvements

TSM/TDM & ITS

No Build Improvements

Alternative 6A



Freight Corridor



I-710 Widening

Modernize I-710 Geometrics

Arterial System Improvements

TSM/TDM & ITS

No Build Improvements

Alternative 6B

Zero Emissions Automated Guidance



Freight Corridor



I-710 Widening

Modernize I-710 Geometrics

Arterial System Improvements

TSM/TDM & ITS

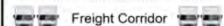
No Build Improvements

Alternative 6C



Tolling Feature

Zero Emissions Automated Guidance



Freight Corridor



I-710 Widening

Modernize I-710 Geometrics

Arterial System Improvements

TSM/TDM & ITS

No Build Improvements

Zero Emissions Technology

Zero Emission Trucks



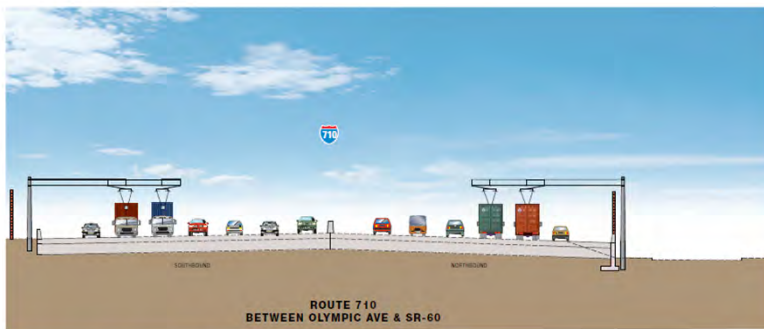
Metro

Zero Emission Truck Efforts

- I-710 Zero Emission Extension Design Concept
- Developing the Zero Emission Truck Concept (Calstart)
- Zero Emission Truck Commercialization Study (Gateway Cities COG Transportation Strategic)
- Countrywide ZE Truck Collaborative



Zero Emission Extension Design Option Concept



Draft Conceptual
Rendering

SEGMENT 7
ALTERNATIVE 6 B/C
TYPICAL CROSS SECTION



Countywide Zero Emission Trucks Collaborative

Metro, POLA, POLB, SCAG, AQMD, Caltrans & GCCOG

- Establish and Promote a consistent policy framework for advancing zero-emission trucks
- Leverage public funds to achieve a common vision of zero-emission trucks
- Increase regional competitiveness for grants
- Pursue demonstration projects with collaborative partners



Countywide Zero Emission Trucks Collaborative

Past Activities

- Met 3 times in 2012
- Submitted grant applications for demonstration projects
- Reviewed a proposal from a Technology vendor

Upcoming Activities

- Continue applying for grants on demonstration projects
- Prepare a Technology Showcase (ZE truck expo)
- Identify a route for a demonstration project, and secure funding



Questions


Frank Quon
Executive Officer, Highway Program
quonf@metro.net



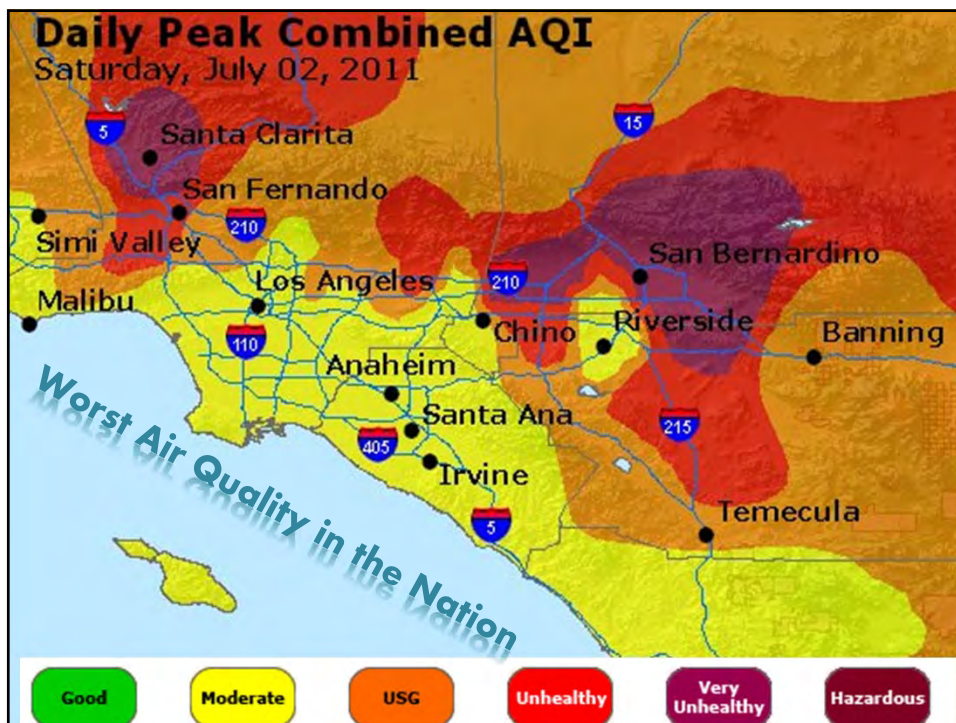
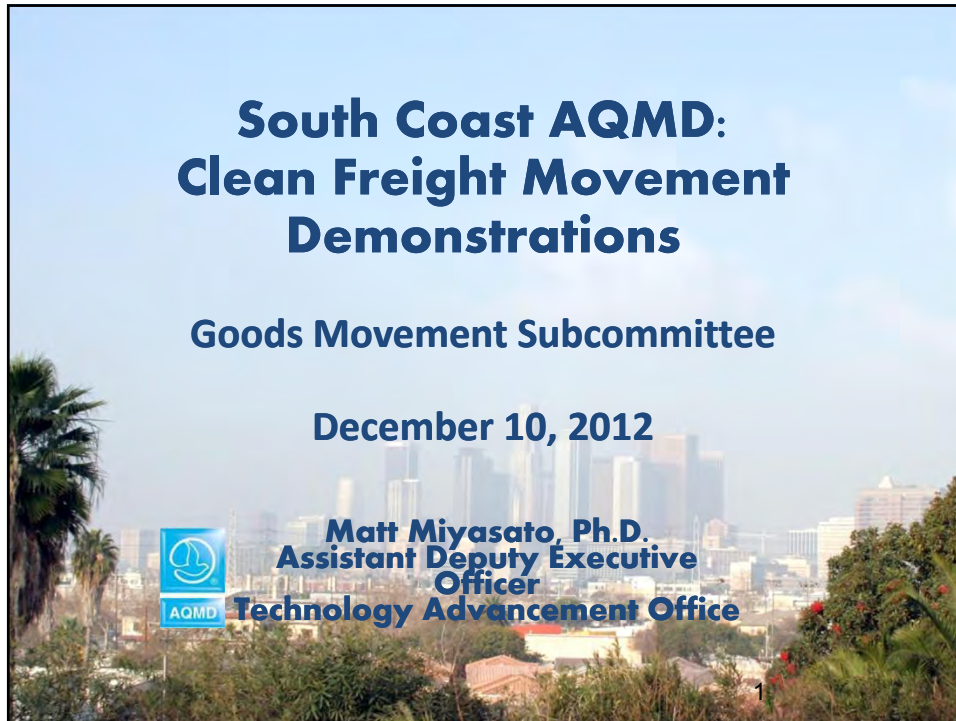
South Coast AQMD: Clean Freight Movement Demonstrations

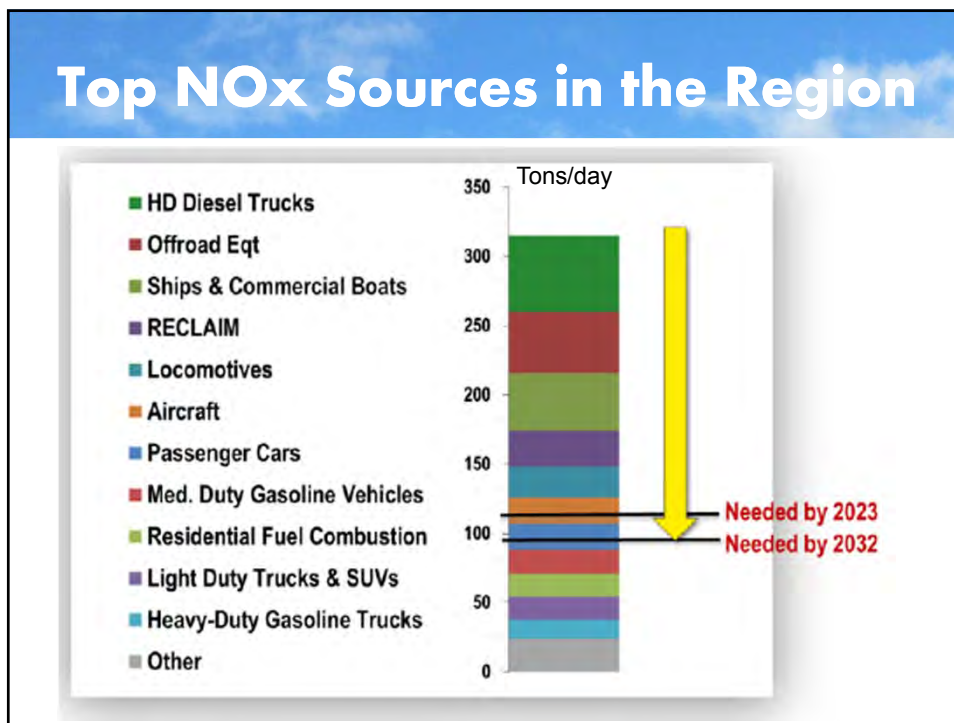
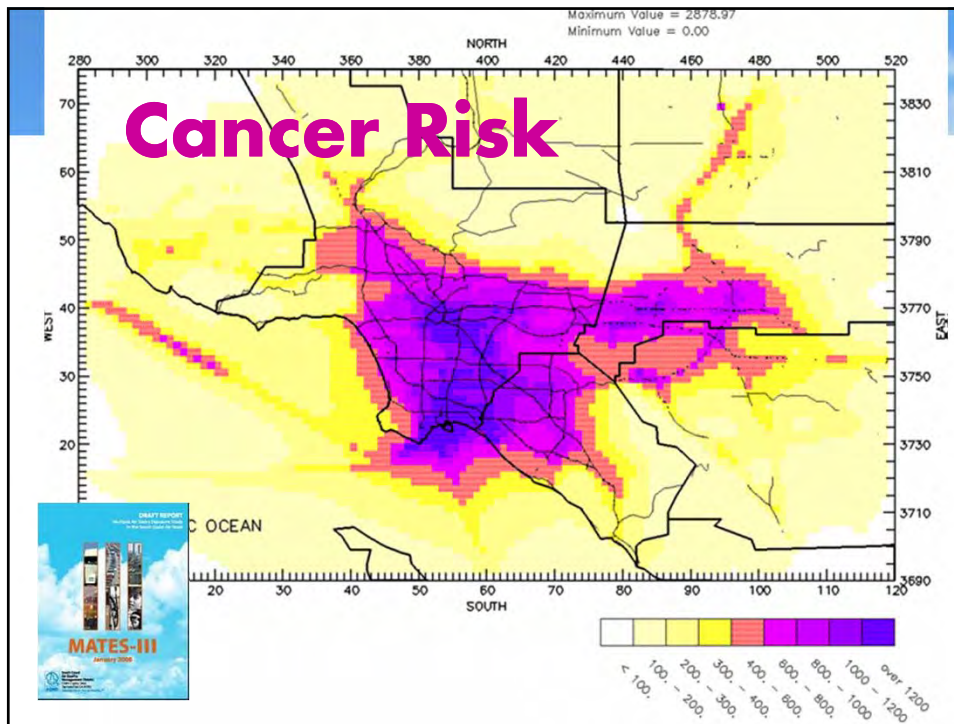
Goods Movement Subcommittee

December 10, 2012

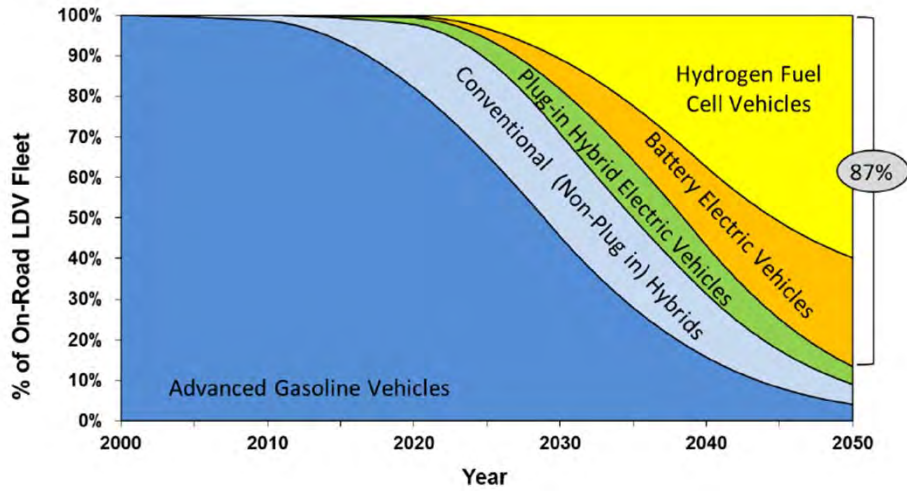


Matt Miyasato, Ph.D.
Assistant Deputy Executive
Officer
Technology Advancement Office

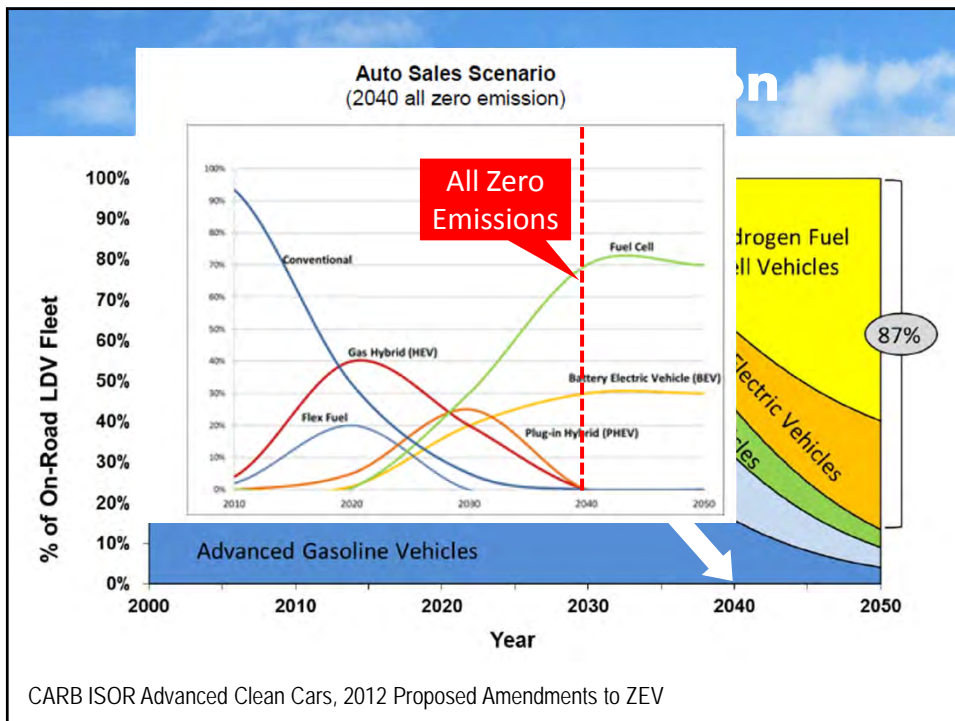




CARB ZEV Regulation

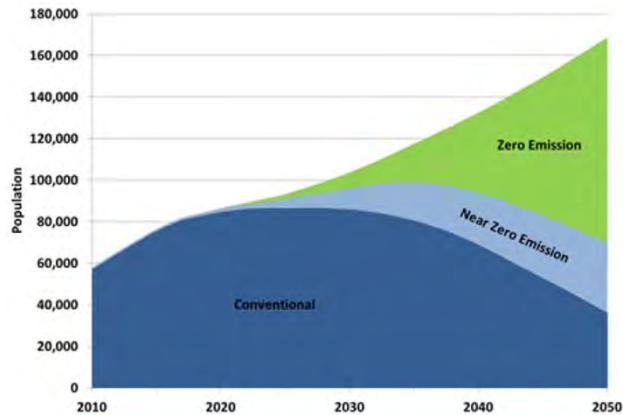


CARB ISOR Advanced Clean Cars, 2012 Proposed Amendments to ZEV



CARB ISOR Advanced Clean Cars, 2012 Proposed Amendments to ZEV

Vision Framework: South Coast Heavy-duty Trucks



"Vision for Clean Air: A Framework for Air Quality and Climate Planning", Figure 13 (June 27, 2012)

Medium & Heavy-Duty Technologies

- Hybrid trucks – 11 OEMs and 134 Models
- Hybrids with All Electric Range
 - Volvo
 - Capstone/Kenworth
- Battery Electric & Fuel Cell
 - Transpower
 - Balqon
 - Vision
 - US Hybrids



DOE Zero Emission Truck Project

- DOE awarded \$4.1M
total project cost \$9.3M
- 13 Class 8 trucks
- Kickoff meeting November 20, 2012
- Up to 12 month development
 - First trucks to be demonstrated
2nd quarter 2013
 - 2 years fleet demonstration



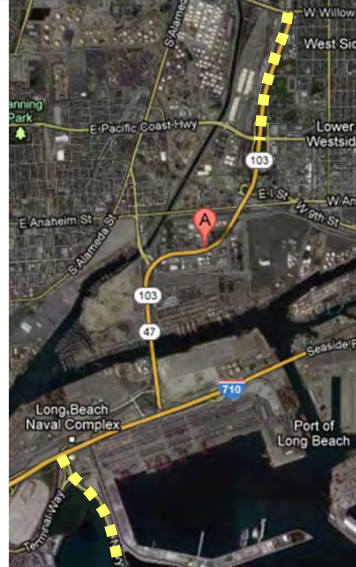
Wayside Power and Near-Zero

- Trucks
 - Volvo
 - Siemens
- Locomotives
 - GE
 - Siemens
 - Natural gas



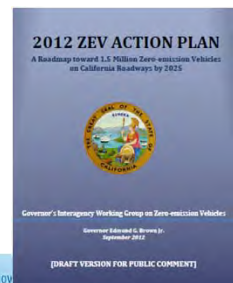
Trolley Truck Project

- 1 mile demonstration initial phase
- Class 8 hybrid with pantograph
- Estimated \$18M project costs
- Working with technology provider to identify
 - Infrastructure needs
 - Truck requirements
- < 24 month project



What is Needed?

- Concerted and sustained effort
 - Multi-agency agreement
 - Joint projects & early wins
 - Incentives & regulations
- Funding for early demonstration
 - AQMD, Ports, LAMTA
 - CEC, CARB, DOE



Successful Partnership Model



Thank You



South Coast
AQMD Air Quality Management District



Cleaning the air that we breathe...

Home | Inside AQMD | Community | Business | Technology | Health & Education | Governing Board

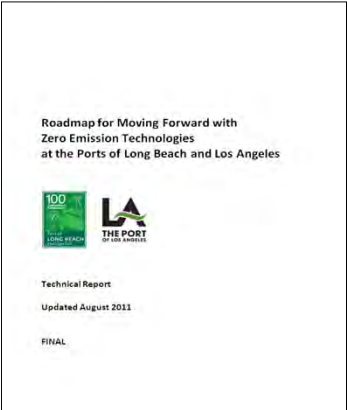
Español | 中文 | 한국어

www.aqmd.gov
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mmiyasato@aqmd.gov
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Zero Emissions Roadmap

- Presented at July 2010 Joint Board Meeting
- Focus on feasible near-term technology development
- Local (Port) and regional focus
- Flexibility for the future
- Scalability to the region
- Success requires collaboration



Near-term Actions

- Move forward with technology demonstrations
- Develop regional partnership and collaborate with stakeholders
- Seek grants and funding opportunities

Port of **LONG BEACH**

Technology Advancement Program

Projects

- Balqon Lithium-Ion Battery On-Road Truck
- Balqon Lithium-Ion Battery Yard Tractor
- Vision Motor Corp Hydrogen Fuel Cell Plug-In Hybrid Electric On-Road Truck
- Vision Motor Corp Hydrogen Fuel Cell Plug-In Hybrid Electric Yard Truck
- Others



Port of **LONG BEACH**

Regional Collaborative

Objective: work together on the advancement of zero emission trucks for regional benefits



Port of LONG BEACH

POLB Zero Emission Equipment Grant Program

- Operational and Reliability Demonstration Projects
- Incentives for Proven Zero Emission Technologies
- Incentives for Zero Emission Infrastructure



Port of LONG BEACH

Next Steps

- Port TAP funds to continue to support near-term technology advancement
- Grant funding to support projects
- Lobby for additional funding
- Collaborate with regional partners and stakeholders