AMERICAN ASSOCIATION OF PORT AUTHORITIES

ENVIRONMENT COMMITTEE MEETING

NOVEMBER 14, 2017

WILLIAM M. GUERRY
Partner
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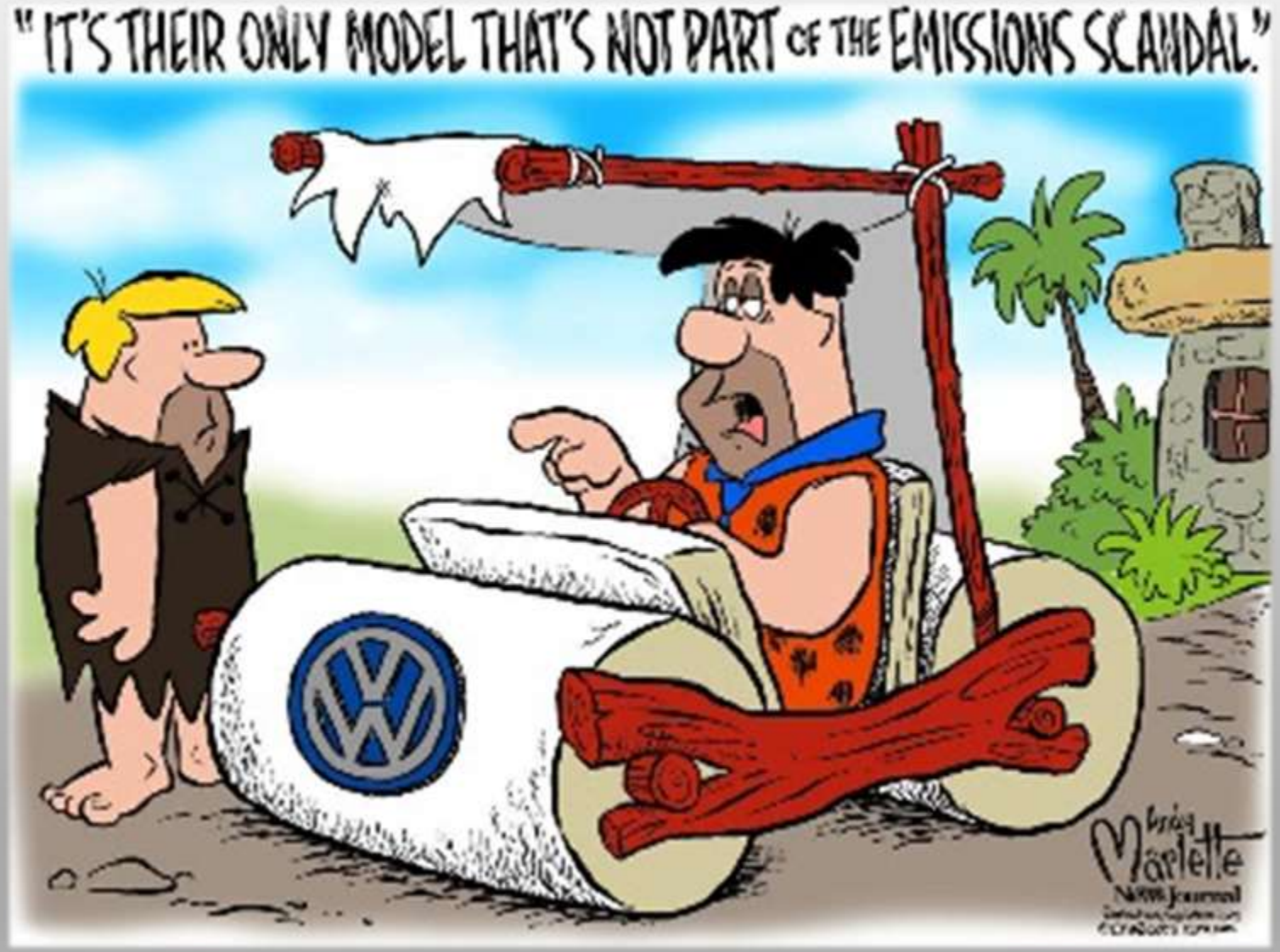
Kelley Drye

Volkswagen (“VW”) Settlements


" IT'S THEIR ONLY MODEL THAT'S NOT PART OF THE EMISSIONS SCANDAL."
Brian Marlette

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Environmental Mitigation Trust Fund

Breakdown of the Components of the $14.9 Billion VW Settlement (Diesel Technology Forum)

Environmental Mitigation Trust In Perspective

$2.9 Billion to be spent in as little as 3 years for the sole purpose of NOx reduction

Total DERA Funding 2008-2013: **$520 Million**

- 73,000 engines, vehicles & equipment
- 335,200 tons of NOx reduced

Environmental Mitigation Trust

- $3 billion-Environmental Mitigation Trust allocated to beneficiaries (states, tribes, and certain territories) is based on the number of impacted VW vehicles in their jurisdictions
- The Trust will support projects that reduce NOx emissions where the VW vehicles were, are, or will be operated
- This table reflects the amount of funds included in the 2.0 liter settlement. An additional $225 million (about 10%) was added to the Environmental Mitigation Trust from the 3.0 liter settlement.

Eligible Beneficiary	Initial Allocations	Eligible Beneficiary	Initial Allocations
Louisiana	$ 18,009,993	Colorado	$ 61,307,576
Kentucky	$ 19,048,080	Wisconsin	$ 63,554,019
Oklahoma	$ 19,086,528	New Jersey	$ 65,328,105
Iowa	$ 20,179,540	Oregon	$ 68,239,143
Maine	$ 20,256,436	Massachusetts	$ 69,074,007
Nevada	$ 22,255,715	Maryland	$ 71,045,824
Alabama	$ 24,084,726	Ohio	$ 71,419,316
New Hampshire	$ 29,544,297	North Carolina	$ 87,177,373
South Carolina	$ 21,636,950	Virginia	$ 87,589,313
Utah	$ 32,356,471	Illinois	$ 97,701,053
Indiana	$ 38,920,039	Washington	$ 103,957,041
Missouri	$ 39,084,815	Pennsylvania	$ 110,740,310
Tennessee	$ 42,407,793	New York	$ 117,402,744
Minnesota	$ 43,638,119	Florida	$ 152,379,150
Connecticut	$ 51,635,237	Texas	$ 191,941,816
Arizona	$ 53,013,861	California	$ 381,280,175
Georgia	$ 58,105,433		
Michigan	$ 60,329,906		

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Appendix D Represents a Historic Funding Opportunity to Reduce NOx Emissions

- Environmental Mitigation Trust

- **$423 Million**
- * Additional revenue through separate Settlements

- DERA Funding (2008-2013)
  - $72 Million for California
- Carl Moyer Program (1998-2016)
  - $900 Million to replace or repower 50,000 engines

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Environmental Mitigation Trust: Beneficiary Mitigation Plan

- After being designated a beneficiary, states must submit a high-level Beneficiary Mitigation Plan that summarizes how the funds will be spent. Plans should address:
  - Overall goal for the use of the funds;
  - Categories of anticipated eligible mitigation actions, and preliminary assessment of the percentages of funds anticipated to be used for each type of action;
  - How the proposed actions will impact air quality in areas that bear a disproportionate share of the air pollution burden within its jurisdiction;
  - Expected range of emissions benefits.

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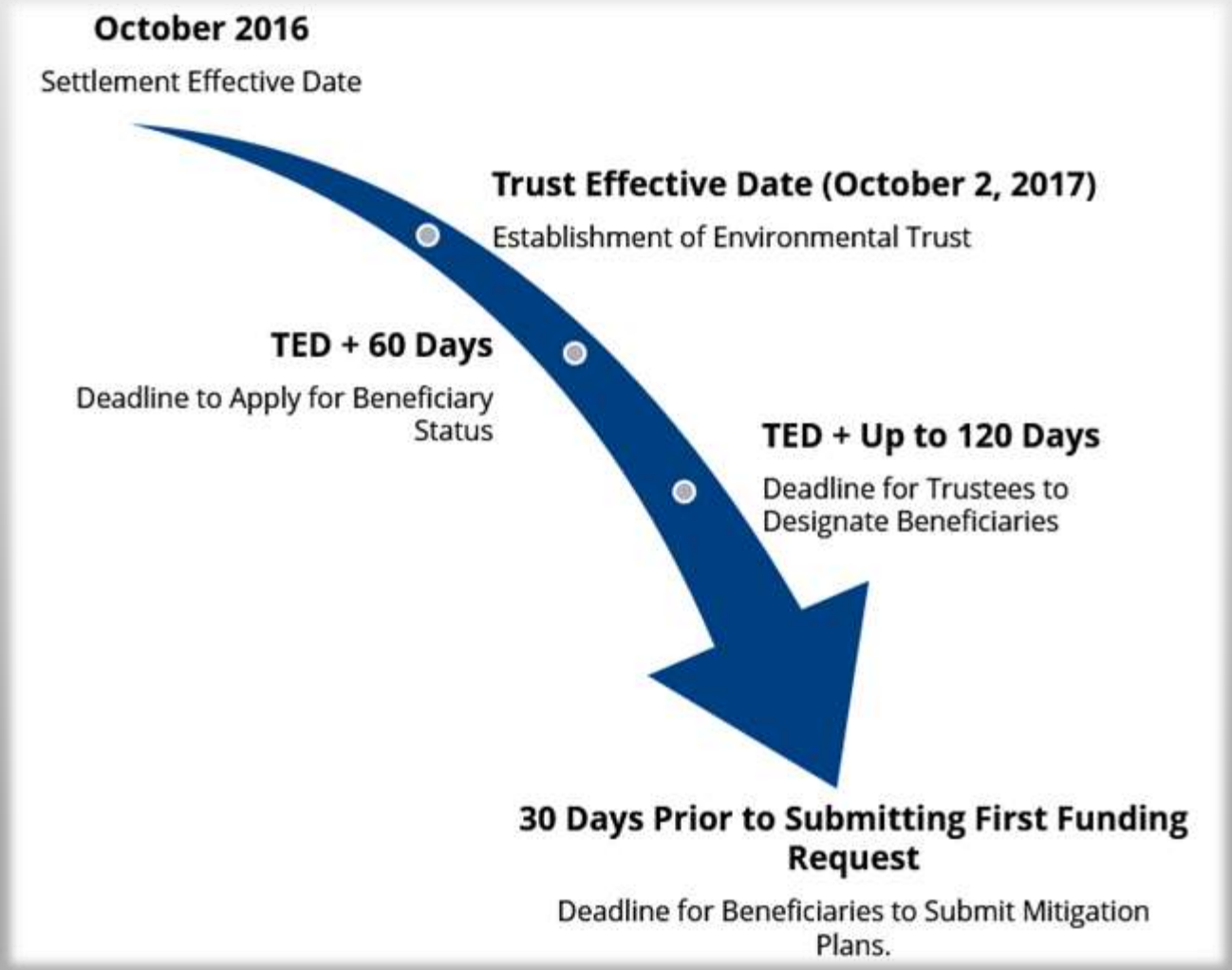
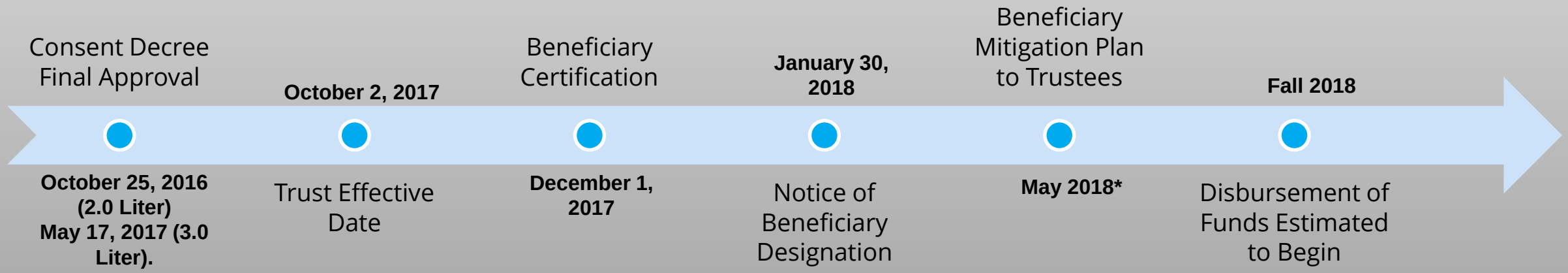
Applications for Funding Can Flow After the TED



California's Mitigation Trust Timeline



***There is no specific deadline for the Beneficiary Mitigation Plan; however, it is required to be submitted at least 30 days before any funding request.**

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EPA 2016 National Port Strategy Assessment

Equipment Count Assumptions for a Typical Port in Screening Assessment

Equipment Type	Count
Drayage Trucks	1,000
Line-Haul Locomotives	2
Switch Locomotives	3
Yard Tractors	200
RTG Cranes	25
Container Handlers	50
Tugs	20
Ferries	5
Containership Total Calls	718
Tanker Ship Total Calls	913

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Overview of Strategy Scenarios

Sector	Strategy	Scenario Summary Description
Drayage Trucks	Technological	Truck replacement strategies to accelerate turnover to cleaner EPA standards and plug-in hybrid electric vehicles (PHEVs).
	Operational	Reduced gate queues.
Rail	Line-haul Technology	Locomotive engine replacement strategies, including electric locomotives.
	Line-haul Operational	Fuel economy improvements.
	Switcher Technology	Switcher locomotive engine replacement strategies, including use of GenSets.
CHE	Yard Truck	Yard truck replacement strategies, including battery electric vehicles.
	Rubber Tire Gantry Crane	Crane replacement strategies, including electric cranes.
	Container Handler	Container handling equipment replacements, including electric equipment.
Harbor Craft	Tug	Tug repower and replacement strategies, including hybrid electric vessels.
	Ferry	Ferry repower and replacement strategies, including hybrid electric vessels.
OGV	Fuel Change in Propulsion Engines	Fuel use switch strategies to 500 ppm sulfur fuels, 200 ppm sulfur fuels, and liquefied natural gas (LNG) for bulk, container, passenger, and tanker vessels.
	Fuel Change in Auxiliary Engines	Fuel use switch strategies to ultra-low sulfur diesel (ULSD) fuel and LNG for bulk, container, passenger, and tanker vessels.
	Shore Power	Shore power for container, passenger, and reefer vessels.
	AMECS	Advanced Marine Emission Control Systems (AMECS) for container and tanker vessels.
	Reduced Hoteling	Hoteling time reduction for container vessels.

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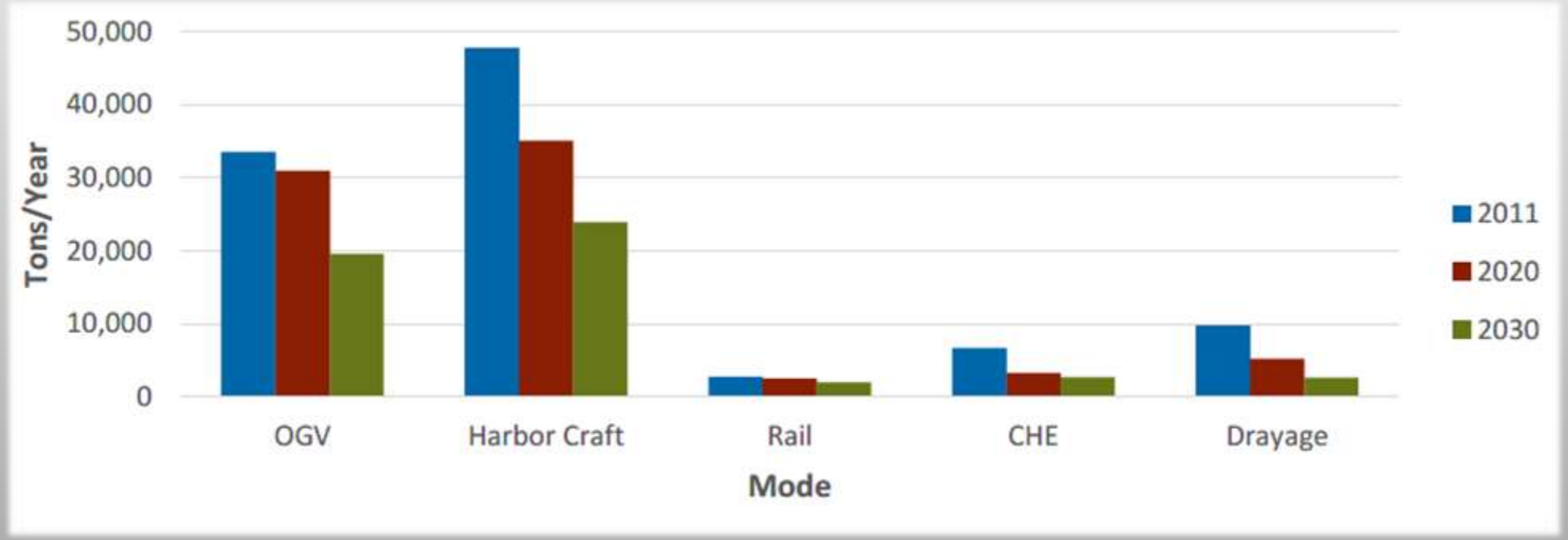
Total NOx Emissions Aggregated by Sector, Ton/Year



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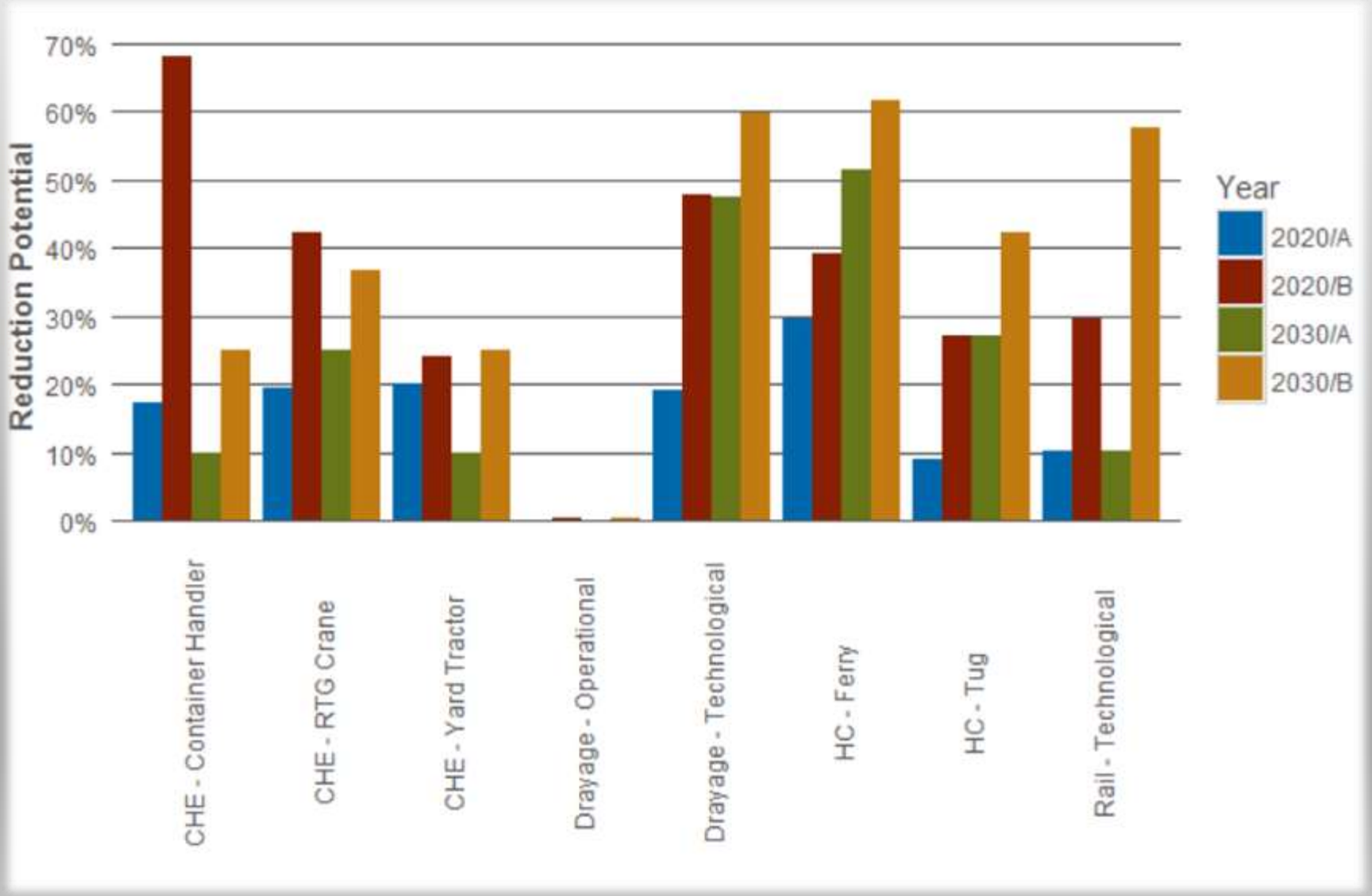
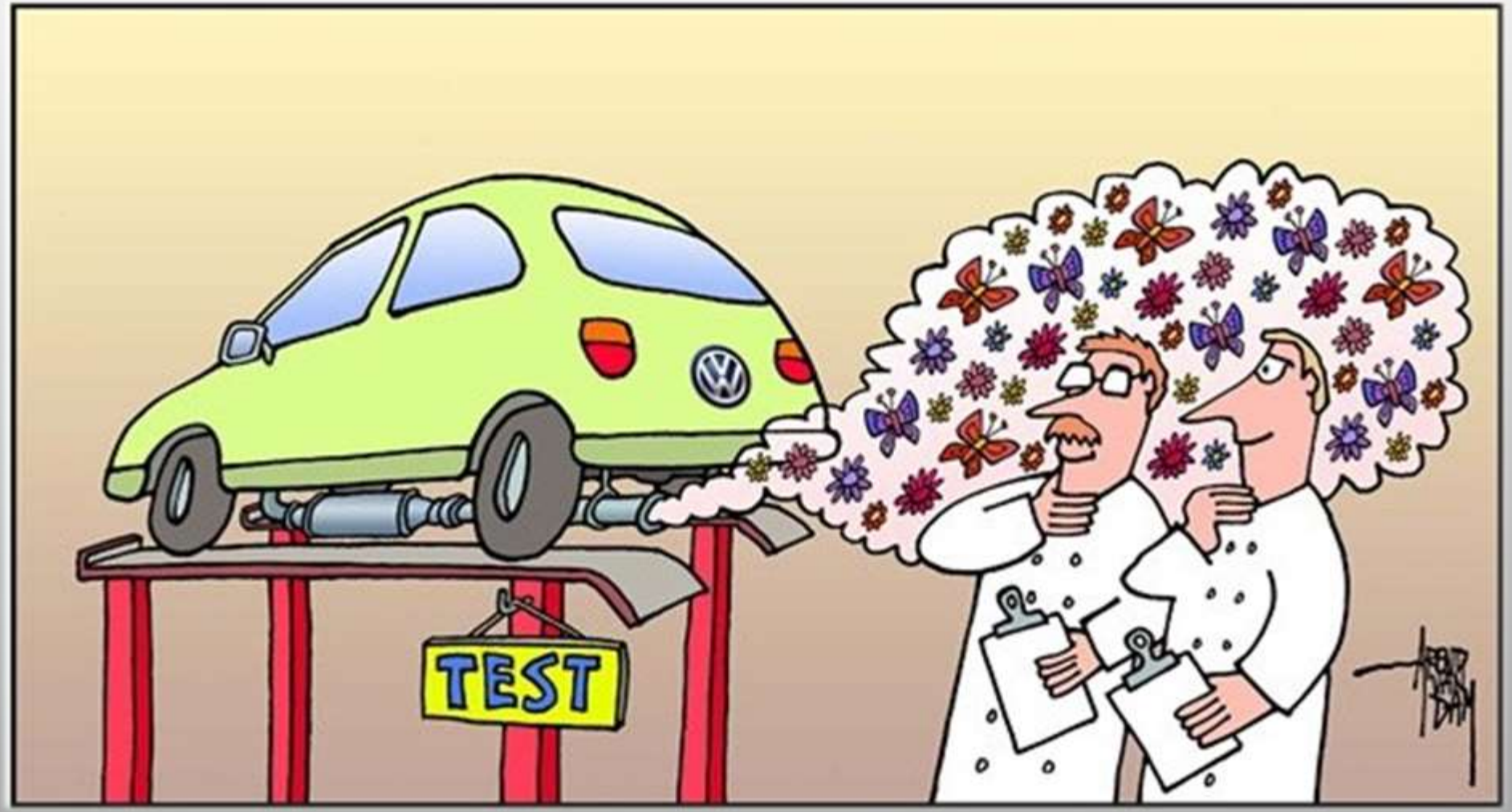
NOx Relative Reduction Potential of Non-OGV Sector

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Diesel Technology Forum Advocacy

Diesel Technology Forum Advocacy

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How to Make the Most of a $423 million Investment for Immediate NOx Reduction

	Price Per Application	# of Vehicles or Equipment placed into Service for $423 million	Anticipated NOx Reduction per Year per Project	Total Cost to Exclusively Fund a Particular Project	Cost to Remove Each lb of NOx ($/lb	Total NOx (lbs) Reduction per year
pre 1991 port truck replacement with **Clean Diesel**	$110,000	3,845	1,282	$423,000,000	$86	**4,929,873**
pre 1991 port truck replacement with CNG	$140,000	3,021	1,292	$423,000,000	$108	**3,903,686**
Tier 0 to Tier 4 **Clean Diesel** switch locomotive	$3,000,000	141	37,602	$423,000,000	$80	**5,301,882**

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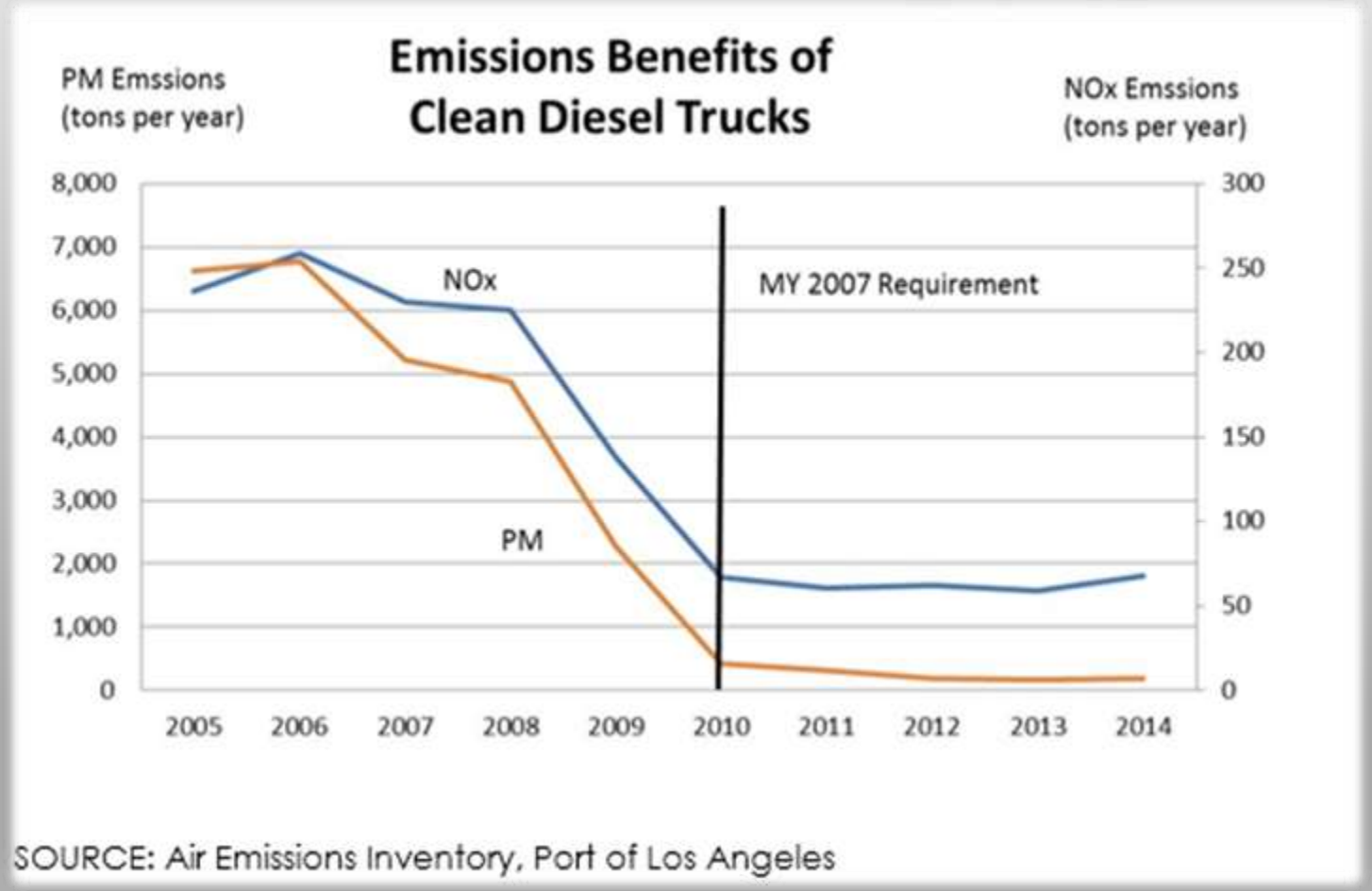
Port of Long Beach/ Port of Los Angeles Clean Truck Program Validates Replacement Strategy



SOURCE: Air Emissions Inventory, Port of Los Angeles

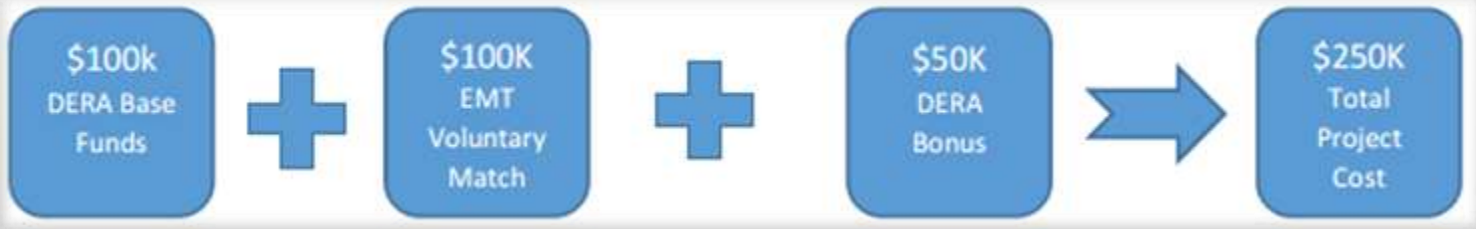
By 2010, all ~16,000 dray trucks must meet MY 2007 US EPA emissions requirement

PM emissions reduced by 97%

NOx emissions reduced by 71%

Categories of VW Mitigation Funds for Ports

Voluntary Match of VW Fund with Diesel Emission Reduction Act ("DERA")



- The DERA option also allows beneficiaries to use trust funds for actions not specifically enumerated in the consent decree, but otherwise eligible under DERA.
- States may use the DERA option to fund grant, rebate, and loan programs for clean diesel projects that use:
  - U.S. EPA or CARB-verified retrofit technologies or certified engine configurations;
  - Idle-reduction technologies that are U.S. EPA-verified;
  - Aerodynamic technologies and low rolling resistance tires that are U.S. EPA verified;
  - Early engine, vehicle, or equipment replacements with certified engine configurations.

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Class 8 Local Freight Trucks & Port Drayage Trucks

- 1992-2012 engine model year
- Gross Vehicle Weight Rating (GVWR) >33,000 lbs used for port drayage and/or freight/cargo delivery “(including waste haulers, dump trucks, concrete mixers)”
- Repowers and replacements
- Existing truck/engine must be scrapped

Class 8 Local Freight Trucks & Port Drayage Trucks (Eligible Large Trucks)
Class 4-7 Local Freight Trucks (Eligible Medium Trucks)

Activity	Vehicle and Equipment Eligibility (Engine Model Year or Tier)	Trust Funding Limits	
		Non-Gov. Owned	Gov. Owned
Engine replacement with new diesel or alternate fueled engine, MY (model year) in which the EMA occurs or one engine model year prior	1992-2009	40%	100%
Engine replacement with new all-electric engine, engine MY in which the EMA occurs or one engine MY prior	1992-2009	75%	100%
Vehicle replacement with new diesel or alternate fueled vehicle, engine MY in which the EMA occurs or one engine MY prior	1992-2009	25% (50% for Drayage)	100%
Vehicle Replacement with all-electric vehicle, engine MY in which the EMA occurs or one engine MY prior	1992-2009	75%	100%

Class 4-7 Freight Trucks

- 1992-2012 engine model year
- GVWR 14,001-33,000 lbs used to deliver cargo and freight “(e.g., courier services, delivery trucks, box trucks moving freight, waste haulers, dump trucks, concrete mixers)”
- Repowers and replacements
- Existing truck/engine must be scrapped

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Class 5-8 Medium and Heavy Duty Highway Vehicles (including Drayage Trucks)

Activity	Vehicle and Equipment Eligibility (Engine Model Year or Tier)	DERA Funding Limits
Engine replacement with diesel or alternate fueled engine, 2017 MY or newer	1995-2006	40%
Engine replacement with engine certified to CARB's Optional Low-NOx standards, 2017 MY or newer	1995-2006	50%
Engine replacement with an electric motor or an electric power source, 2017 MY or newer	1995-2009	60%
Vehicle replacement with diesel or alternate fueled vehicle, 2017 MY or newer engine (2012 MY or newer engine for Drayage)	1995-2006	25% (50% for Drayage)
Vehicle replacement with vehicle powered by engine certified to CARB's Optional Low-NOx standards, 2017 MY or newer engine	1995-2006	35% (50% for Drayage)
Vehicle replacement with all-electric vehicle, 2017 MY or newer engine	1995-2009	45% (50% for Drayage)
Retrofits with verified exhaust control technologies (SCR is the only eligible retrofit technology for vehicles with 2007-2009 MY engines)	1995-2009	100%
Verified Aerodynamic Technologies and Low Rolling Resistance Tires (in conjunction with above activities)	1995-2009	100%
Verified Idle Reduction Technologies (APUs and generators are not eligible on vehicles with 2007-2009 MY engines)	1995-2009	25%
Clean Alternative Fuel Conversion	1995-2009	40%

Freight Switcher Locomotives

- Pre-Tier 4 engines operating at least 1,000 hours/year
- “Locomotive that moves rail cars around a rail yard as compared to a line-haul engine that move [sic] freight long distances”
- Repowers and replacements
- Existing switcher/engine must be scrapped

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Freight Switchers

Activity	Vehicle and Equipment Eligibility (Engine Model Year or Tier)	Trust Funding Limits	
		Non-Gov. Owned	Gov. Owned
Engine replacement with new diesel or alternate fueled engine or generator sets that are EPA certified for the engine MY in which the EMA occurs	Pre-Tier 4	40%	100%
Engine replacement with new all-electric engine	Pre-Tier 4	75%	100%
Locomotive replacement with new diesel or alternate fueled freight switcher that is EPA certified for the engine MY in which the EMA occurs	Pre-Tier 4	25%	100%
Locomotive replacement with new all-electric freight switcher	Pre-Tier 4	75%	100%

Line Haul (freight and passenger) and Switcher Locomotives

Activity	Vehicle and Equipment Eligibility (Engine Model Year or Tier)	DERA Funding Limits
Engine replacement with 2017 MY or newer Tier 4 engine	Unregulated – Tier 2; Tier 2+ switcher	40%
Engine replacement with 2017 MY or newer all-electric engine	Unregulated – Tier 2; Tier 2+ switcher	60%
Locomotive replacement with equipment powered by a 2017 MY or newer engine (diesel or alternate fuel)	Unregulated – Tier 2; Tier 2+ switcher	25%
Locomotive replacement with 2017 MY or newer all-electric equipment	Unregulated – Tier 2; Tier 2+ switcher	45%
Certified Remanufacture System or Verified Engine Upgrade	Unregulated - Tier 2+	40%
Retrofit with verified exhaust control technology	Unregulated - Tier 2+	100%
Idle reduction technology, including shore power	Unregulated – Tier 2+	40%

Ferries and Tugs

- Pre-Tier 3 engines
- Repowers only

Activity	Vehicle and Equipment Eligibility (Engine Model Year or Tier)	Trust Funding Limits	
		Non-Gov. Owned	Gov. Owned
Engine replacement with new Tier 3 or 4 diesel or alternate fueled engine	Pre-Tier 3	40%	100%
Engine replacement with new all-electric engine	Pre-Tier 3	75%	100%
Certified Remanufacture System or Verified Engine Upgrade	Pre-Tier 3	40%	100%

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Forklifts & Port Cargo Handling Equipment

- Forklifts: >8,000 lb. lift capacity. “Eligible types of forklifts include reach stackers, side loaders, and top loaders.”
- Port cargo handling equipment: “rubber-tired gantry cranes, straddle carriers, shuttle carriers, and terminal tractors, including yard hostlers and yard tractors that operate within ports”
- Repower or replacement to all-electric only
- Existing vehicle/engine must be scrapped

Forklifts and Port Cargo Handling Equipment

Activity	Vehicle and Equipment Eligibility (Engine Model Year or Tier)	Trust Funding Limits	
		Non-Gov. Owned	Gov. Owned
Engine replacement with new all-electric engine	GSE: Pre-Tier 3 diesel; 3 g/bhp-hr and higher spark ignition Forklifts and Port CHE: Greater than 8000 lbs lift capacity	75%	100%
Equipment replacement with new all-electric equipment		75%	100%

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Ocean-Going Vessel (“OGV”) Shorepower

- “Systems that enable a compatible vessel’s main and auxiliary engines to remain off while the vessel is at berth”
- Marine systems “must comply with international shore power design standards” and “should be supplied with power sourced from the local utility grid

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OGV Shore Power

Activity	Vehicle and Equipment Eligibility (Engine Model Year or Tier)	Trust Funding Limits	
		Non-Gov. Owned	Gov. Owned
Costs associated with shore-side system	n/a	25%	100%

Marine Shore Power Connection System

Activity	Vehicle and Equipment Eligibility (Engine Model Year or Tier)	DERA Funding Limits
Costs associated with shore-side system	n/a	25%

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California “At-Berth” Regulations

Existing Regulation Background

- Ports of Los Angeles, Long Beach, Oakland, San Diego, Hueneme, San Francisco
- Container, passenger, refrigerated cargo (reefer) vessels
  - Container/reefer fleets 25 annual visits
  - Passenger fleets 5 annual visits
- Emission/power reduction percentages phase in from 10% in 2010 to 80% in 2020
- Two pathways to reduce emissions
  - Reduced On-board Power Generation
  - Equivalent Emission Reduction

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Regulatory Implementation

- 63 berths at 23 terminals shore power equipped
- Two alternatives to shore power in commercial operation at Ports of Los Angeles and Long Beach
- Barge-based exhaust scrubber systems:
  - AMECS
  - METS-1
- Land-side project in development -Green Omni Terminal at Port of LA

Regulatory Implementation Issues

- Vessels having difficulty accessing shore power berths
  - Berth assignment, berth configuration, congestion, incompatibility
- Failure to meet 3-hr limit results in a noncompliant visit, even if emission reductions occurred
  - Delay is often a result of something outside of the vessels control (clearance/labor delay, terminal equipment issues)
  - Without Advisory, visit does not count even if vessel connects to shore power and reduces emissions
- Majority of advisory claims still resulted in emission reductions (70%)

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ARB Board Direction

- Addendum to Resolution 17-7 and Resolution 17-8 from March 23, 2017

> BE IT FURTHER RESOLVED, that within 18 months of this date, ARB staff shall develop At-Berth regulation amendments that achieve up to 100% compliance by 2030 for LA Ports and Ports that are in or adjacent to areas in the top 10% of those defined as most impacted by CES;

- Emissions from ships (at berth, at anchor, and in-transit) remain a significant contributor to community health risk.

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Additional Vessel Types

- Currently regulated vessels typically operate on a Liner schedule
  - Liner vessels call a fixed set of ports, often called a "loop"
  - Cargo more likely to be time sensitive, with fixed times of arrival/departure
  - Liner vessels more likely to be repeat visitors to California
- Additional vessel types considered have variable schedules and operate on a Tramper schedule
  - Likely to operate with no fixed regular destination or specific time of arrival
  - Trampers may call California only a few times during lifetime of the vessel

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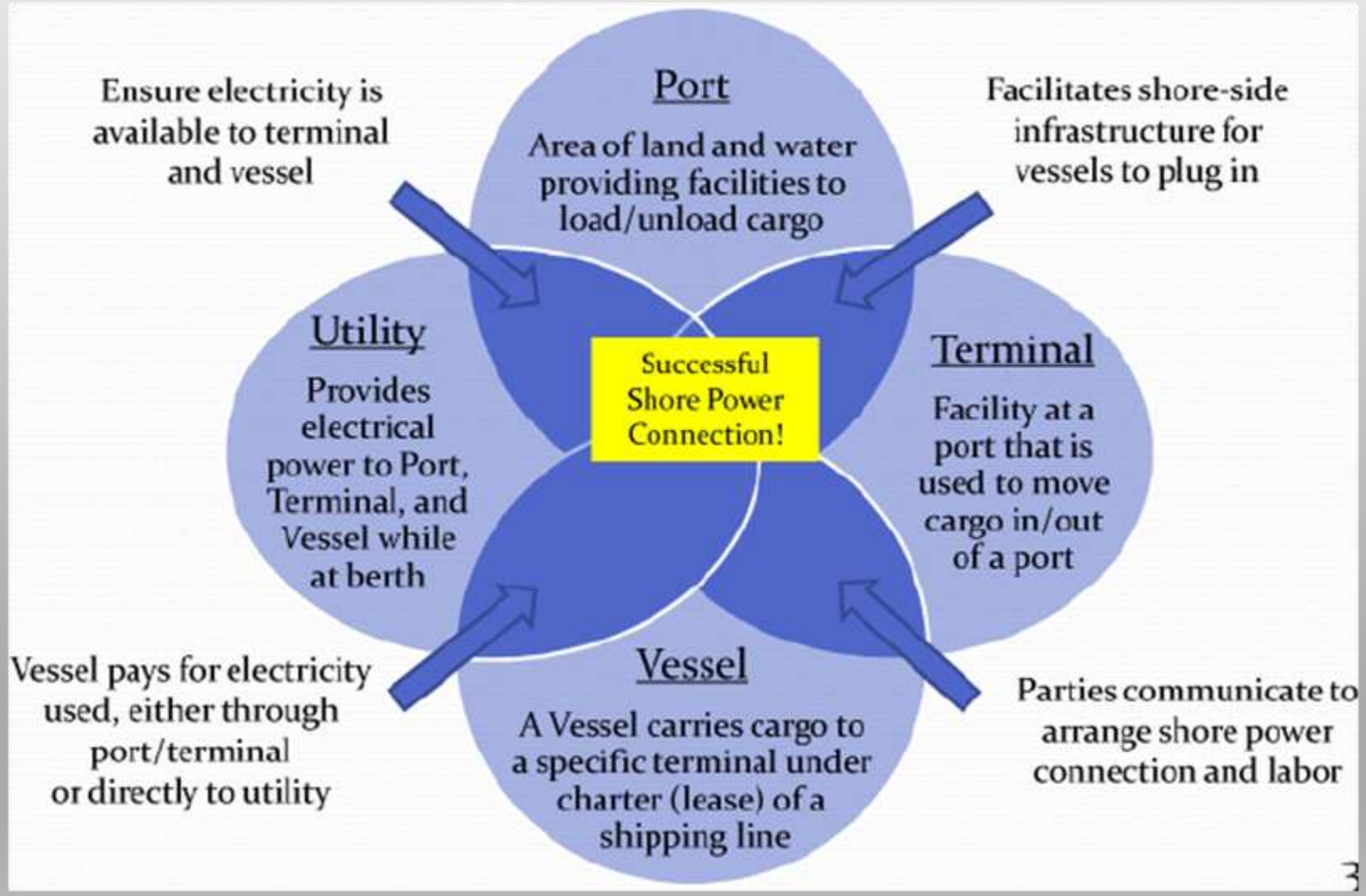
Defining the Roles – Shore Power



Terminal Responsibilities

- Industry/Ports provide:
  - Provide qualified personnel to plug vessel in
  - Maintain shore-side electrical equipment
  - Confirm availability of berth or necessary equipment
  - In some cases where the ports act as terminal operators, the ports would be responsible for the terminal responsibilities

Single, Flexible Compliance Pathway

- Use an approved compliance strategy for the entire visit including:
  - Shore power
  - Technologies with an ARB Executive Order
- Potential to expand approved strategies:
  - New control technologies
  - Onboard control technology
  - Cleaner vessels

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THANK YOU!

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