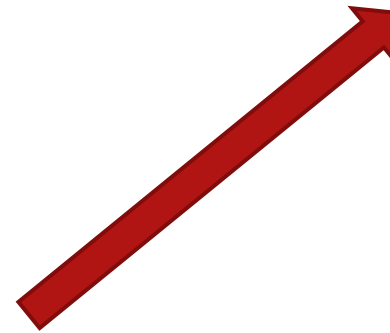


What is the VW Fund or the Environmental Mitigation Trust? \$2.9 Billion Trust to Mitigate NOx Emissions through Upgrading Heavy-Duty Vehicles & Equipment

Breakdown of the Components of the \$14.9 Billion VW Settlement



- \$10 Billion - Vehicle Buyback/Lease Termination (Appendix A & B)
- **\$2.9 Billion - Environmental Mitigation Trust (Appendix D)**
- \$2.0 Billion - Zero Emission Passenger Vehicle Commitment (Appendix C)



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**

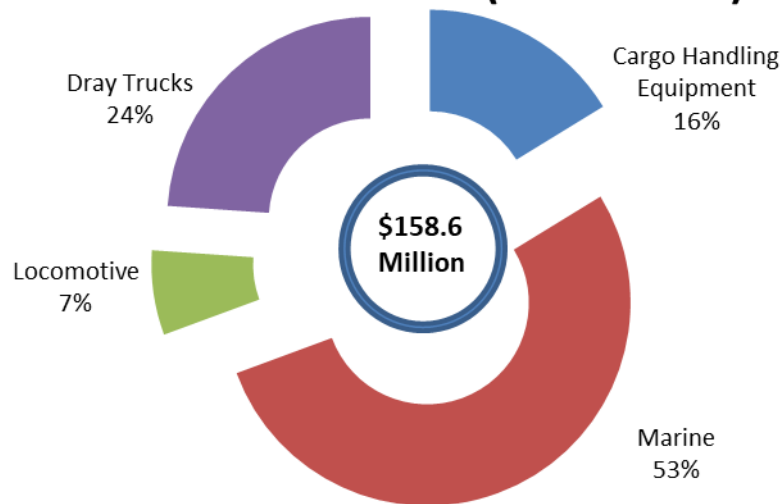
- 73,000 engines, vehicles & equipment
- 335,200 tons of NOx reduced

Ports Should Pay Attention Because Eligible Funding Categories can Help Tenants and Customers

- ▶ Class 8 Local Freight Trucks
- ▶ Buses (school, transit or shuttle)
- ▶ Class 4-7 Freight Trucks
- ▶ Airport Ground Support
- ▶ Forklifts
- ▶ EV Charging Infrastructure
- ▶ Dray Trucks
 - ▶ 40% for new diesel or CNG
 - ▶ 75% for all-electric option
- ▶ Tugs & Ferries
 - ▶ 40% for repower of private fleets
 - ▶ 100% for government owned equipment
- ▶ OGV Shore Power
 - ▶ 25% private owned infrastructure
 - ▶ 100% government owned infrastructure
- ▶ Switchers
 - ▶ 40% for a repower using diesel or CNG
 - ▶ 75% for an all-electric repower or equipment
 - ▶ 25% for all new equipment
 - ▶ 100% for government owned equipment
- ▶ The DERA Option

The “VW Fund” Operates Like DERA and Ports Have Been Big Recipients

Diesel Emission Reduction Act Funding Assistance to Ports (2008 - 2015)



- ▶ \$1 out of every \$3 Diesel Emission Reduction Act (DERA) funds have gone towards port customers and tenants between 2008 and 2015.

-Diesel Technology Forum analysis of EPA/DERA 3rd Report to Congress

Advancing Available Clean Technologies in Workboats, Switchers, Vessel and Trucks Will Deliver NOx Reductions

Share of Port NOx Emissions Inventory

	NW Ports (2016)	Long Beach (2017)	NY-NJ (2012)	VW Fund Eligibility
OGVs	50%	50%	35%	Shorepower
Trucks	6%	30%	38%	Truck replacement
Workboats & Switchers	34%	15%	10%	Engine Repower



Sources: Individual Port Emissions Inventories

(1) https://www.panynj.gov/about/pdf/PANYNJ_CAS_2014_FINAL2.pdf

(2) <http://polb.com/civica/filebank/blobload.asp?BlobID=14109>

(3) https://www.portseattle.org/Environmental/Air/Seaport-Air-Quality/Documents/2018_Puget_Sound_Maritime_Air_Emissions_Inventory.pdf

The DERA Option: Expands list of eligible projects and opportunities for greater reductions

Figure 1 DERA Option: Trust Funds as Voluntary Match to Receive EPA Matching Incentive

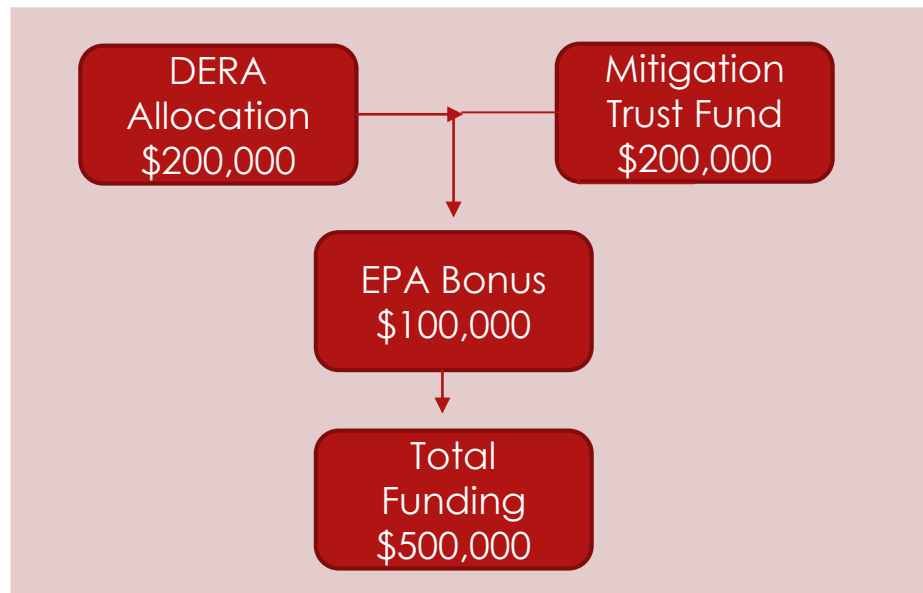
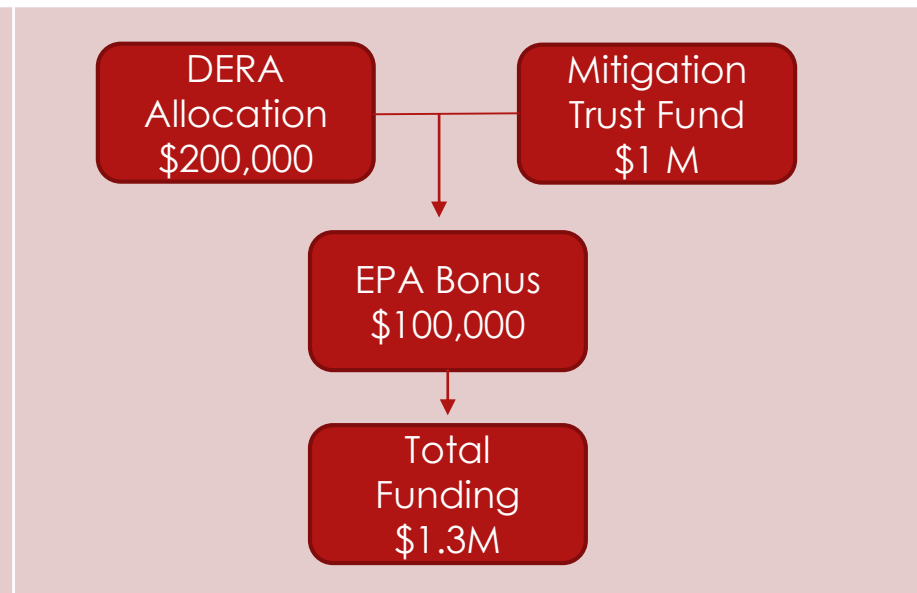


Figure 2: DERA Option: Trust funds as a Larger Voluntary Match to Achieve Additional NOx reductions



NOTE: Graphic Does NOT include mandatory cost share funds

VW Environmental Mitigation Trust

Historically High-Emitting Projects & Eligible Funding

Chris Wolfe



Outline

- Purpose of the Trust Agreement
 - NO_x
 - Funding where VW vehicles were/are/will be
 - Air quality & community benefits
 - Eligible projects
 - High-emitting project opportunities
 - Other considerations
 - Snapshot across the country
- 

Purpose of the Trust Agreement

“Whereas, the Defendants are required to establish this State Mitigation Trust and to fund it with funds to be used for environmental mitigation projects that reduce emissions of nitrogen oxides (“NOx”) where the Subject Vehicles were, are, or will be operated...”

Funding requests must include “a detailed description of the proposed Eligible Mitigation Action, including its community and air quality benefits” ...

High-Emitting Projects

$$\text{Emissions} = \text{Activity} * \text{Emissions Rate}$$

Engine Power (HP/kW)	Annual Usage (Hours/Fuel/Miles)
Ocean-Going Vessels <i>(11,000 kW auxiliary – cruise)</i>	30-40 hours at berth/call, 52 calls/year <i>~2,080 hours/year</i>
Marine Engines (tugs, ferries) <i>(4,000 hp – vessel)</i>	<i>2,500 – 3,000 hours/year</i>
Switcher Locomotives <i>(2,000-3,000 hp*)</i>	<i>140 gal diesel/day</i> <i>2,500-3,000 hours/year</i>
Cargo-Handling Equipment <i>(100hp – 600+hp)</i>	TERP: RTG <i>~1,251 hours/year</i> , terminal tractors <i>~1,261 hours/year</i>
On-road Trucks & Buses <i>(300+ hp)</i>	TERP: annual miles for Class 4 & 7 trucks <i>~10-20k</i> , Class 8 trucks <i>~30-60k</i> , buses <i>~10k</i> school, <i>~35k</i> transit

Example NOx Reductions

Example Eligible Project	Potential NOx Reductions (tons/year)
OGV Shorepower	123 tons
Tug Repower (4,000 hp)	18 tons (T2 to T4) to 30 tons (T0 to T4)
Freight Switcher	2 tons (T2 to T4) to 12+ tons (T0 to T4)
Port CHE Electrification	RTG: 1-3.5 tons, Terminal Tractor: 0.4-1.4 tons, Forklift: 0.3-0.7 tons
Class 8 Drayage/Freight/Waste	0.2 – 1.0 ton
Class 4-8 School/Transit Bus	0.1 - 0.7 ton
Airport GSE Electrification	0.1 – 2 tons (baggage & aircraft tugs)
Class 4-7 Local Freight	0.1 - 0.2 ton
ZEV Infrastructure	Unknown – use for LD/MD/HD
DERA Option	Opens door to more categories

Eligible Funding

	Ocean-Going Vessel (OGV) Shorepower (Equipment: cables, cable management systems, coupler systems, control systems, power distribution)	% Cost Reimbursement
Private	- Shoreside costs	25%
Public	- Shoreside costs	100%



	Ferries/Tugs (Unregulated/Tier 1/2 marine, scrappage required)	% Cost Reimbursement
Private	- Repower (diesel to Tier 4 or upgrade to CMS/VEU, alt-fuel, hybrid, + install)	40%
	- Repower (all-electric + charging, + install)	75%
Public	- Repower (diesel to Tier 4 or upgrade to CMS/VEU, alt-fuel, hybrid, + install)	100%
	- Repower (all-electric + charging, + install)	100%



	Freight Switchers (Pre-Tier 4 w/ >1000 hours/year, scrappage required)	% Cost Reimbursement
Private	- Repower (diesel, alt-fuel, hybrid, incl. gen-sets, + install)	40%
	- Repower (all-electric + charging, + install)	75%
	- Replacement (diesel, alt-fuel, hybrid, incl. gen-sets)	25%
	- Replacement (all-electric + charging)	75%
Public	- Repower (diesel, alt-fuel, hybrid, incl. gen-sets, + install)	100%
	- Repower (all-electric + charging, + install)	100%
	- Replacement (diesel, alt-fuel, hybrid, incl. gen-sets)	100%
	- Replacement (all-electric + charging)	100%



Photo credits (top to bottom): POLB, Workboat, Wikipedia (pictures link to original source)

Eligible Funding, continued

Port Cargo-Handling Equipment (CHE) (Forklifts w/>8k lbs lift capacity, scrappage required)		% Cost Reimbursement	
Private	- Repower (all-electric + charging, + install)	75%	
	- Replacement (all-electric + charging)	75%	
Public	- Repower (all-electric + charging, + install)	100%	
	- Replacement (all-electric + charging)	100%	
Class 8 Local Freight/Waste/Dump Trucks & Port Drayage Trucks (1992-2009, scrappage required)		% Cost (Freight)	% Cost (Drayage)
Private	- Repower (diesel, alt-fuel, hybrid, + install)	40%	40%
	- Repower (all-electric + charging, + install)	75%	75%
	- Replacement (diesel, alt-fuel, hybrid)	25%	50%
	- Replacement (all-electric + charging)	75%	75%
Public	- Repower (diesel, alt-fuel, hybrid, + install)	100%	100%
	- Repower (all-electric + charging, + install)	100%	100%
	- Replacement (diesel, alt-fuel, hybrid)	100%	100%
	- Replacement (all-electric + charging)	100%	100%
Class 4-8 School Bus, Shuttle Bus, or Transit Bus (<=2009, scrappage required)		% Cost Reimbursement	
Private	- Repower (diesel, alt-fuel, hybrid, + install)	40%	
	- Repower (all-electric + charging, + install)	75%	
	- Replacement (diesel, alt-fuel, hybrid)	25%	
	- Replacement (all-electric + charging)	75%	
Public	- Repower (diesel, alt-fuel, hybrid, + install)	100%	
	- Repower (all-electric + charging, + install)	100%	
	- Replacement (diesel, alt-fuel, hybrid)	100%	
	- Replacement (all-electric + charging)	100%	



Photo credits (top to bottom): TX Yard Trucks, Terminal Transfer, CapMetro (pictures link to source)

Eligible Funding, continued

	Airport Ground Support Equipment (GSE) ($<$ Tier 4 CI, Uncert/ $>$ 3.0 g/bhp-hr SI, scrappage required)	% Cost Reimbursement
Private	- Repower (all-electric + charging, + install)	75%
	- Replacement (all-electric + charging)	75%
Public	- Repower (all-electric + charging, + install)	100%
	- Replacement (all-electric + charging)	100%
	Class 4-7 Local Freight ("Medium") Trucks (1992-2009, scrappage required)	% Cost Reimbursement
Private	- Repower (diesel, alt-fuel, hybrid, + install)	40%
	- Repower (all-electric + charging, + install)	75%
	- Replacement (diesel, alt-fuel, hybrid)	25%
	- Replacement (all-electric + charging)	75%
Public	- Repower (diesel, alt-fuel, hybrid, + install)	100%
	- Repower (all-electric + charging, + install)	100%
	- Replacement (diesel, alt-fuel, hybrid)	100%
	LD ZEV Supply Equipment (Max use of up to 15% of funds, L1/2/fast charging equipment, H2 FC equipment)	% Cost Reimbursement
Public	- Electrical vehicle supply equipment available to public (purchase/install/maint)	75%
	- Electrical vehicle supply equipment available to public (purchase/install/maint)	100%
Other	- Electrical vehicle supply equipment available to workplace/multi-unit dwelling (purchase/install/maint)	60%
	- H2 FC vehicle supply equip. w/250 kg/day dispensing capability available to public (purchase/install/maint)	33%
	- H2 FC vehicle supply equip. w/100 kg/day dispensing capability available to public (purchase/install/maint)	25%



Photo credits (top to bottom): Wikipedia, The Conversation, Plug In America (pictures link to source)

Other Considerations

1. **Community impacts** – consider specific neighborhood impacts (e.g., refuse, port/railyard proximity, bus/truck routing, EV charging, etc.)
2. **Co-benefits** – PM2.5/DPM reduction provides significant health benefits; reducing/avoiding fossil fuel combustion provides climate benefits
3. **Leveraging funds** – funding can go further if some funds are leveraged from the private sector or other sources
4. **Transforming transportation** – VW allows states to address legacy vehicles/equipment and move towards more sustainable options

VW – Snapshot

State	\$ Expected	Progress
CA	\$422M	Ongoing – CA trustee to be finalized; website
TX	\$209M	Draft mitigation plan expected April-May
FL	\$152M	Public comments being taken via survey
NY	\$127M	Website w/email sign-up for public, 2 events held
PA	\$119M	Draft plan released: NAA, EJ, high pollution areas
WA	\$113M	Draft plan released: 45% marine & 45% onroad
IL	\$109M	Draft plan released: 20% onroad, 10% school bus, 65% off-road (locomotive, marine, DERA option)
VA	\$94M	Website w/email sign-up for public; RFI issued; early draft plan released in late 2016.
NC	\$92M	Draft plan released: 3 phases of funding; for first phase: 55% buses (school/transit), 10% onroad, 15% off-road (locomotive, marine, DERA option)
MA	\$75M	Website w/email sign-up for public; project survey
OH	\$75M	Draft plan released: 50% onroad (truck/bus), 25% off-road (locomotive, GSE, CHE), 22% (OGV, EVSE)

Questions?

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