

Update to the Board on VW's California ZEV Investment Commitment

March 24 2017

VW Settlements

2.0 Liter

Appendix A & B
Vehicle Buyback/
Emissions
Modification

Appendix C
ZEV Investment
Commitment

Appendix D
NOx Mitigation
Trust

3.0 Liter

Vehicle Buyback/
Emissions
Modification

NOx Mitigation
Trust

ZEV Access

Civil Penalties

\$153.8 Million to California Air
Pollution Control Fund

VW Settlement

Summary of Appendices C & D

Settlement	Monetary Relief	Injunctive Relief
2.0 Liter Diesel	\$381 million (Trust)	\$800 million (VW)
3.0 Liter Diesel	\$42 million (Trust) \$25 million (APCF)	New ZEV Models/Types
Penalty/Civil	\$154 million (APCF)	
Total	State to Manage \$600 million	VW to Manage \$800 million

2.0L and 3.0 L Appendix D: Environmental Mitigation Trust

- * 2.0 L - \$381 million allocated to California
- * 3.0 L - \$42 million allocated to California
- * Mitigate the total lifetime excess NOx emissions
 - replace older heavy-duty vehicles and equipment in California with cleaner vehicles and equipment
 - ✓ On-road trucks
 - ✓ Transit, shuttle, and school buses
 - ✓ Off-road freight equipment
 - ✓ Ferries/tugs
 - ✓ Ocean going vessels

Why Was A Trust Required?

- * U.S. EPA required a trust be the mechanism due to misdirection of funds in the past (not in CA)
- * Trust will receive and disburse the funds
- * Wilmington Trust approved March 15

2.0 L and 3.0 L Appendix D: Environmental Mitigation Trust

- * Governor will identify a Lead Agency to act on the State's behalf to
 - Develop Beneficiary Mitigation Plan through a public process
 - Implement the Beneficiary Mitigation Plan and its projects
 - Report to the Trustee semi-annually
- * Trust is expected to be effective in mid 2017
- * Staff to return later in 2017 with Appendix D Update

Appendix C: VW ZEV Investment

- * VW to spend \$2B nationally, \$800M in CA
- * 10-year spending period, four 30-month cycles
- * Third party review annually
- * Investment Goals
 - Incent VW into a ZEV state of mind
 - Support transportation electrification and the next generation of zero-emission vehicles
 - Grow the State's burgeoning ZEV market
 - Support access to ZEVs, including for low-income consumers in disadvantaged communities

Appendix C: VW ZEV Investment

- * Eligible ZEV Investments include:
 - ZEV Infrastructure
 - Brand-neutral education and public awareness campaigns
 - ZEV access for all California consumers
 - A Green City initiative
 - Two Green Cities if 3.0 L agreement approved
 - Second city must be comprised of primarily Disadvantaged Communities

VW ZEV Investment Plan Development

- * 2.0 L Partial Consent Decree approved 10/25/16
- * ARB Public Workshop and comment opened 12/2/16
- * ARB Board Hearing 12/8/16
- * VW National Outreach Public Input Process Launch 12/9/16
- * ARB Public comment period ended 12/16/16
- * Resulting ARB Guidance Document posted and transmitted to VW for Investment Plan 2/10/17
- * VW Draft ZEV Investment Plan posted online 3/14/17

ZEV Investment Plan ARB Approval Terms

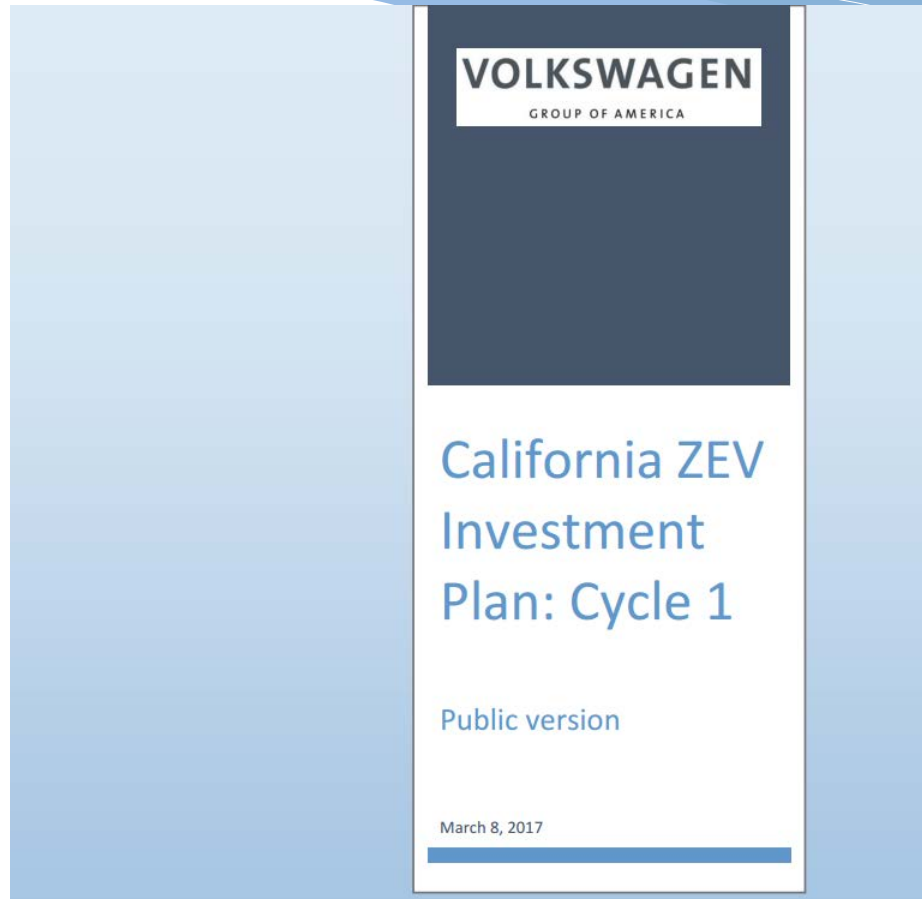
- * Approval is based on conformity with the terms in the 2.0 L Consent Decree, App C
 - * Must be within eligible spending categories
 - * ZEV awareness campaigns must be brand neutral
 - * Marketing of new company services such as ZEV car-share, or ZEV freight, or EV Charging cannot mention *any* automobile brand in writing or show logos

ZEV Investment Plan

Requirements of Consent Decree

- * A description of all ZEV Investments
- * An explanation of how each investment makes progress toward and/or meets one or more of the goals identified
- * An estimated schedule for implementing each investment and milestones in 6-month intervals
- * A projection of anticipated Creditable Costs associated with each investment

ZEV Investment Plan Overview of VW's Submittal



ZEV Investment Plan Funding Overview

Cost Category	1 st Cycle Costs, \$M		
	California	National	Total
ZEV Infrastructure	120	250	370
Green City	44	0	44
ZEV Education and Access	20	25	43-50
Electrify America / Organization	17	25	41
Total	200	300	500

EV Chargers

Plan Network Vision

- * **Long** Parking Time Periods
 - * Multiple Unit Dwellings, Workplace
 - * ~7.2 kW or Level 2
- * **Medium** Parking Time Periods
 - * Retail, Municipal Garages
 - * Level 2, Level 3 DCFC 50 kW
 - * Community Depots
 - * Level 3 DCFC 150 kW
- * **Short** Parking Time Periods
 - * Highway Depots
 - * Level 3, DCFC 150 kW and 320 kW

EV Chargers Budget and Timeline

- * Community-based Local - \$40 million
- * Long-distance Highway Network - \$65million
- * Estimated for O&M - \$15 million
- * Total: \$120 million
 - * <10% of infrastructure to support 1 million ZEVs by 2020

	Community-based local network			Long-distance highway network		
	Pre-site selection	In development	Operational	Pre-site selection	In development	Operational
Q2 2017	250-300	100-150	0	0-50	0-50	0
Q4 2017	100-150	150-200	50-100	0-50	0-50	0
Q2 2018	0	150-200	150-200	0	50+	0-50
Q4 2018	0	0-50	300-350	0	0-50	0-50
Q2 2019	0	0	350+	0	0	50+

EV Chargers

Market Characteristics

- * Number and locations based on gap analysis
 - * Difference between currently installed and projected demand
 - * Gap analysis use mitigates effect on other companies
- * Will provide \$120 million to economy
- * Will be usable by all ZEVs
 - * Will accept several forms of payment including credit cards
 - * Will have both DC Fast Charge standard connectors

EV Chargers

Community and Local

- * 350+ stations
 - * Multi-family dwellings
 - * Workplace
 - * Commercial/retail
 - * Community depots, and municipal lots/garages
- * A deployment mix of L2, 50 kW, and 150 kW chargers
- * Initially located in 5 major metropolitan areas

EV Chargers Initial Metropolitan Areas

- * CARB requested that investments be transformational
- * Resulting areas selected based partly on projected ZEV demand
 - * San Francisco
 - * San Jose
 - * San Diego
 - * Los Angeles
 - * Sacramento

EV Chargers

Five Metropolitan Area Selection

All metro areas in scope



- All major metropolitan areas in the US (~70% of US population)

A Eligible metro areas using key demographic metrics

- Key demographics
 - Population
 - Income levels
 - Educational attainment levels
- Hybrid sales
- Forecast ZEV sales

B Refine list based on local regulatory environment, utility feedback, and potential synergies with long-distance buildout

- Govt. incentives and regulations
- Local awareness of ZEVs
- Qualitative considerations, i.e. utility feedback and regional importance relative to long-distance network

List of markets to prioritized

California

1. Los Angeles
2. San Francisco
3. San Diego
4. Sacramento
5. San Jose

Number of metro areas

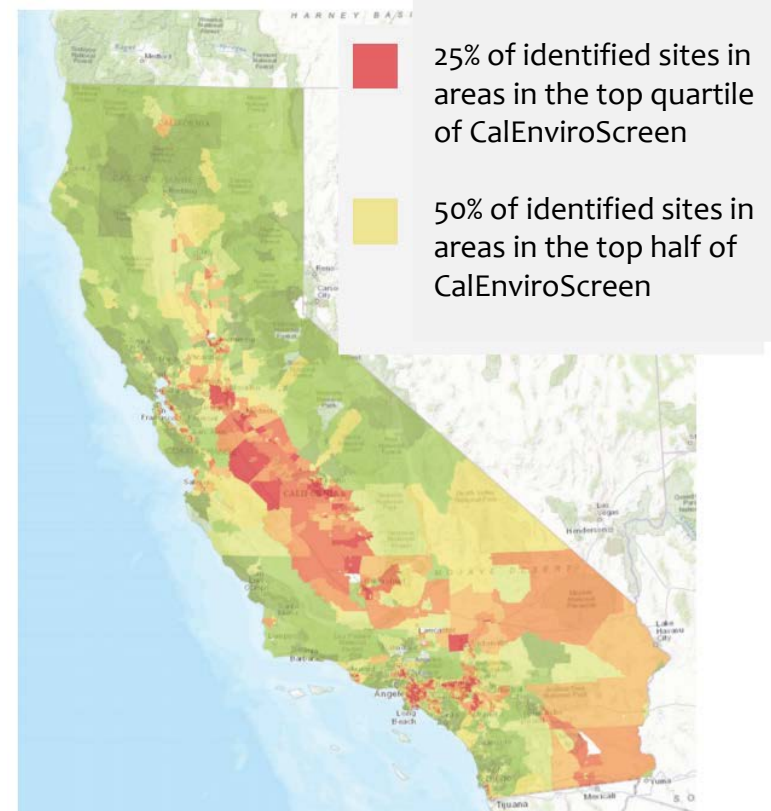
100+

5

5

EV Chargers Long-distance

- * Roughly 25% of chargers will be in top 25%ile of DAC – CalEnviroScreen
- * Over 50% of chargers will be in upper half of DAC
- * 150 kW or 320 kW chargers
 - * 3 – 6 times faster than currently installed chargers (25 – 50 kW)
 - * Mitigates issue of duplication
- * Average 5 plugs at each site
- * On ~12 highways



Source: VW ZIP 2017

EV Chargers

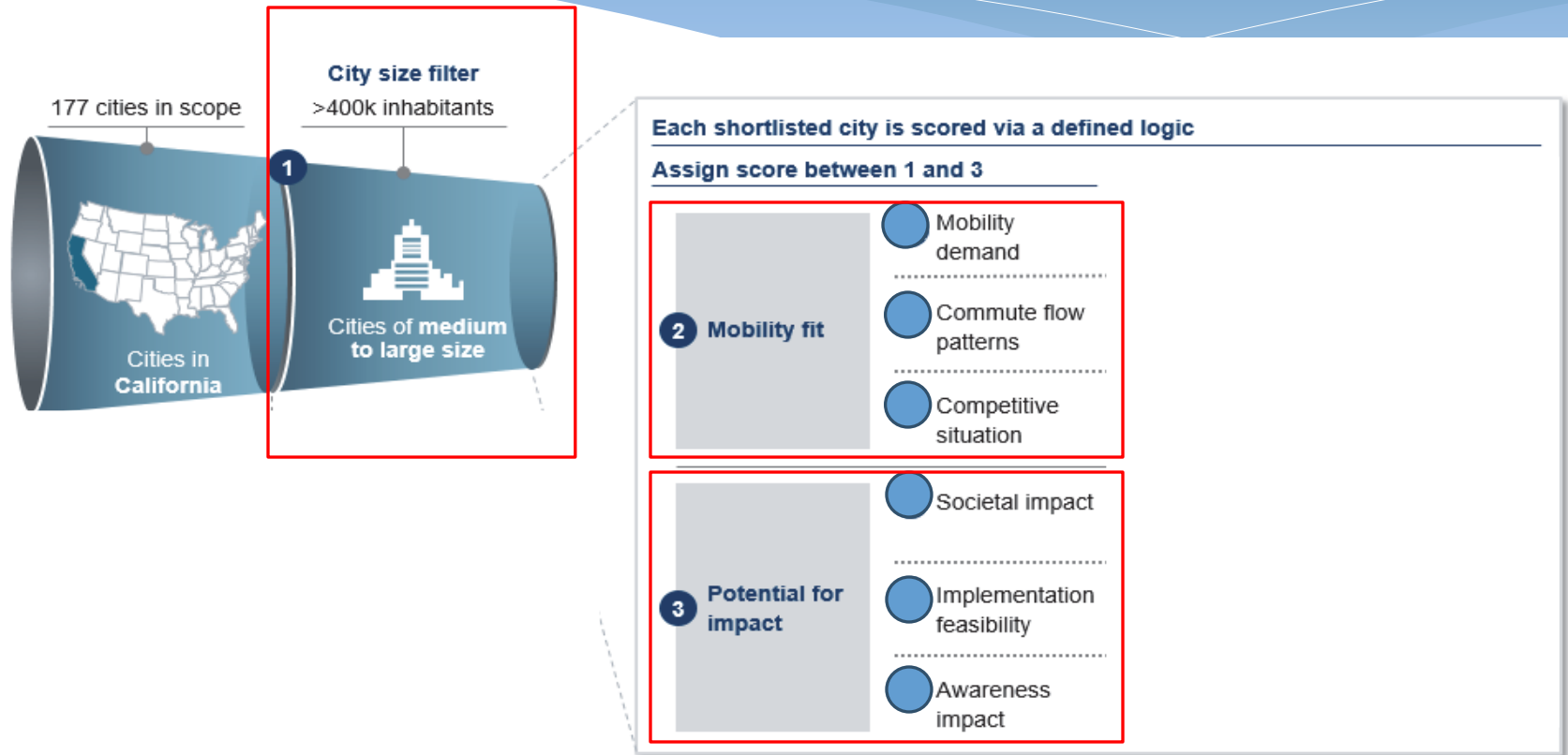
DC Fast Charge Highway Network

Prioritized Highway	Estimated Station Count
I-5	15+
US-101	10+
I-80	3-5
I-10	3-5
I-15	3-5
I-8	2-4
CA SR-58	1-3
CA SR-99	1-3
I-580	<2
US-6	<2
I-405	<2
US-395	<2

Green Cities

- * First city is selected for potential success of programs
- * Second city will predominately consist of disadvantaged communities
 - * If agreement approved by judge
- * Success of first city will
 - * Grow the technology and the business models
 - * Spread the word to other cities
 - * Provide for best likelihood of success in second city
- * Initially consist of ZEV car-share, and delivery service
 - * Provide ZEV experience to thousands

First Green City Selection



First Green City Deployment

- * ZEV Car-sharing, ZEV delivery fleet, ZEV taxi fleet
- * 50 EV Chargers for ZEV Car-share Program
- * 25 EV Chargers for ZEV delivery fleet
- * VW proposed first city: Sacramento

ZEV Awareness Campaign

- * \$20 million in CA first 30-months
 - * \$43 – 50 million nationally
- * Brand neutral programs
 - * Must not feature VW group vehicles
- * Multi-Channel
- * Partnerships
- * Experiential (ride and drives)



점추의 IT 이야기

ZEV Investment Plan Evaluation

- * Consent Decree Requirements:
 - * Plan includes description of all investments
 - * How investments make progress toward one or more of the goals
 - * EV Charging should serve all ZEVs with non-proprietary connectors
 - * ZEV Investments are not concentrated in one area
 - * Investments should not include research or development
 - * Plan to address EV charging maintenance
 - * Charger implementation plan details
 - * Description of how VW will monitor and maintain each ZEV investment
 - * Projection of anticipated Creditable Costs
 - * Include estimated schedule for implementing each investment in 6-month intervals

ZEV Investment Plan Evaluation

- * Guidance Document
 - * Early visible progress
 - * Transformational
 - * EV infrastructure should including MUDs, workplace, public, long-range and accessible
 - * Complimentary and additional
 - * Prioritize disadvantaged, low-income, and disproportionately impacted communities
 - * Business competition and conduct considerations including self-sustaining model
 - * Awareness campaign includes multi-lingual, multi-cultural elements
 - * Access and Green Cities should prioritize disadvantaged communities
 - * Data collection and reporting
 - * Hydrogen infrastructure

VW Tasks After Plan Approval

- * Execute Plan in timeline not attempted before
- * Coordinate site selection
- * Site permitting
- * Negotiate and sign contracts
- * Spend funds at an unprecedented rate for an extended period of time

ZEV Investment Plan

Approval Process Moving Forward

- * Posted Draft ZEV Investment Plan 3/14/17
- * Opened public comment period 3/14/17
- * Sent listserv inviting public to review and comment 3/14/17
- * Legislative hearing 3/21/17
- * Present ZIP to the Board 3/24/17
- * Close public comment 4/10/17
- * Conduct briefings
- * Prepare proposed decision on ZIP
- * Target for issuing decision to VW: late April

ZEV Investment Plan Process Beyond First

- * Reviews every 6 months
- * Annual written reports
- * EV Charger Planning with VW
 - * Collaborate on site identification, optimize utility dialog, permitting and easement efficiencies, align with other state and local charging deployments
 - * GoBiz, CEC, ARB, CPUC, CalTrans, NASEO, Clean Cities Coordinators, Air Quality Management Districts
- * Annual third party auditor reports
- * ZEV Investment Plans 2, 3, and 4

Resources

- * **VW Draft ZEV Investment Plan** available for download at:
https://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/vw-zevinvest.htm
- * Information on how to **Submit Comments** on the ZEV Investment Plan is available at: https://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/documents/zip_notice_031317.pdf
- * The **ARB Guidance Document** to VW is available for download at:
https://www.arb.ca.gov/msprog/vw_info/vsi/vw-zevinvest/documents/carb_guidance_021017.pdf
- * ARB has established a **new list serve** to notify stakeholders of upcoming events related to the Volkswagen ZEV Investment Commitment. If you would like to be notified of future meetings and the availability of materials, please sign up for our California ZEV Investments list server at:
https://www.arb.ca.gov/listserv/listserv_ind.php?listname=vw-zevinvest