

Public Workshop to Discuss the Zero-Emission Airport Ground Support Equipment Measure

June 6, 2018

10:00 am - 12:00 pm

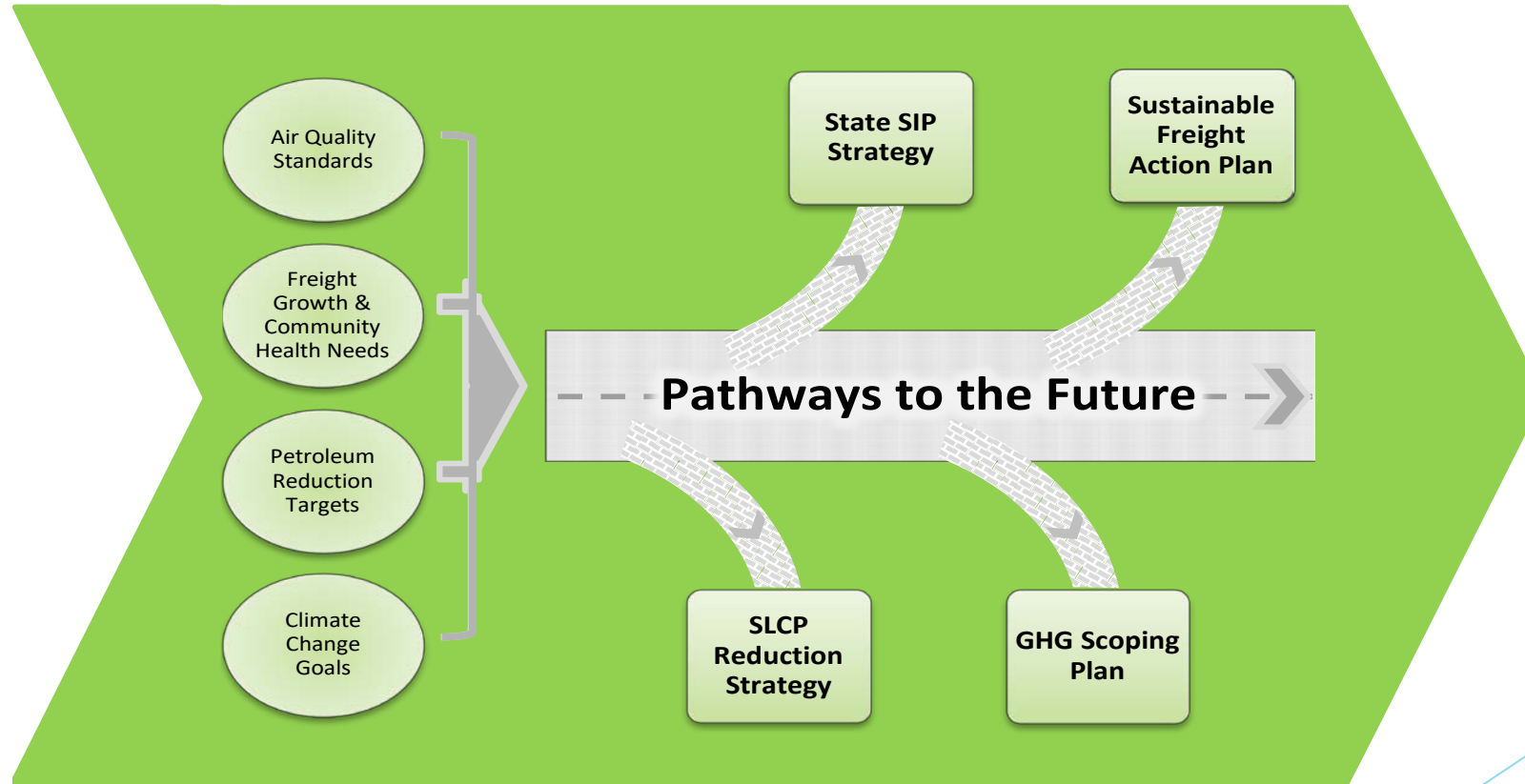
El Monte, CA



Overview

- ▶ Introductions
- ▶ Background
- ▶ Reported GSE data
- ▶ Next steps
- ▶ Questions and comments

Multiple Air Quality Planning Efforts



State Implementation Plan

- ▶ States roadmap to achieving air quality goals
 - ▶ Ambient air quality goals
 - ▶ GHG reduction goals
 - ▶ Sustainable Freight Plan
 - ▶ Diesel Risk Reduction Plan
- ▶ Zero-emission Ground Support Equipment (GSE)
 - ▶ Accelerate transition of diesel and LSI GSE to zero-emission
 - ▶ Utilize a turnover & implementation strategy to ensure existing diesel equipment is replaced with ZE equipment by 2032
 - ▶ Potential initial implementation date: 2023

Why look at airports?

- ▶ Airport key contributors to economy in California
 - ▶ 5% of California's GDP
 - ▶ 34 commercial airports in CA
 - ▶ Ongoing commitments to model environmental practices and reduce air pollution

What are Airport GSE?



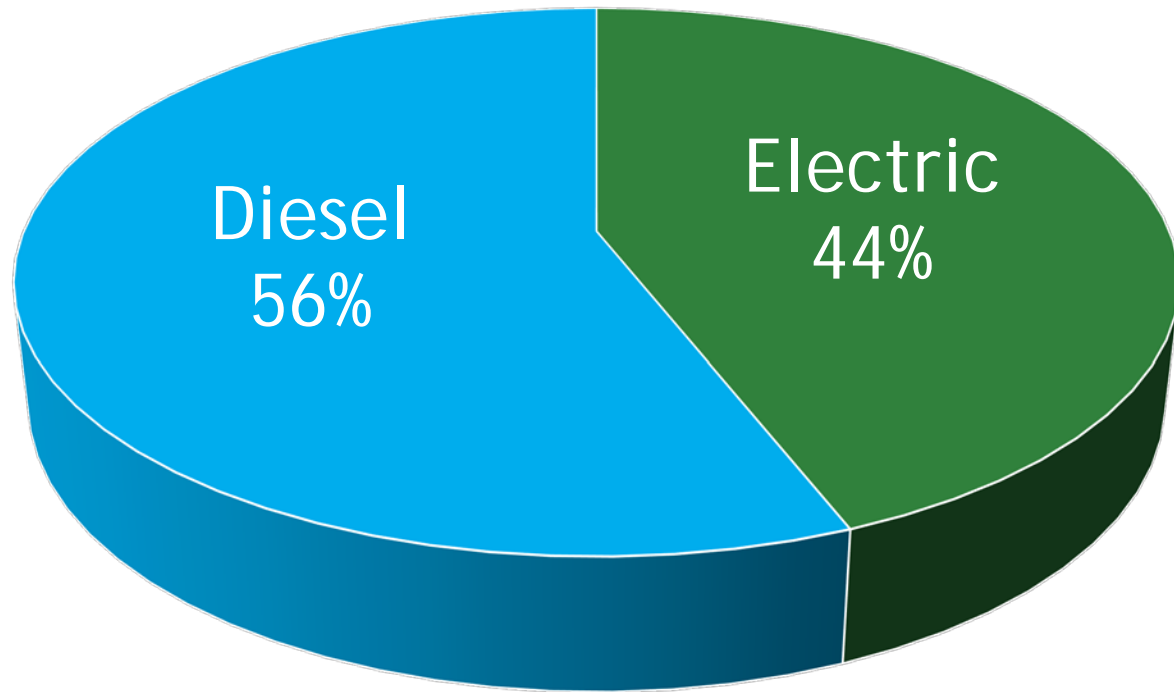
Opportunity for additional zero-emission equipment in off-road sector

- ▶ Well-suited for zero-emission use
 - ▶ Stop-and-go operation
 - ▶ Low speeds
 - ▶ Short distances

Current Regulations

- ▶ Emission standards for new engines used in GSE
 - ▶ Large-spark ignition engines
 - ▶ Compression ignition engines
- ▶ In-use regulatory history
 - ▶ Previous MOU
- ▶ Current In-Use Regulations
 - ▶ LSI Fleet Rule
 - ▶ In-Use Off-Road Diesel-Fueled Fleets

DOORS Population - Diesel

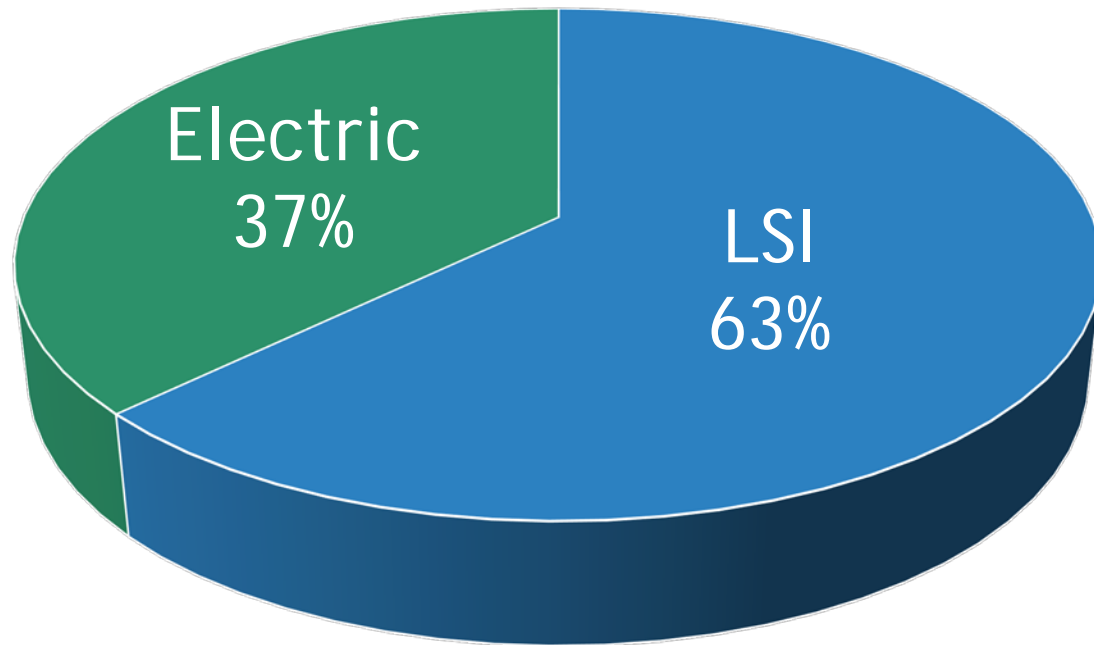


Total Equipment:
3050

DOORS Population - Diesel

Diesel GSE Type	Alt Fuel	Electric	Diesel	Total	% Electric
Baggage Tug	8	371	261	640	58%
Belt Loader	0	336	148	484	70%
A/C Tug Narrow Body	1	154	328	483	32%
Cargo Tractor	0	320	136	456	70%
Cargo Loader	0	7	386	393	2%
Other Airport GSE	0	69	137	206	33%
A/C Tug Wide Body	0	4	159	163	2%
Lift	0	61	75	136	45%
Forklift	0	9	36	45	20%
Passenger Stand	0	2	28	30	7%
A/C Tractor	0	6	2	8	75%
Fuel Truck	0	0	5	5	0%
Bobtail	0	0	1	1	0%
TOTAL	9	1339	1702	3050	

DOORS Population - LSI



Total Equipment:
2922

DOORS Population - LSI

LSI GSE Type	LSI	Electric	Total	%Electric
Cargo Tractor	567	92	659	14%
Baggage Tractor	332	253	585	43%
Belt Loader	201	260	461	56%
Cart	3	313	316	99%
On-Road Equivalent GSE	271	1	272	0%
Lift	104	57	161	35%
AirCraft Tractor	67	59	126	47%
Other Airport GSE	55	18	73	25%
GSE Trucks	136	4	140	3%
Passenger Stand	29	27	56	48%
Bobtail	32	0	32	0%
Cargo Loader	28	1	29	3%
Lavatory Cart	6	3	9	33%
De-icer	3	0	3	0%
Grand Total	1834	1088	2922	

Zero-Emission Airport GSE

Goals of Regulatory Measure

- ▶ Increase the penetration of the first wave of zero-emission heavy-duty technology in applications that are well-suited for its use
- ▶ Facilitate further technology development in off-road sector
- ▶ Infrastructure expansion
- ▶ Ensure time for incentives

Stakeholder input needed

- ▶ Equipment data
- ▶ Cost information
 - ▶ Equipment
 - ▶ Infrastructure
- ▶ Operation and maintenance information
 - ▶ Fuel consumption, activity data
- ▶ Other challenges

Cost Sharing Opportunities

Funding Source	Type	Project
FAA VALE	Federal	Equipment Infrastructure
Carl Moyer	State/Local	Equipment Infrastructure
AB 617 funds	State	Equipment Infrastructure
VW NOx Settlement	Mitigation Trust	Equipment Infrastructure
Zero-Emission Off-Road Freight Voucher (CORE)	LCT/AQIP	In development: Equipment Infrastructure
Local District	AB 923, AB 2766	Equipment Infrastructure

Next Steps?

- ▶ Technical Working group - mid 2018
- ▶ 2nd Workshop - Late 2018/Early 2019
- ▶ Public Hearing Date - 2019

Zero-Emission Airport GSE Contacts

- ▶ Rhonda Runyon, Lead Staff
 - ▶ Rhonda.Runyon@arb.ca.gov or (626) 350-6551
- ▶ Femi Olaluwoye, Manager, Carl Moyer Off-Road Section
 - ▶ Olufemi.Olaluwoye@arb.ca.gov or (626) 459-4427
- ▶ Webpage:
<https://www.arb.ca.gov/msprog/offroad/gse/gse1.htm>
- ▶ Sign up for the Zero-Emission Airport GSE listserve to receive updates!

Questions and Comments

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