

## DOCKETED

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# School Bus Replacement Program

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California Energy Commission

February 14, 2018

# Agenda

- Background
  - California School Bus Incentive Landscape
  - SB 110
- Proposed Design Concept
- Proposed Implementation of Design Concepts
- Q & A



Twin Rivers Unified School District



# CARB and Local Air Districts: Historical Funding

- Since 2001, more than \$500M has gone to retrofit or replace school buses through CARB and local air districts.
- Objective: To reduce kids' exposure to toxic diesel exhaust, and reduce air pollution overall, by replacing the oldest school buses.



# Potential New Sources for School Bus Funding

*Administered through CARB*

- **Volkswagen Mitigation (App. D)**
- Court-ordered \$423M to offset VW oxides of nitrogen (NOx) emissions violations
- School Bus Replacements are eligible project type
- Public Process Ongoing
  - Comment docket now open
  - Workshops: Feb./March 2018
  - CARB Board Meeting: April 2018
- **AB617 Community Air Protection**
- \$250M to reduce toxics and NOx in communities most affected by air pollution
- School Bus Replacements eligible
- Public Process Ongoing
  - Workshops: late Feb. 2018
  - CARB Board Meeting: April 2018



# Links for More Information

- Volkswagen Mitigation Trust  
[https://www.arb.ca.gov/msprog/vw\\_info/vsi/vw-mititrust/vw-mititrust.htm](https://www.arb.ca.gov/msprog/vw_info/vsi/vw-mititrust/vw-mititrust.htm)
- AB617 Community Air Protection Funds  
<https://ww2.arb.ca.gov/our-work/programs/community-air-protection-program-ab617>
- Other State School Bus Funding  
[https://www.arb.ca.gov/msprog/truckstop/funding/schoolbuses\\_fa.htm](https://www.arb.ca.gov/msprog/truckstop/funding/schoolbuses_fa.htm)



# Senate Bill 110

- Funding: \$75 million
- Eligible applicants: school districts and county offices of education.
- Priority should be given to the oldest school buses, or school buses operating in disadvantaged communities and to schools that have a majority of students eligible for free or reduced-price meals in the prior year.
- Any school bus replaced shall be scrapped.



# Proposed Design Concept

## Comprehensive Design:

- School bus replacement (2 Phases)
  - Phase 1: Identify list of buses eligible for replacement.
  - Phase 2: Solicit manufacturers to design, construct, and deliver the replacement buses to school districts.
- Provide EV fueling infrastructure to support bus and future expansion.
- Provide workforce training and development for EV buses.





# Phase 1: Identifying the List of Eligible Buses

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## Options:

- Create a ranked list of the State's oldest buses based on data received from CHP, DMV, and phone surveys.

## OR

- Require that each school district submit an application with basic information, such as age of the bus, address of the bus, intended usage (daily route), how many miles the bus drove last year, and student ridership.



# Phase 1: Awards and Funding

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- Awards will be made to school districts in ranked order until all funds available are exhausted.
- Funds will go directly to the eligible school districts to purchase the buses identified in their application.
- School districts will purchase their buses directly from the bus manufacturer(s) who competitively wins the Energy Commission award.
- Funds pay for 100% of the standard bus (either all Energy Commission funds or leveraged with other sources). Bulk pricing desired.



# Phase 1: Feedback Needed

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- What is the preferred method for Phase 1: develop a list or conduct an application process?
- Is our bus data accurate?
  - Do you still own the bus?
  - Is the bus still in use?
  - How many miles was the bus driven last year?
  - What is the route distance per day for this bus?
  - How many children ride the bus on average?



## Phase 2: Manufacturing Buses

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- Conduct a competitive solicitation for school bus manufacturers.
- Manufacturers will submit applications demonstrating the degree to which they can fulfill the bus list needs.
  - Applications will describe the type(s) of bus available, number of buses that can be produced, cost of buses (including bulk pricing if available), and timing for delivery of buses.
  - Other criteria may include: location of manufacturing facility (in California?), opportunities to leverage funding (such as HVIP eligibility), status of CHP certification, standard features available for buses, and warranty options available.



## Phase 2: Awards and Funding

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- Awarded manufacturers will enter into an agreement with the Energy Commission for the construction of a specified number and type of buses.
- School districts will pay manufacturers directly with Energy Commission grant funding.



## Phase 2: Feedback Needed

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- Is there anything missing from the proposed approach?
- Is 6 months for delivery of a bus reasonable? What is reasonable timing for delivery of a bus? One bus vs. multiple buses?
- At what number of buses would a manufacturer be able to offer a discount / bulk pricing?
- What should be included in the standard features of a bus?



# Distribution of Awards

## Proposed Distribution of Awards:

- Distribute funds evenly throughout the State.

**OR**

- Distribute funds based on evaluation criteria: oldest school bus, plus serving disadvantaged communities and majority of students eligible for free and reduced-priced meals.



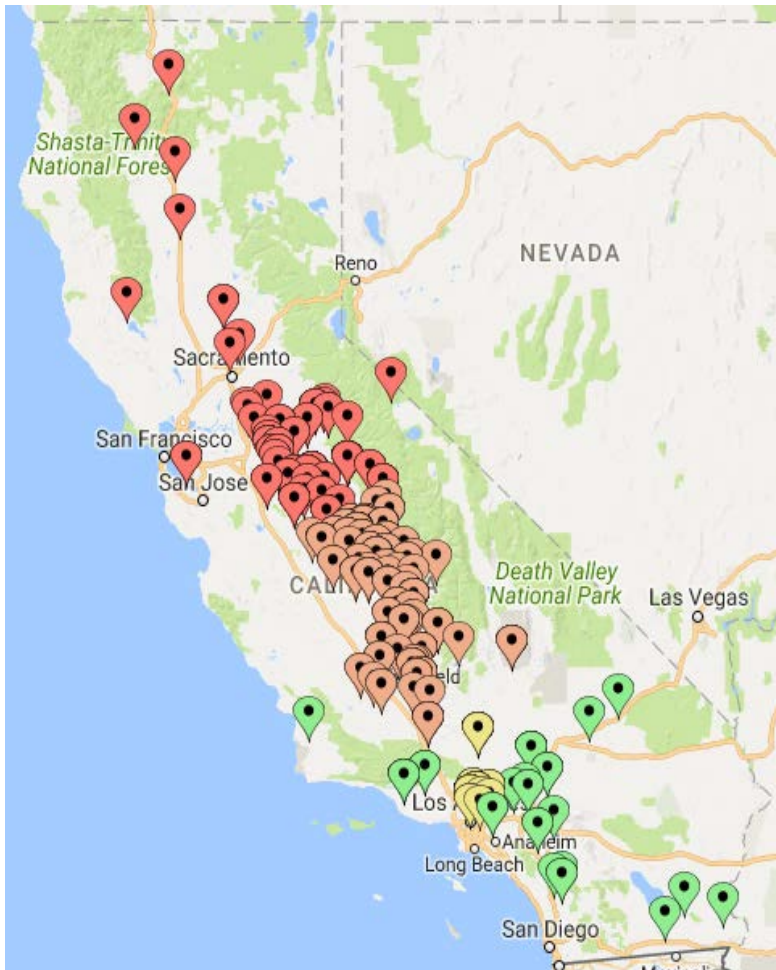
# Scenario 1



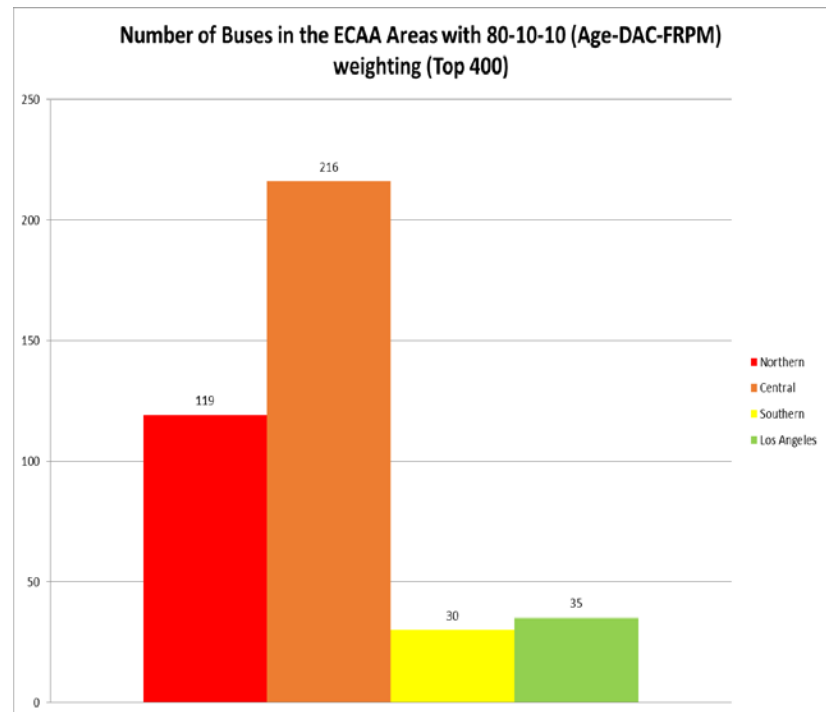
- Distribute funds evenly within the four regions established by Prop 39.
- Approximately \$18.75 million will be allocated to each region.
- Priority will be given to the oldest school buses, with extra points for buses operating in disadvantaged communities and with a majority of the students eligible for free or reduced-price meals.



# Scenario 2a

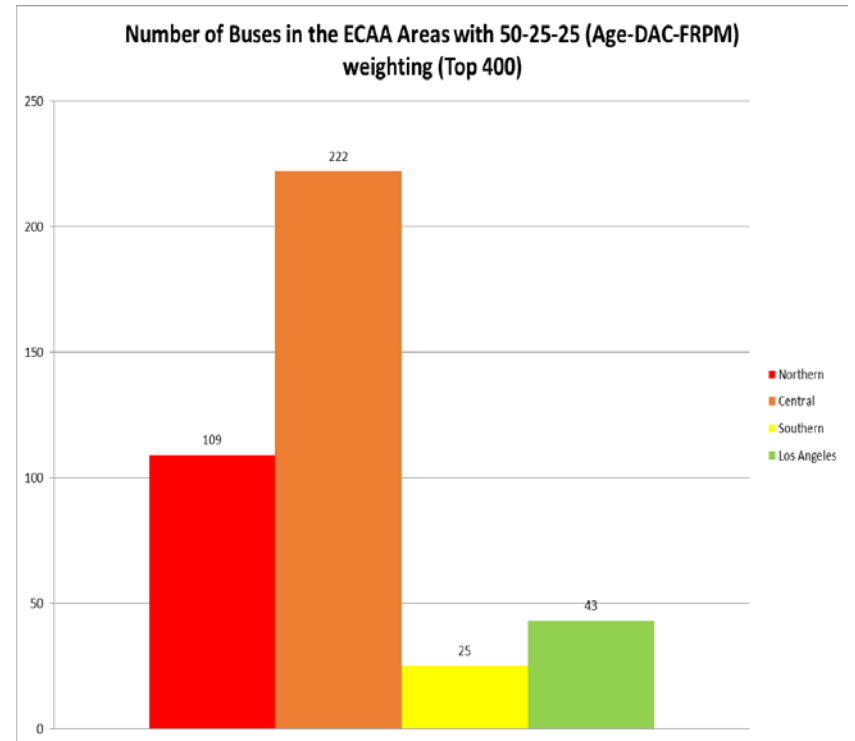
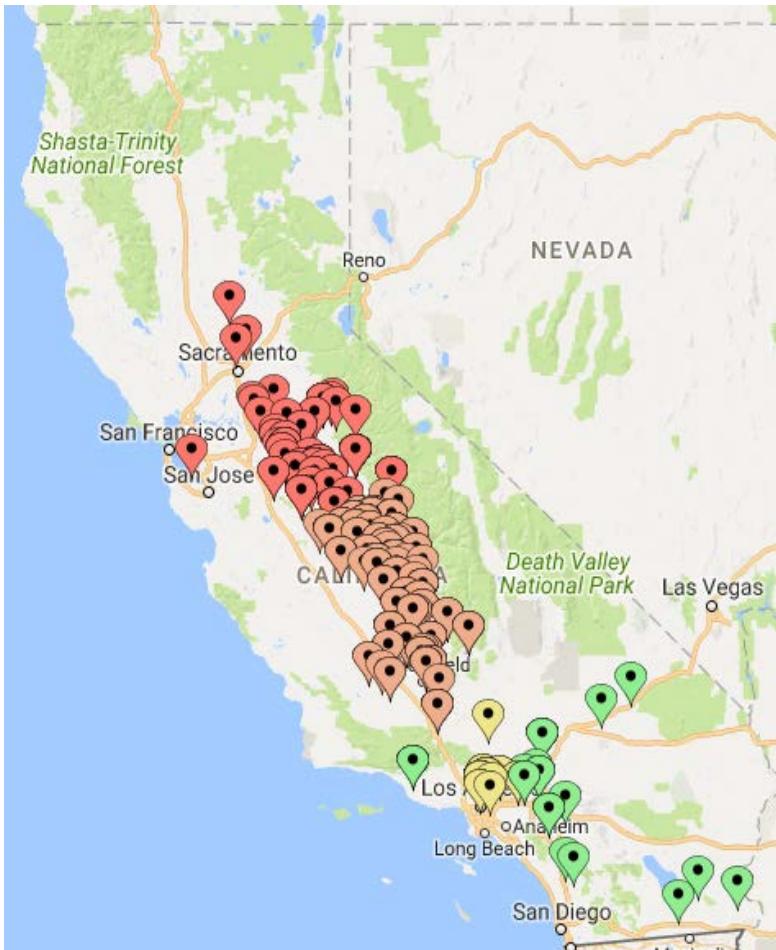


Distribute funds to the highest ranked school buses with 80-10-10 weighting



# Scenario 2b

Distribute funds to the highest ranked school buses with 50-25-25 weighting



# Distribution of Awards: Feedback Needed

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- Which scenario (1 or 2) addresses the requirements of SB 110 better? Why?



# Emphasizing Electric School Buses



1. Benefits Children's Health
2. Lowered Emissions
3. Quieter Smoother Ride
4. Charging Overnight
5. Lower Maintenance
6. Lower Fuel Cost
7. Potential Vehicle to Grid



# Cost Savings of Electric Buses

- Electric School Buses are an emerging technology...
  - ✓ They have a higher up-front front capitol cost compared to mature technologies.
  - ✓ But... have much lower annual operations and maintenance costs!

<b>Cost</b>	<b>Diesel</b>	<b>CNG</b>	<b>Electric</b>
Maintenance	\$9,075	\$3,360	\$1,770
Fuel	\$5,930	\$5,000	\$2,714
<b>Total</b>	<b>\$15,005</b>	<b>\$8,360</b>	<b>\$4,484</b>

- This program will cover the up-front capitol costs, passing on the annual O&M cost savings to the school districts, while replacing an older bus with a clean new one!





# Available Electric Buses



Thomas



TransTech



eLion



GreenPower



BlueBird



# Size and Types of Buses

Manufacturer	Type	Seating	Range (miles)	Availability
Greenpower	Synapse 72	72	75-140	2017
Greenpower	Synapse Shuttle	48	75-140	2018
Greenpower	Synapse Shuttle	30	75-140	2018
Trans Tech	Motiv SST	18-25	80-100	2013
Blue Bird	Type C	75	80-100	2018
Blue Bird	Type D	78-81	80-100	2018
Blue Bird	Micro Bird G5	<30	80-100	2018
Daimler	Jouley	81	80-100	2019



# Infrastructure





# Charging Systems

Manufacturer	Bus Type	Charging Standard	Battery Size in kWh	KWh per mile	Charging Power	Average charging time (hours)	Ave. Range (miles)
Blue Bird Corporation	D C	Level 2 J1772	150 100 – 150	1.5		8	100
Blue Bird – Girardin	A	Level 2 J1772				6.5	100
Thomas Built	C	Level 2 J1772	100 – 160	1 – 1.6		8	100
Trans Tech	A	Level 2 J1772				8	80
Lion Electric	C	Level 2 J1772	130	1.3 – 2.6	19.2	4 – 6	50 – 100
Green Power Motor	D	Level 2 J1772 DC Fast CCS	100 – 200	0.71 – 1.43	22 150	8 1	140
Starcraft Bus	C	Level 2 J1772	106 – 127	1.25 – 1.49	25	8	85
Motiv	A C	Level 2 Meltric DR100	85 – 106 85 – 127	0.94 – 1.18 0.94 – 1.41	29	8	90



# Workforce Training and Development



- Alternative & Renewable Fuel & Vehicle Technology Program (ARFVTP) Funds.
- Determine training & development needs.
- Work with Community Colleges and Schools to develop a program and curriculum to meet needs.



# Infrastructure and Workforce: Feedback Needed

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- What type of infrastructure will you need to support your replacement bus?
- What type of training and development will you need to support your replacement bus?



# Proposed Schedule

Activity	Date
Pre-Solicitation Workshops	March – April 2018
Solicitation release and workshops	May – June 2018
Funding Available	July 1, 2018
Business meetings	August – September 2018
Bus deliveries	TBD



# Program Goals and Objectives

- Follow SB 110 and Governor's Executive Order
- Children's health and safety
- Allocation scheme that best provides a level of funding equity
- Build the future supporting network of advanced next generation infrastructure
- Position as many schools with the options to embrace next generation zero emission vehicles
- GHG reductions



# Feedback Needed

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- Which solicitation options / scenarios are preferred?
- Do you still own and use the bus?
- Is bus still in use?
- How often is the bus used?
- How many miles was the bus driven last year?
- What is the route distance per day for this bus?
- How many children ride the bus on an average?
- What type of infrastructure will you need to support replacement bus?
- What type of training will you need to support replacement bus?



# Stay Connected

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## List Server:

- <http://www.energy.ca.gov/transportation/index.html>
- Follow instructions in bottom left corner.

## Contact:

Jennifer Masterson

[Schoolbusprogram@energy.ca.gov](mailto:Schoolbusprogram@energy.ca.gov)

## Docket :

- <https://efiling.energy.ca.gov/Ecomment/Ecomment.aspx?doCKETnumber=18-MISC-02>
- Docket number: 18-MISC-02
- Comment period ends February 28, 2018

