



**Truck Regulation Implementation Group
(TRIG) Infrastructure Meeting #6
On-site Generation and Microgrids**

February 10, 2025

2025 Infrastructure TRIG Panel

Co-Chairs:

Lisa McGhee, Tom's Truck Center

Leslie Goodbody, CARB

Kate Ried, CEC

Panelists:

Angela Clapp, Port of Oakland

Aravind Kailas, Volvo Group NA

Arturo Hernandez, A&C Transportation

Blaine Wagner, Clark Pacific

Carlos Cardenas, CVM Fleet Services

Chris Shimoda, California Trucking Association

Chuck Loy, Sysco Corporation

Clair Keleher, Bay Area AQMD

Collin MacGregor, Range Energy

Cristina Marquez, IBEW Local 596

Panelists:

Damon Wyckoff, Calaveras County Water District

Dirk Piersma, Gemperle Farms

Emmanuel Carrillo, Talon Logistics, Inc.

Erick Karlen, Pacific Gas & Electric

Eugene Litvinov, Hyundai Motor NA

Glen Kedzie, Truck Renting & Leasing Association

Glenn Choe, Toyota Motor NA

Isaac Ritter, J.B. Hunt Transport Services

Jamie Hall, EV Realty

Jessie Denver, GoBiz

Jimmy Andreoli II, Baker Commodities

Jose Rodriguez, Chevron Hydrogen Business Development

Panelists:

Lindsay Shigetomi, Environmental Defense Fund

Mark Koppang, Raley's

Matt Miyasato, FirstElement Fuel

Ole Hoefelmann, Nikola

Ralph Adams, BorgWarner

Richard Battersby, City of Oakland

Richard Parenteau, No Carbon Fuel,

Ruth Alfson, Matrix Consulting Group

Sam Wilson, Union of Concerned Scientists

Sam Vercellotti, Terawatt Infrastructure

Scott Moon, Los Angeles Department of Water and Power

Steven Fenaroli, California Farm Bureau

Agenda

- Introduction
- On-Site Generation Presentations
 - Mainspring Energy Linear Generators
 - Hyliion Karno Linear Generators
 - Zeem Solutions - Kaizen Fuel Cell Generator and Battery Energy Storage
- South Coast AQMD: Rule 1110.3
- CARB: SWOT analysis
- Clarifying questions and focused discussion
- Next steps

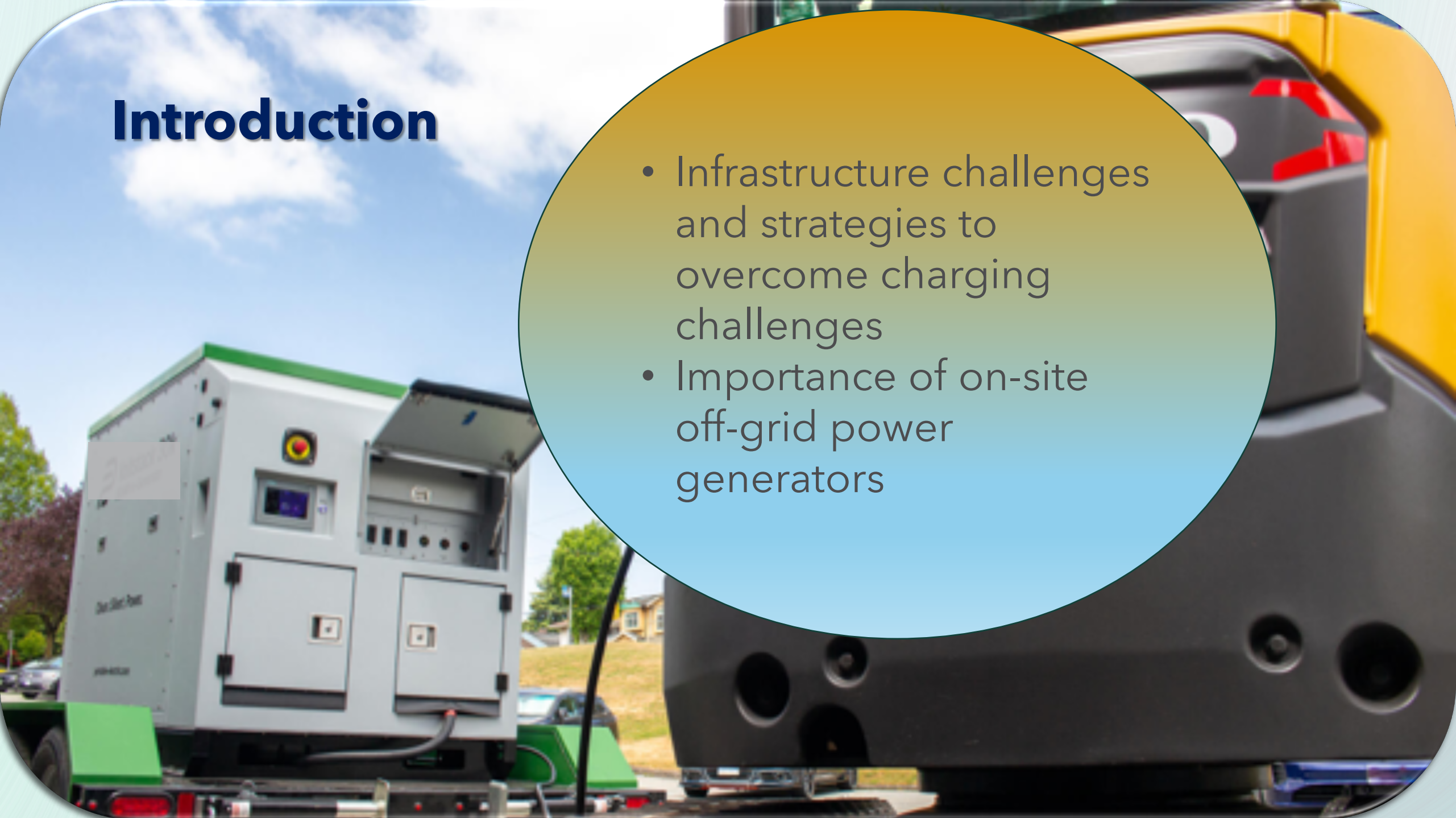


Off-Grid Power Generation Solutions for Medium- and Heavy-Duty Vehicle Charging

Zero-Emission Vehicle Infrastructure Team
February 10th, 2025

Introduction

- Infrastructure challenges and strategies to overcome charging challenges
- Importance of on-site off-grid power generators



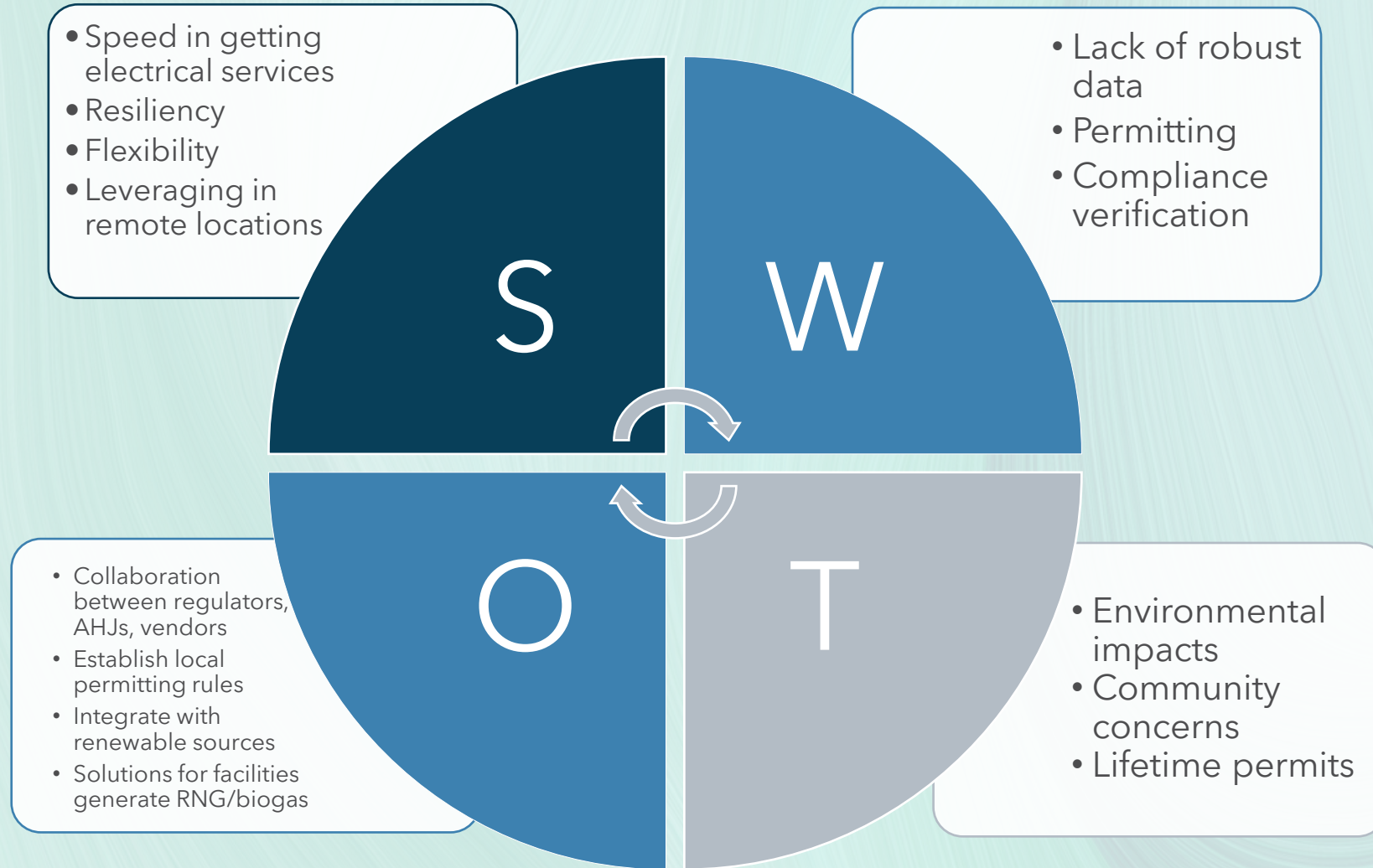
Scope

- On-site off-grid electrical power generation using non-zero emissions generator designed for charging medium- and heavy-duty electric vehicles

Objective

- To perform a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis to evaluate on-site off-grid power generation solutions

SWOT Analysis



SWOT Analysis

- Speed in getting electrical services
- Resiliency
- Flexibility
- Leveraging in remote locations

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SWOT Analysis

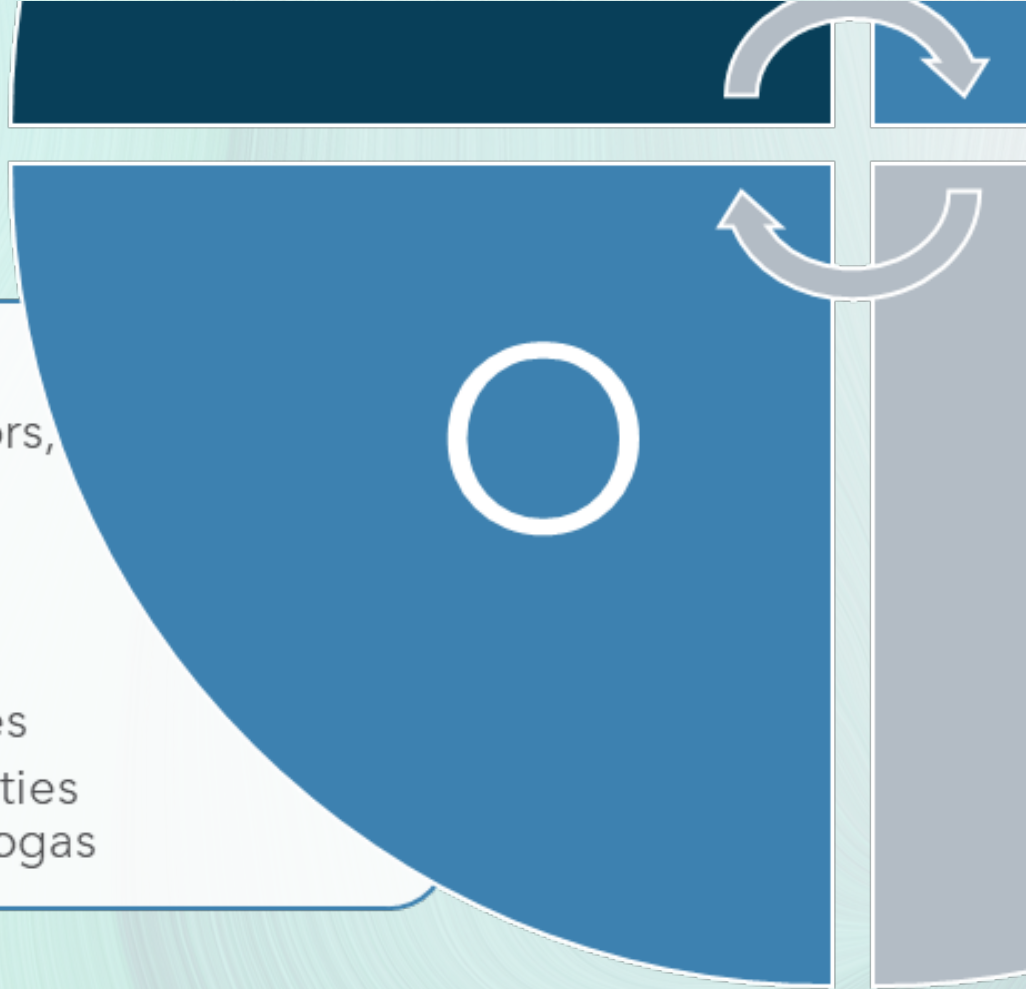


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- Lack of robust data
- Permitting
- Compliance verification

SWOT Analysis

- Collaboration between regulators, AHJs, vendors
- Establish local permitting rules
- Integrate with renewable sources
- Solutions for facilities generate RNG/biogas



SWOT Analysis

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- Environmental impacts
- Community concerns
- Lifetime permits



Any
questions?



Utility Perspectives

- Maria Soria, Southern California Edison (SCE)
 - TE Advisory Services ([sce.com](https://www.sce.com))
- Erick Karlen, Pacific Gas and Electric (PG&E)
 - EV Fleet Program ([pge.com](https://www.pge.com))
- Scott Moon, Los Angeles Department of Water and Power (LADWP)
 - Commercial EV Charging Station Rebate Program | Los Angeles Department of Water and Power ([ladwp.com](https://www.ladwp.com))
- Danielle Weizman, San Diego Gas and Electric (SDG&E)
 - Transportation Electrification Advisory Services (TEAS) | San Diego Gas & Electric

Clarifying Questions

Focused Discussion

1. Are there funding opportunities to support the deployment and use of non-zero emission electricity generation solutions? Are there state or local entities considering funding them?
2. Flexible interconnect pilot programs - are there opportunities for utility customers participating in these programs to use on-site generation?
3. What role could this type of technology have in grid energy resource planning? Will it be used as an interim technology/bridging solution or part a distributed generation ecosystem?

Recap and Next Meeting

- Recap of today's discussion
- Next steps
 - Next Infrastructure TRIG meetings are 1:00-3:00 on May 12, August 11 and November 3
 - What topics should we cover at future meetings?
 - Email Leslie.Goodbody@arb.ca.gov