

#### **SB 350 Transportation Electrification Filing**

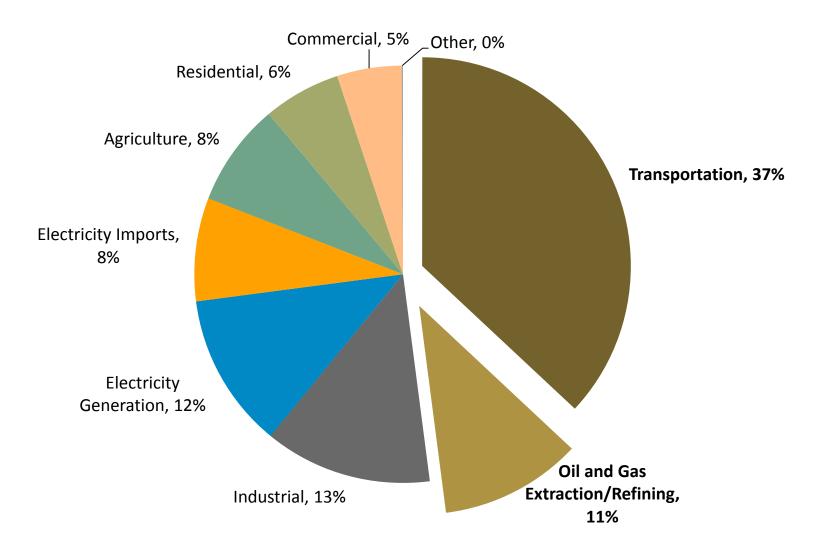
**David Sawaya** 

April 25<sup>th</sup>, 2017





## California's GHG emissions



California Greenhouse Gas Emission Inventory (2014)



### **Addressing TE barriers with utility tools**

#### General barriers to widespread transportation electrification:

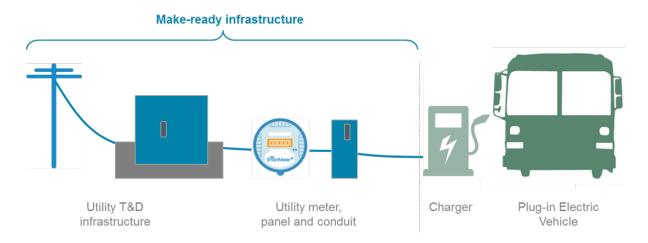
- Vehicle availability, selection, and range
- Upfront vehicle costs
- Upfront costs of charging infrastructure
- Vehicle operating costs
- Access to charging
- Lack of awareness or understanding

Utility tools are best suited to help address these barriers



#### FleetReady: non-light-duty EV make-ready program

- Program budget: \$211 million over 5 years
- Goal: Provide make-ready infrastructure in non-light-duty transportation sectors
  - Meet market deployment of non-light-duty electric vehicles (medium- & heavy-duty, and off-road)
  - Provide make-ready equipment when site host has committed to purchasing vehicles and chargers
  - Offer additional targeted incentives (e.g. rebate) for disadvantaged communities and "beach head" sectors (school and transit buses) to propagate technology developments



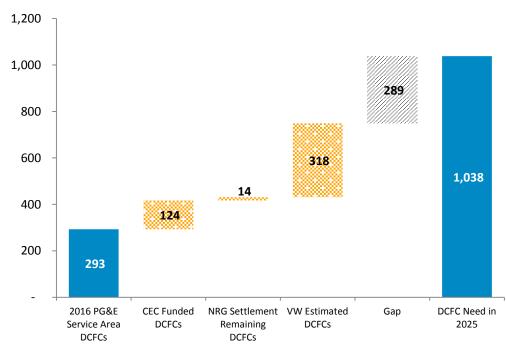
- Program is designed to minimize costs and maximize benefits
  - Ensures co-funding for all projects (through the make-ready approach)
  - Limits incentives to high-impact sectors
  - Ensures that infrastructure installations follow customer decision to electrify and avoid risk of stranded assets



#### Fast Charge: public DC fast charger make-ready program

- Program budget: \$22M over 5 years
- Goal: Provide make-ready infrastructure for public DCFCs
  - Program sized to fill potential gap, both corridor and urban charging locations
  - Installations occur following customer acquisition of chargers; modeled with a variety of power levels (50 – 350 kW chargers)
  - Program will also provide a \$25,000 rebate for installations in disadvantaged communities

#### Known significant DCFC deployments expected in PG&E service area Compared to expected 2025 need





## **Priority review projects and demonstrations**



### Project 1: MD/HD Fleet Customer Demonstration

**Goal**: demonstrate lower total cost of ownership for customer fleet electrification with utility assistance

**Description**: Deploy make-ready infrastructure and charging management tools to minimize operating costs



### **Project 2: Idle Reduction Customer Demonstration**

**Goal**: demonstrate economic viability for technology deployment with utility assistance

**Description**: Deploy make-ready infrastructure and charging management tools to minimize operating costs



#### Project 3: School Bus Over-generation pilot

**Goal**: test rate and incentive structures to target EV charging during periods of over-generation

**Description**: Leverage unique duty cycle of school bus fleet to charge vehicle mid-day for grid benefit



### Project 4: Home Charger Information Resource

**Goal**: simplify home charger purchase and installation process to lower barriers for new EV owners

**Description:** Develop online tool for homeowners to understand home charging needs and identify electrical contractors for charger installation



**Goal**: Identify additional projects for utility investment and encourage innovation and competition among 3rd parties

**Description**: Open, external request for proposals for 3<sup>rd</sup> party projects to fund

**Project 5: Open RFP** 

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### PG&E's transportation electrification portfolio

Initiatives in black will be included in PG&E's January SB350 Transportation Electrification (TE) application

	Initiatives in blue are part of PG&E's  Light-duty	Medium-/heavy-duty	Off-road	
R&D	BMW i ChargeForward EV submetering DC fast charger siting tool Open vehicle-grid integration platform Load management for ridesharing EVs	A-1 transit bus rate pilot	Vehicle on-site grid support system	
	Residential charger information resource	Medium-duty customer demonstration School bus overgen. demonstration	Idle-reduction customer demonstration	Priority review
	Additional 1-year electrification projects via open RFP			projects
	Add	itional 1-year electrification projects via ope	n RFP	projects
	EV Infrastructure and Education Program:	itional 1-year electrification projects via ope  "FleetReady" (non-light-dut		projects
	EV Infrastructure and Education Program:		y make-ready) program  Idle-reduction (truck-stops,	
Infra-	EV Infrastructure and Education	"FleetReady" (non-light-dut	y make-ready) program	Standard
Infra- structure	EV Infrastructure and Education Program:  - Phase 1 (approved)	"FleetReady" (non-light-dut ■ Public transit	y make-ready) program  Idle-reduction (truck-stops,	
	EV Infrastructure and Education Program:  - Phase 1 (approved)	"FleetReady" (non-light-dut  Public transit School buses	<ul> <li>w make-ready) program</li> <li>Idle-reduction (truck-stops, truck refrigeration units)</li> </ul>	Standard

**Product & Rate Design**  **Residential EV rates** 

**Clean Fuel Rebate (LCFS)** 

**PG&E 2017 GRC Phase II rate proposals**