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Transportation Electrification
The LADWP Plan

CEC EV Workshop on SB350 & IRP Oct. 5, 2016

Discussion Today

Discussion today:

- Role of Transportation Electrification for LADWP (IRP)
- How to do it (The Plan)
- What is Needed

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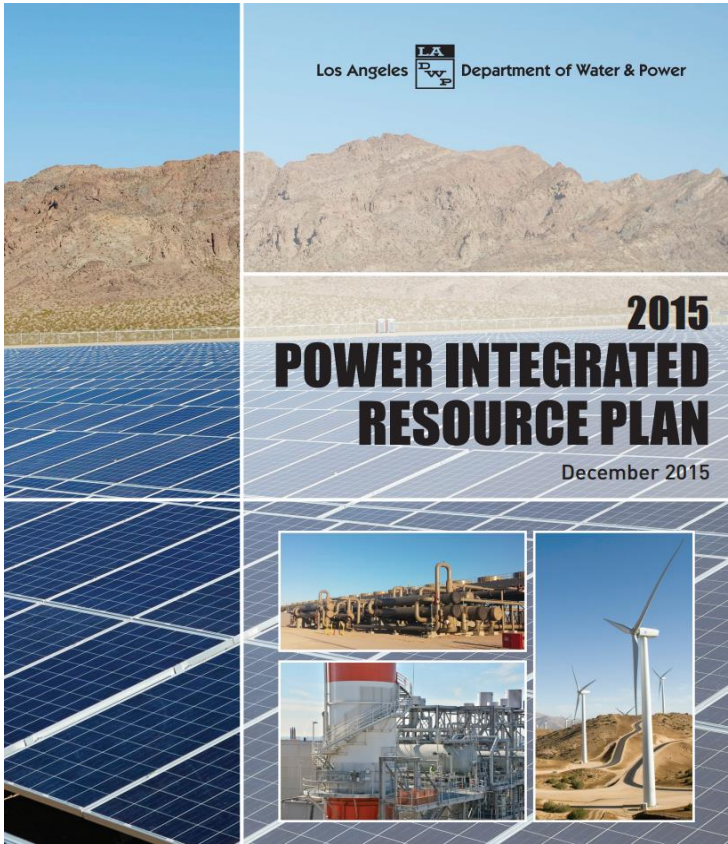
LADWP's Integrated Resource Plan

Electric Vehicles (EVs) role in IRP…

- Promote a green environment. (75% less GHG than gas).
- Promote customer efficiency
  - -Less than $1 per gallon of gas
  - - All Customer Save Money
- Integration of renewable resources.
- Every BEV = ½ a house night load.

In addition…

- Build a new industry for jobs.
- Local green energy
- Better use of utility assets.



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GHG Emission Reduction

Green House Gas Emission Reductions:

- Goal of AB 32 is 80% reduction below 1990 levels by 2050
- CARB reported in 2012 Transportation was 37% of CO2. Electric Generation was 11%.
- Recommended Case:
  - 50% Renewable
  - No Coal Power
  - High Energy Efficiency (EE)
  - No Once Through Cooling
  - High EV Model

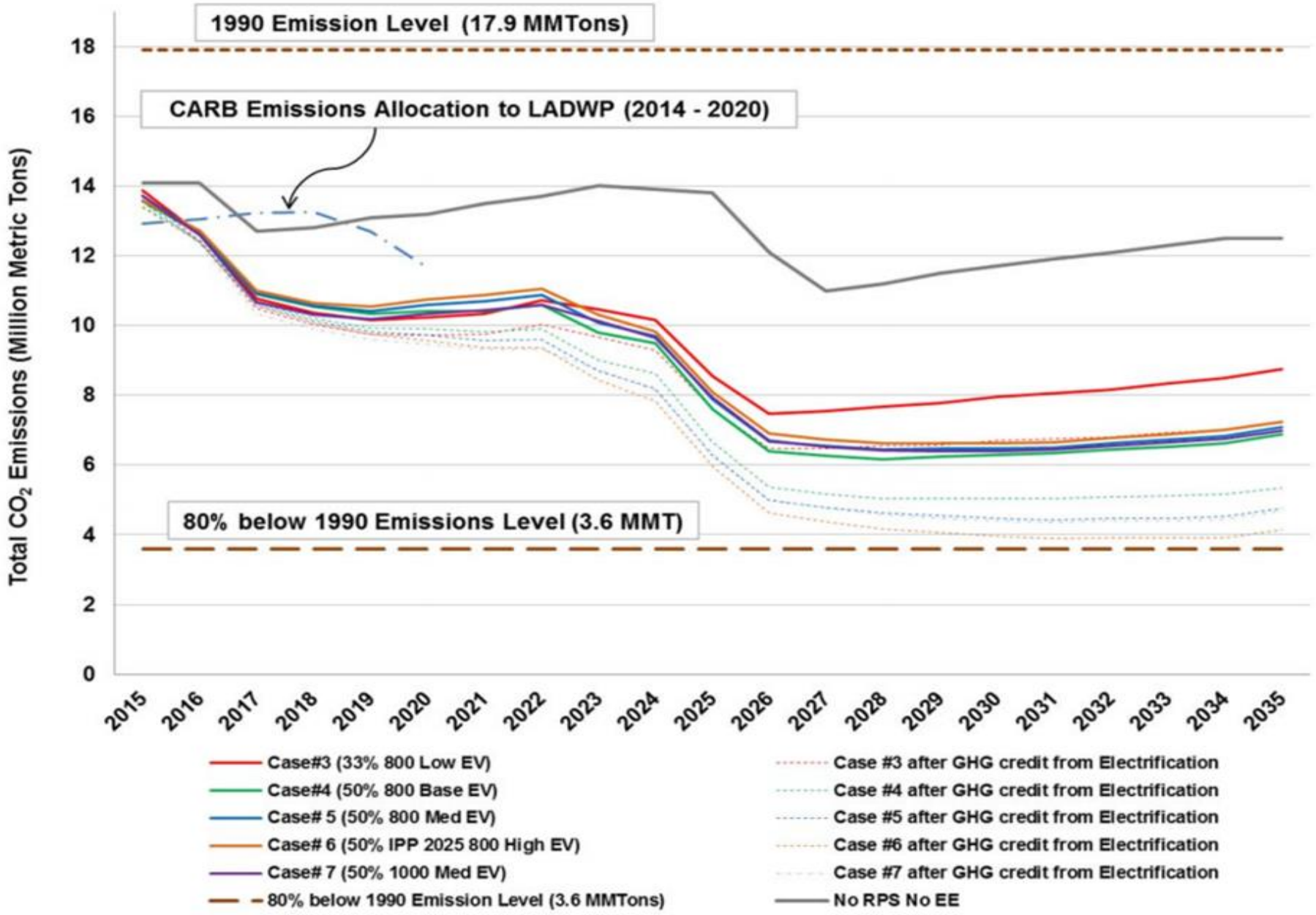

Figure ES-5. GHG emissions comparison for Advanced Renewable and Local Solar cases by calendar year, with and without CO2 savings from Transportation Electrification.

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How Many EVs are Needed?

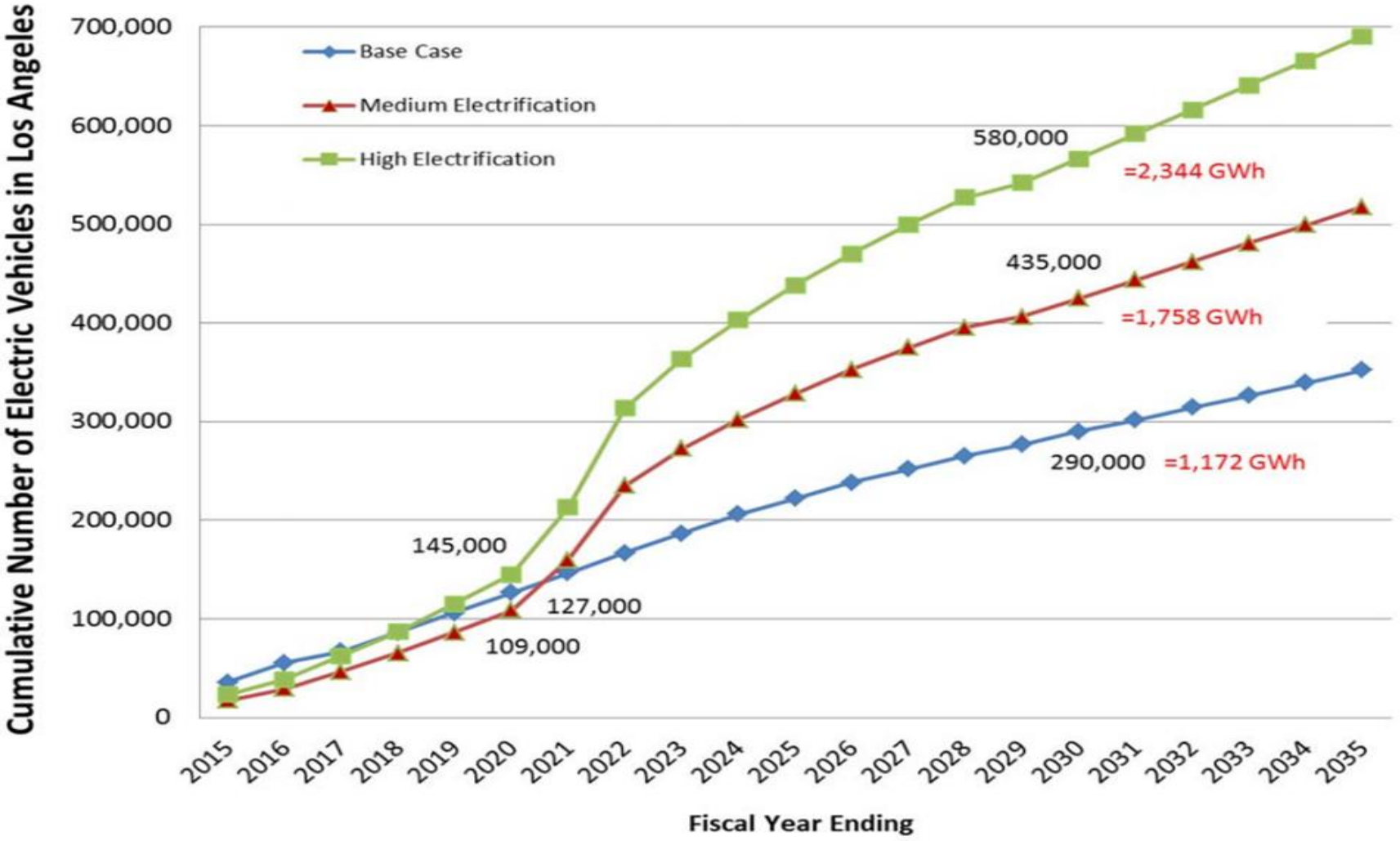

Figure 3-9. Electrification levels in the Los Angeles basin

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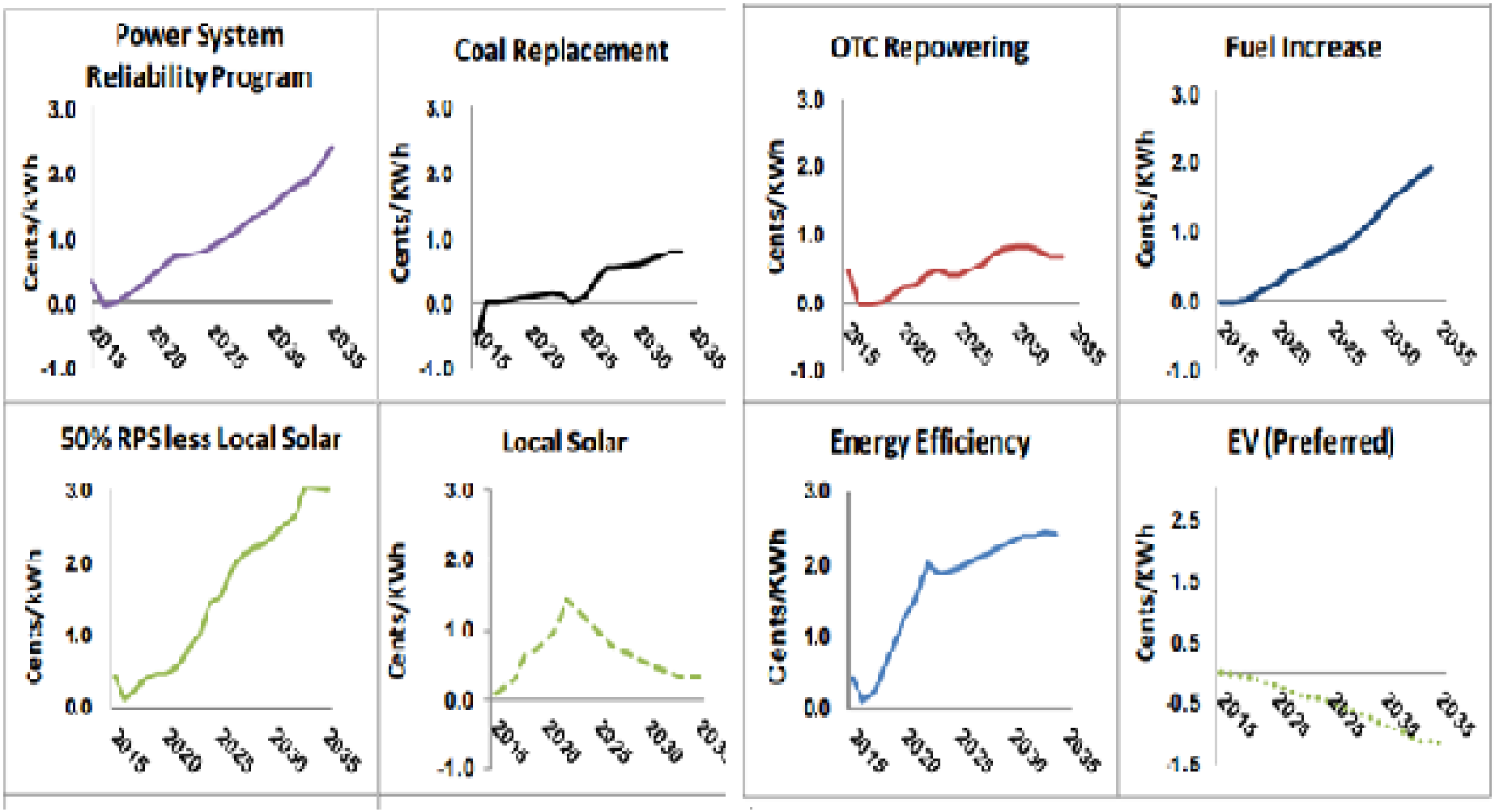
EVs Save Everyone Money



- Contribution to Retail Rates for Recommended Case

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All Program Rate Contribution

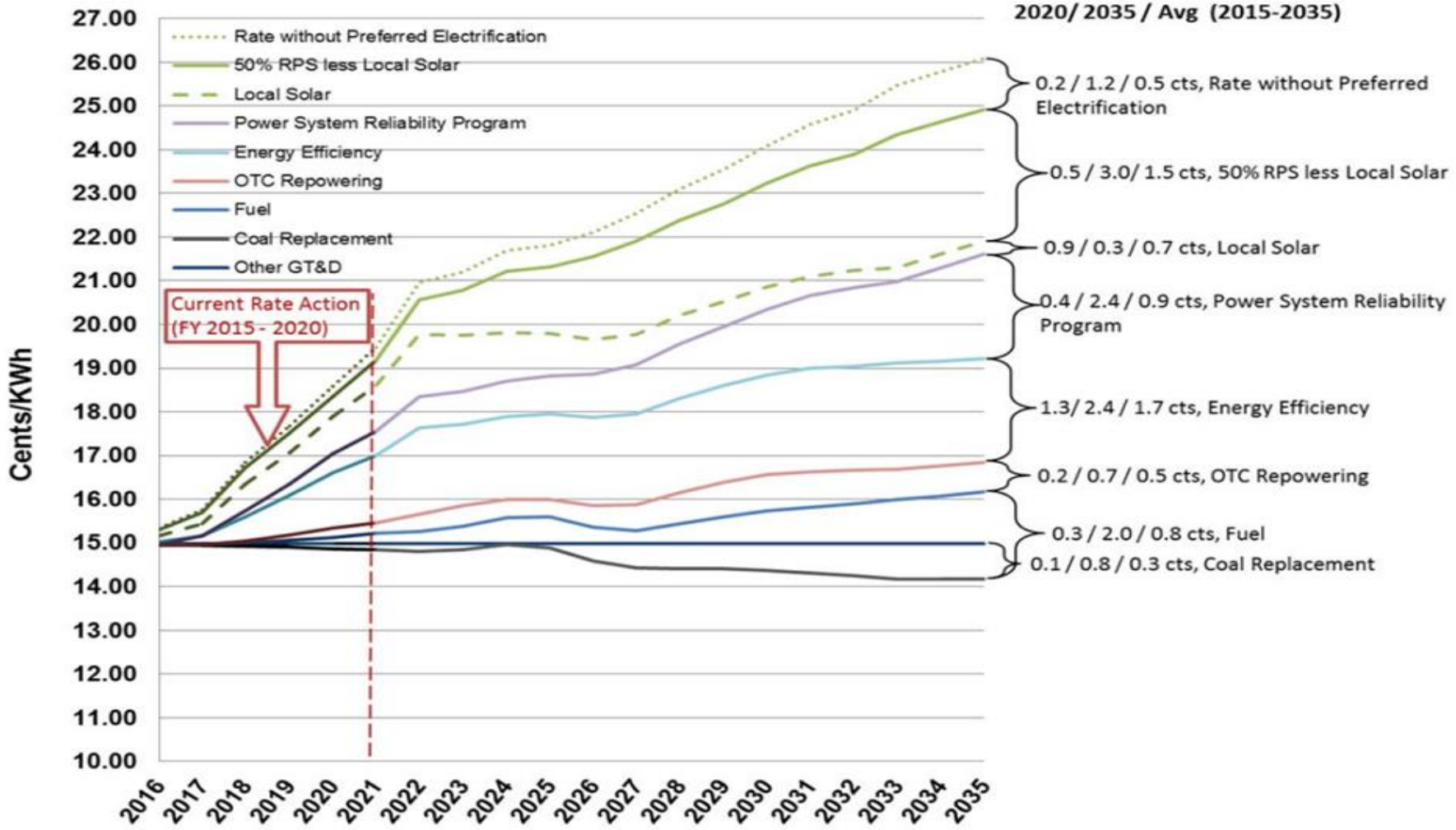

Figure ES-14. Total retail electric rate composite by fiscal year, based on the 2015-16 budget forecast (Recommended Case).

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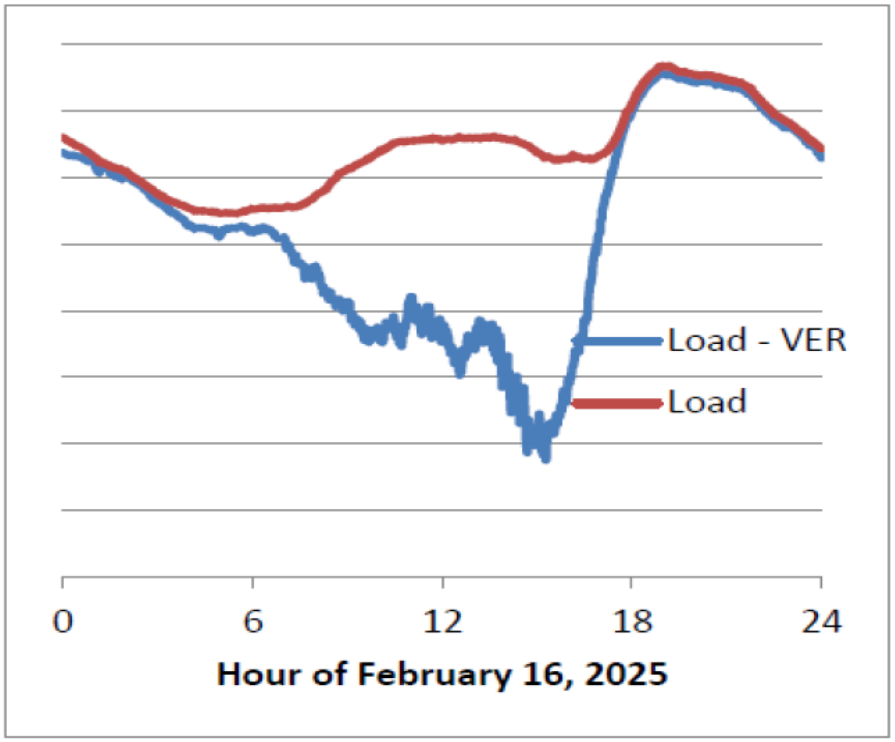
EVs and Integration of Renewables

Three Concerns:

- Intermittency of Renewables
- Over-generation from Solar
- Huge Load Ramp Rate at Sundown



EV Solution:

- Prescriptive Preferred Rates
- Dynamic Rate Pricing
- EV Infrastructure to Support It.
- Better Utility Load Factor

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LADWP's draft 5-Year EV Plan

LADWP Electric Transportation Program

FY 2015-2020

Draft-For Discussion Only

5 Year Goal: The equivalent of 145,000 Electric Vehicles in LA.

Strategy:

1. Increase EV adoption to 15% of vehicle purchases.
2. Count Public and Workplace Chargers as EV equivalents.
3. Consider non-light duty as EV equivalents (i.e.. Medium & Heavy Duty)

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LADWP Draft EV Plan

Education and Outreach:

Goal: 15% of all new vehicle purchases in LA are plug-in by 2020.

60K registered EVs in LA,
Programs: Drive, Social , HOA, etc.

LADWP & LA City Fleet:

LADWP 100%, City 50% New Cars

1600 vehicles.—No Program Cost

Med. & Heavy Duty Fleet:

Includes POLA, LAWA, Forklift, Rail, Busses. Incentive toward charging infrastructure (Proportional to Commercial). Goals: TBD

Residential Charging:

Charge-Up LA! Rebate:$500 (5K)

Phase II: Smart Charger Rate

City EV Chargers:

1000 Curbside/Parking Lot Public
1600 City Fleet Chargers,
25 City DC Fast Chargers
500 City Workplace Chargers
3125 Total Chargers

Commercial Charging:

Charge-Up LA! ,Workplace ,Public EVSE $4000 rebates, (9K EVSE) Phase II: Direct Install & Green Bldg. Ordinance.

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What Is DWP Doing to Support Infrastructure?

City Infrastructure:

- Retrofitted and installed over 300 chargers on City Property. Includes LADWP, City Hall, the Convention Center, LAX, City Parking Structures. 400 more soon.
- Installed 16 DC Fast Chargers in and around LA.

Customer Infrastructure:

- Residential Charger Rebates: **Up to $500/ L2 charger**
- Commercial Charger Rebates for Workplace/Public/MUD:

  Up to $4000/ L2 charger

  (up to 20 rebates/site)
- Grants for Heavy Duty EV

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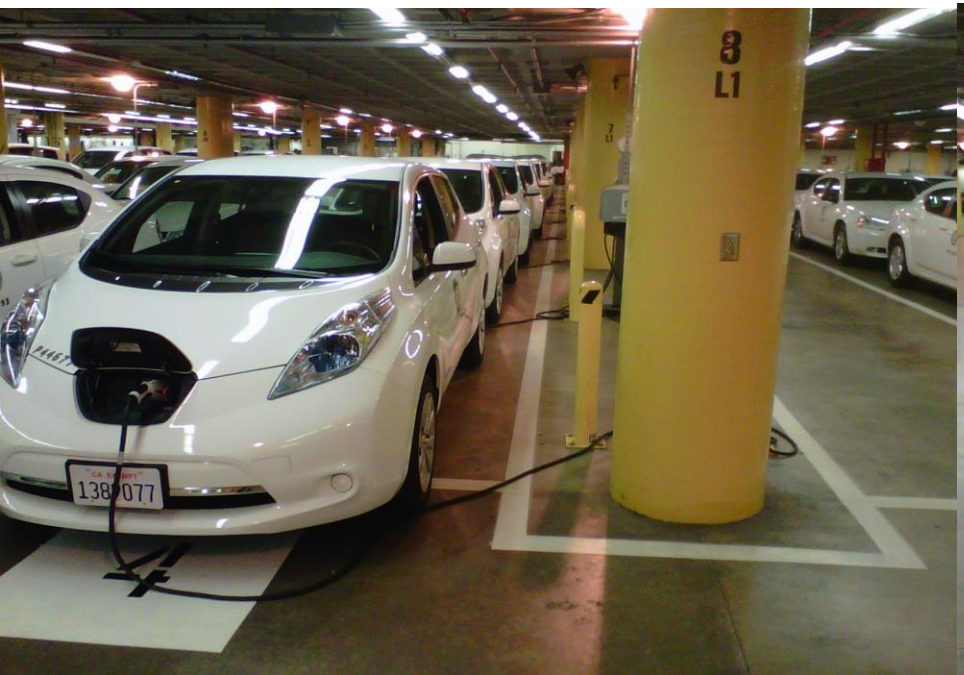
DWP's EV Light Duty Fleet

- 111 BEV and PHEV vehicles.
- Soon will be approximately 240 plug-in Vehicles.
- Criteria for pool cars/take home/assigned vehicles.
- Charging Infrastructure



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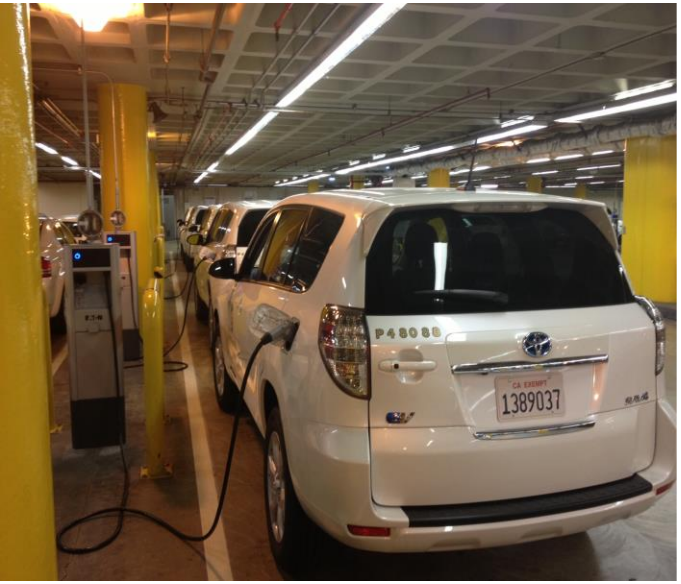
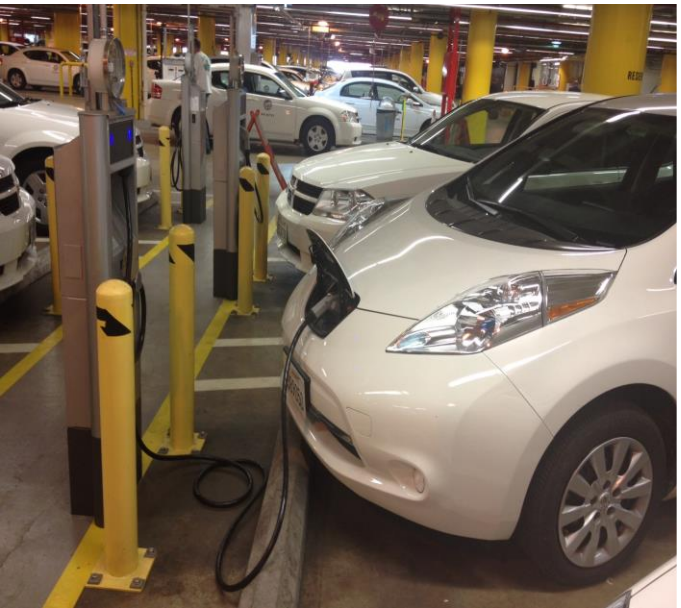
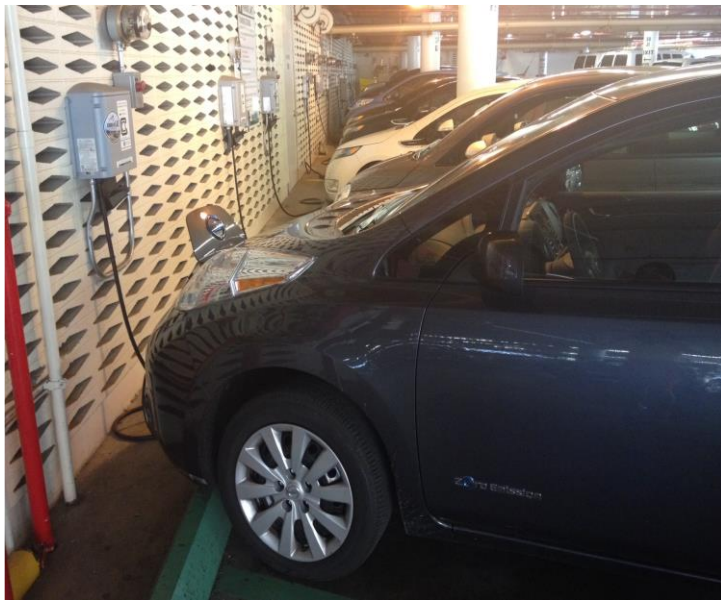
LADWP's Current PEV Infrastructure







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Curbside Charging

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Large EV Fleet ….LAPD

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Other Important Programs:

- Residential Smart Charging Demo
- Low Income LA Car Sharing Program
- LA Green Building Ordinance Change
- Investigating Commercial EVSE Direct Install (similar to EE programs)

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What Is Needed ?

Most Important:

- CEC to work with CARB to give POUs post 2020 GHG credit equivalent to the contribution of GHG reduction for promoting Transportation Electrification (4 to 1).
- Financial support to support EV infrastructure.

Also Important:

- Modify State Building Code to Require EV Infrastructure for New Construction.
- Develop Partnership with OEMs, Utilities, NGOs, and Governmental / Regulators for Education & Outreach.

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LADWP EV Program 5 year Results:

Expected Program Results:

- The equivalent of 145,000 plug-in EVs in Los Angeles.
- LA's visible support for EV Technology through 10,000 City and Private Commercial Chargers for Public, Workplace, Multi-Unit Dwellings and 1600 City Plug-in vehicles.
- Support Residential Charging (5000 chargers)
- Utility Goals including GHG emission reductions, integration of renewable energy, better utilization of assets, and customer savings.

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Questions