

Utilities & Transportation Electrification

APPA Public Power Forward

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Putting Customers First   

About LADWP

- Nation's largest municipal utility
- 1.5 million electric service connections
- 681,000 water service connections
- 7,880 MW electric capacity
- 438 million gallons of water per day (average)
- 4 million residents, businesses & visitors



Power Supply Transformation

Transforming our power supply to achieve a clean energy future for Los Angeles

- Coal Transition
- Renewable Energy – 100%
- Energy Efficiency
- Power Reliability
- **Electric Transportation**



LADWP Vision



1. Electrification of Transportation
2. Transition to 100% Clean Energy
3. Local Water Infrastructure & Supply (Groundwater Cleanup and Storage)
4. Customer-Facing Automation
5. Local Hiring/Gender Equity
6. Customer Excellence Across All Customer Classes

Expanding EVs: A Strategic Priority

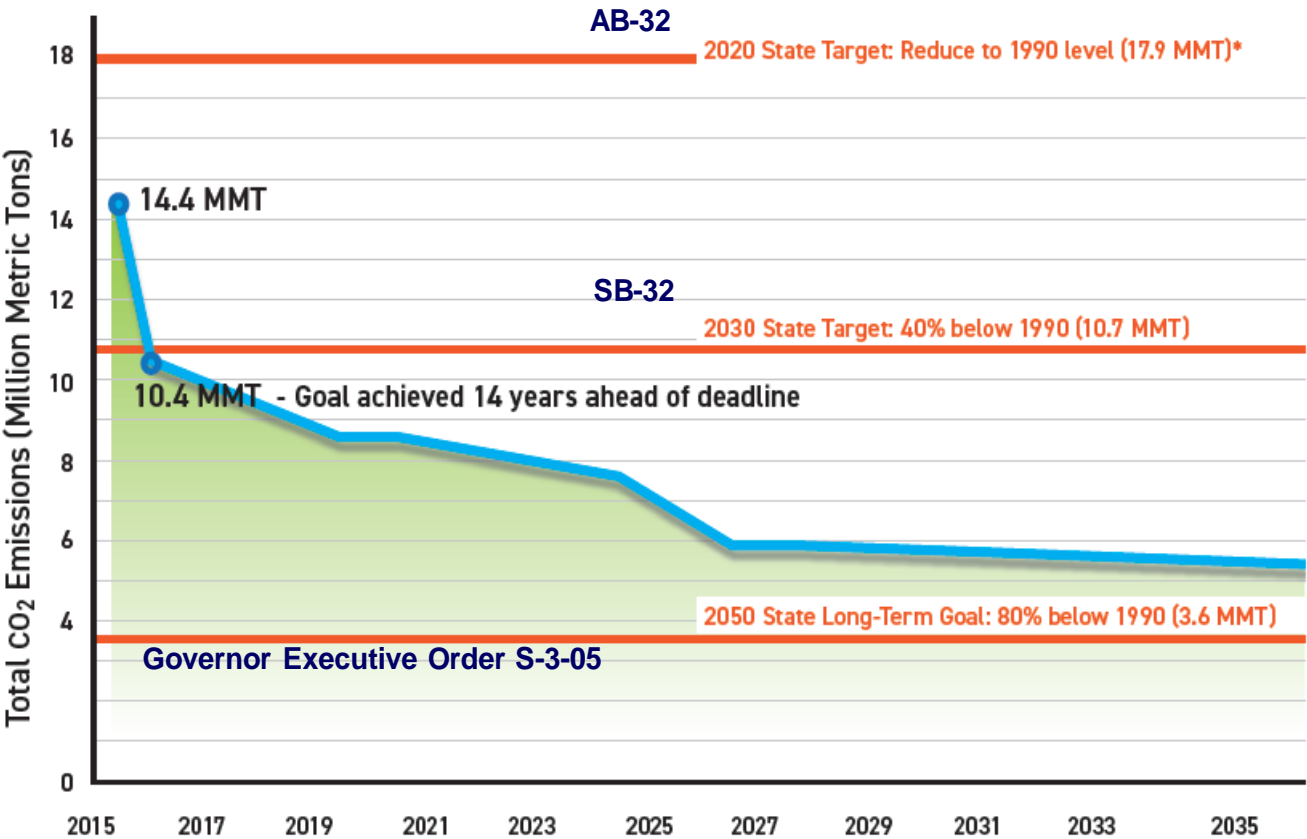


LADWP seeks to increase adoption of electric transportation in Southern California through:

- Expanding residential and commercial charging infrastructure
- Converting customers to EV drivers
- Converting large fleets to electric (partnerships with Metro, Port, Airport and other agencies)
- Work with Sacramento to allow utilities to earn carbon credits for EV charging

California Greenhouse Gas Legislation

Expanding EVs is key to meeting GHG reduction goals

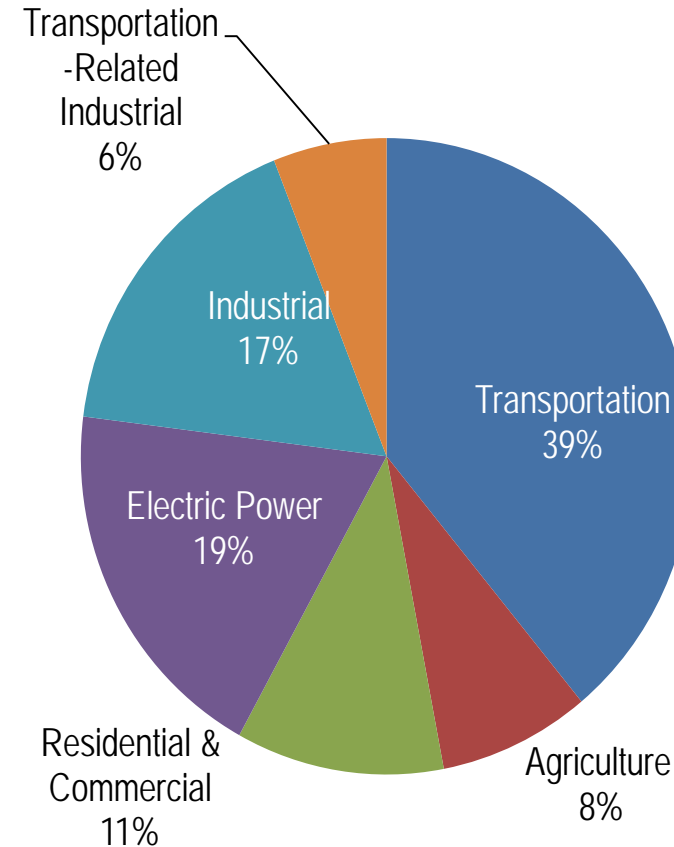
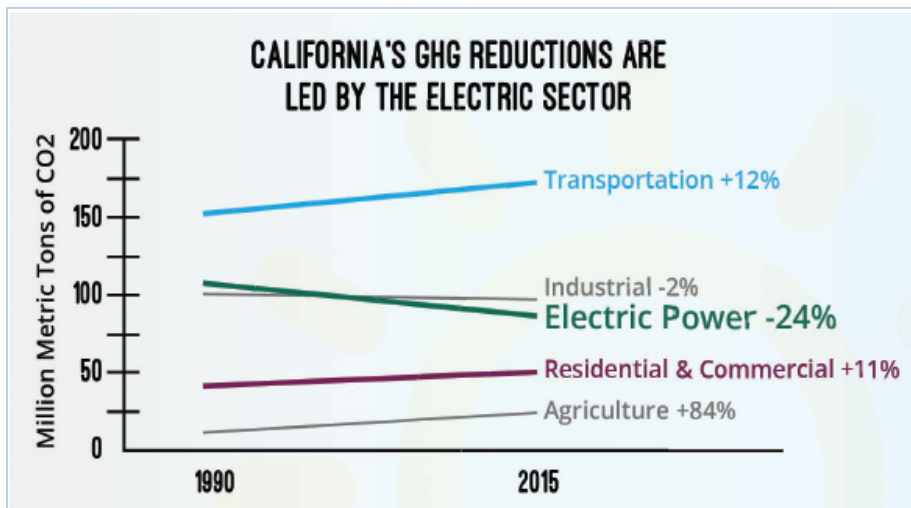


*LADWP emissions have been below the 1990 level since 2002 (16.4 MMT), 18 years ahead of 2020 state target.

In 2025, LADWP will have reduced CO₂ emissions by 9.8 million metric tons, compared to the 1990 baseline level, equivalent to removing 2.1 million cars from the highway.

GHG Emissions per Industry Sector

California's GHG reductions are led by the electric sector, yet the transportation sector produces twice as much of the state's GHG emissions.



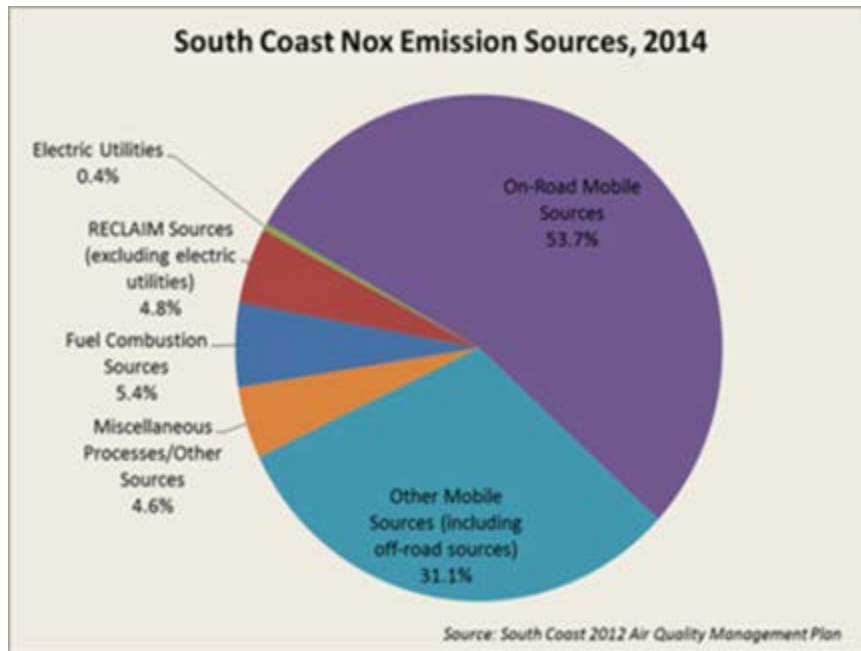
California GHG Emissions by Sector, 2015
(Source: CARB)

Gas Vehicles – Bigger Source of Pollution

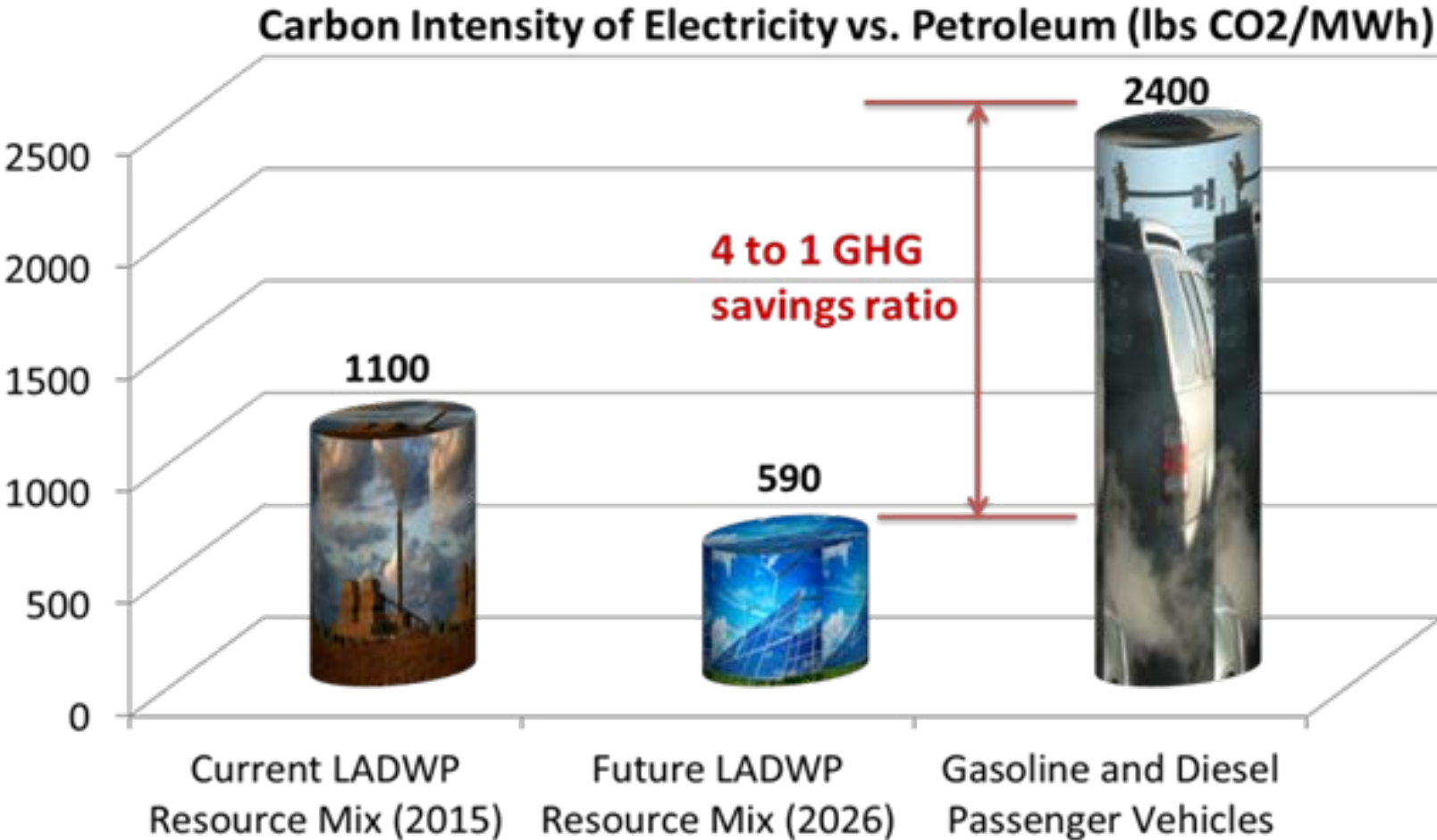
Pollution sources in Southern California:

Electric utilities: 0.4% Nox emissions

On-road and off-road vehicles: 84% Nox emissions

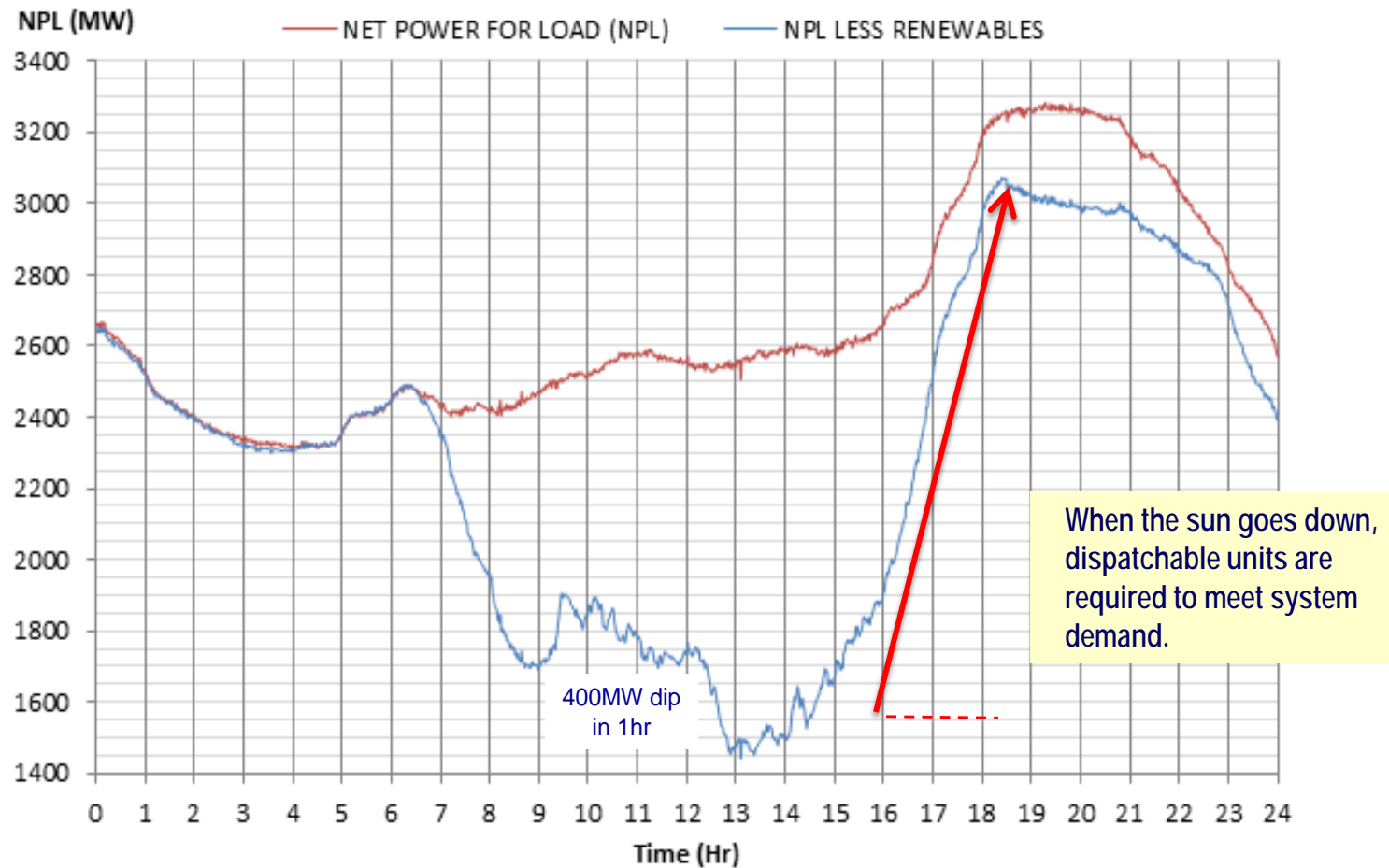


GHG Future Contributions



“Duck Curve” Challenge

Net Power for Load (NPL) for 02/26/2017



Clean Energy & Electrification

Solar Concerns:

- 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



LADWP EV Initiative



5-Year Goals:

- EV adoption: 15% of all vehicle purchases
- 145,000 EV “equivalents” in LA
- 10,000 commercial EV chargers
- Coordinate with other electric utilities

EV Business Plan: Strategies

- Education & outreach
- City-owned charging infrastructure
- LADWP/City fleet
- Residential EV charging
- Used Vehicle Market
- Commercial EV charging
- Medium and heavy duty EV trucks



Education & Outreach

- Web-based EV dashboard
- Community presentations and events (i.e. LA Auto Show)
- Joint programs with car dealers, agencies, and other utilities
- Quarterly ride and drive events



Electrify LADWP & City Fleets

We're demonstrating visible support for EV adoption

Current: LADWP has 114 plug-in sedans, 6 plug-in hybrid bucket and digger trucks.

Goals:

- 50% of new light-duty City fleet vehicles will be EVs.
- 100% of LADWP's new light duty vehicles will be EVs.



Residential Customer Charging

Existing rebate program: \$500 for 240V charger
(2,945 rebates since 2011)

New: Develop residential smart charging program:

- Up to \$750 toward Smart Home Charger
- Investigate annual incentive for off-peak charging
- Funded with LCFS

New: Used EV rebate:
\$450 for up to 2,000 EVs

Local Building Ordinances



Commercial Customer Charging

Current Program:

- Rebates up to \$4,000/charger (up to 20 rebates/site)

Enhancements:

- Front-funding rebates for non-profits/agencies
- DC fast charging/charging hubs
- Direct install (similar to energy efficiency programs)



Medium and Heavy-Duty EV Program

Rebates: Develop rebate schedule

LCFS: Use LCFS to fund gaps in infrastructure

Buses: Support development of inter-agency bus charging facility

Rates: Create a new EV "anytime" rate



What's In It for Electric Utilities?

- Helps fight climate change
- Improves local and regional air quality
- Supports and enhances clean power policies, programs & goals
- Provides revenue stream for utilities



Benefitting the Bottom Line

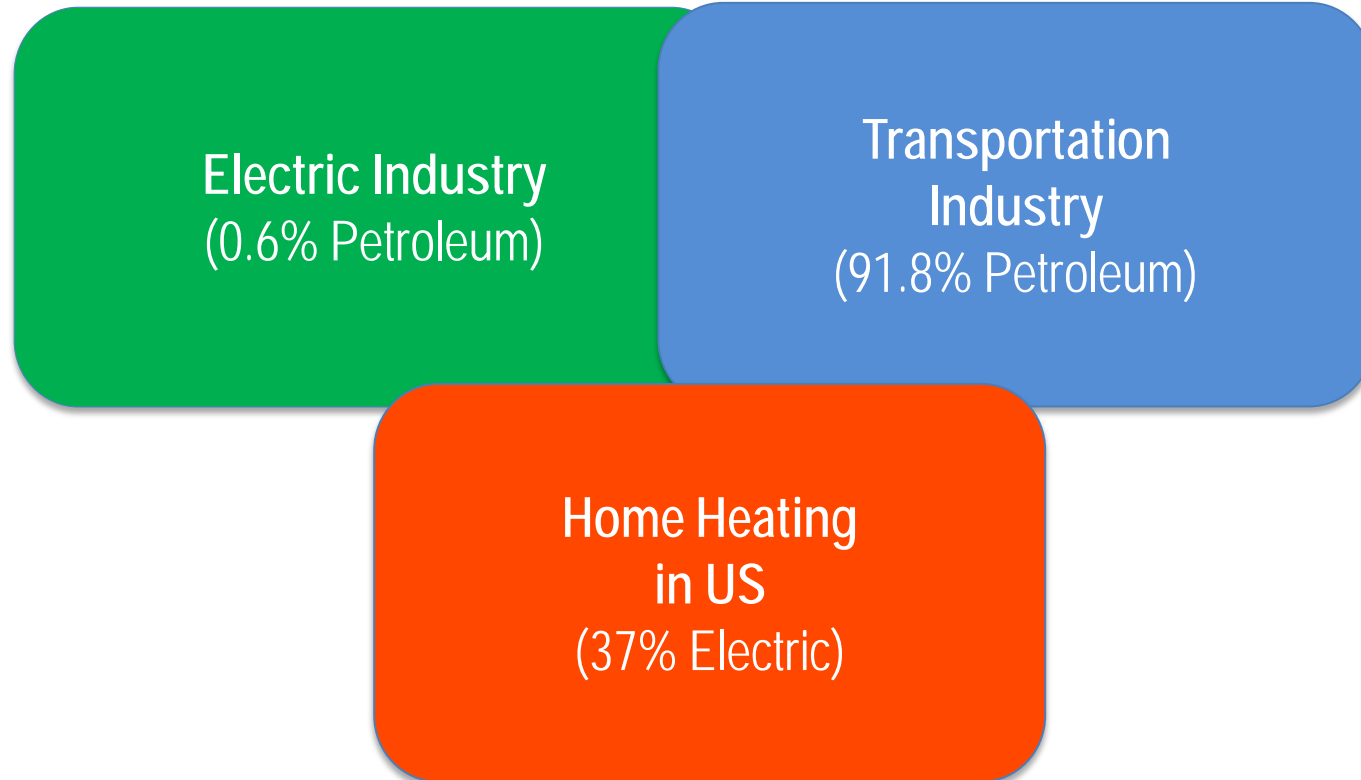
(for Utilities and Our Customers)

- Saves costs for customer
 - Charging up an EV costs less than \$1 per gallon of gas
- Every battery electric vehicle = ½ a house load
- The more electric charging off peak, the better for our bottom line
- Over time, all customers save money



Key Concept:
Lots of cars, charging at the right time

Business Case for Electrification



Electrifying transportation in LA could increase sales by 50%

Lessons Learned

- EV Programs: Keep it simple and be flexible
- Layer funding sources
- Partner with others (i.e. agencies, utilities, dealers, automakers)
- Deliver the whole package (funds, installation, O & M)
- Think big! Be loud!
- Don't be afraid to try new things



Questions?

