Transitioning to Low-Carbon Fuels & Alternative Fuel Vehicles:

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Southern California Edison is an electric only utility and while we support all forms of sustainable alternative transportation fuels…

We do tend to support transportation electrification the most!
The Good News…(10-12 PEVs by 2012)

- Ford
- Chevrolet
- Ford
- Tesla
- GM
- BYD
- Nissan
- Mitsubishi
- Smart
- Dodge
- Tesla
Low Carbon Fuel Standard-

More than just “Low Carbon”
- Stimulate the production and use of sustainable alternative fuels
- Create a mass market for clean transportation solutions
- Reduce and then eliminate California’s dependence on foreign oil

But The Devil is In The Details…
How Do We Address Cross Sector Cost Shift From Liquid To Electricity Fuels?

SCE- est. $300m per year by 2020

Transportation Sector

Utility Sector

Current Utility Generation (kWh)

Current Utility Carbon Emissions (mtons)

Increased RPS costs due to PEV load

Increased GHG compliance costs due to PEV load

Electricity Fuel

PEVs
How Will The LCFS Credit Market Develop?

• Will the Oil Industry purchase credits from utilities?

• If so will they do it from day one or when their “requirements” eventually demand it?

• Will utilities own the credits on behalf of their customers?
Harmonize State Load Reduction Policies With “Good Load Growth” From PEVs

**Load Reduction**

- Tiered Rates
- Smart Meters
- Energy Efficiency
- Demand Response
- Zero Net Energy Homes
- Customer Education

**PEV Load Growth**

Est. 11% of SCE’s total load by 2020 (unmitigated)

14B kWhs by 2020
Cost Drivers To Support Low Carbon Electrification Are Significant

- Residential
- Distribution System Readiness
- Rate Design & Cust. Education
- Effective Load Management
- Renewables Integration Synergy
- Workplace
- Back Office IT & Systems Dev.
- Vehicle Coms. Standards
- Bi Directional Energy Flow & Control
- Auto-grade Battery Storage
- Dist. & Transmission
- Public
- Rate Design & Cust. Education
- Effective Load Management
- Renewables Integration Synergy
LCFS On It’s Own Is Not Enough To Drive Electrification

• **Accelerate Technology Improvements**
  – Full Federal appropriations for existing authorized programs
  – Fund RD & D: (CEC PIER & AB 118, CPUC, Air Districts, other)

• **Domestic Supplier Capacity (battery, vehicle and component makers)**
  – Expand funding through Advanced Technology Vehicle Manufacturing Incentive Program
  – ARRA funding

• **Explore New Bus. Models to Overcome Barriers & Reduce Vehicle Costs**
  – Stationary battery applications, 3rd. party battery ownership, battery warranties (or similar), battery standardization, secondary battery use, battery recycling, 3rd. party charging station installation/ownership, etc

• **Promote Deployment of Vehicles and Infrastructure**
  – Fund the EISA section 131 and Clean Cities programs for low-carbon fuel vehicles and infrastructure. Same for state programs (e.g. AB 118)
  – Federal and State government fleet purchases
  – Sustained Consumer Tax Credits for Low-Carbon Fuel Vehicles
  – State and local city monetary and non-monetary incentives

• **Grow Broad Markets**
  – Focus on non-road, heavy duty, goods movement and people movement markets
For more information, contact Ed Kjaer at edward.kjaer@sce.com
The Search for Sustainable Alternatives…

- 25 years ago  Methanol
- 15 years ago  EVs
- 10 years ago  Hybrids
- 5 years ago   Fuel Cells
- 3 years ago   Ethanol
- Today        PEVs
- Tomorrow?    Stay The Course…Please!