

**Comments on
Draft Consultant Report:
California Alternative Fuels Market
Assessment,
Electricity Section**

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Electric
Transportation
Coalition**

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Summary of Major Flaws

- Ignores major ET markets.
 - Both existing and future markets.
- Exclusively focused on the present.
 - A true Market Assessment must evaluate future market drivers, trends, opportunities.
 - This is a tally of existing vehicles and fuels they use.
- Jumps to a conclusion which is factually inaccurate and unsupported.
- The conclusion points to a major policy flaw in the direction of the AB 1007 analysis for all fuels.

The Correct Conclusion:

Electric drive technologies are a viable component of a portfolio to reduce emissions and petroleum use

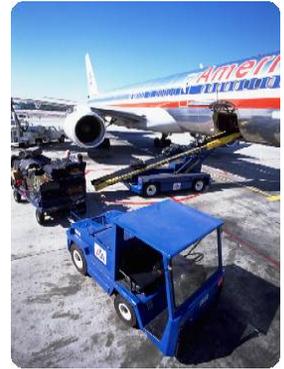
- **Today electric technologies compete well in markets such as:**
 - Lift trucks, with a market share of 60%
 - Burden/personnel carriers, tow tractors, and turf trucks with a market share of 40%
 - Sweepers, scrubbers, and burnishers with a market share of 80+%
 - Lawn and garden equipment with a market share of 38%
- **Electric transportation growth markets that can have a significant impact on reducing emissions and petroleum use are:**
 - Truck Stop Electrification (idling reduction)
 - Port Electrification (AMP or cold ironing)
 - Electric-Standby Truck/Container Refrigeration Units
 - Light- duty Plug-In Hybrids

Data Source

- **“Electric Transportation and Goods-Movement Technologies in California: Technical Brief”, TIAX, LLC, October, 2005.**
 - This Report contains an assessment of the "expected" (business as usual) and "achievable" market penetration for 17 separate electric transportation technologies in the years 2002 (baseline), 2010, 2015, and 2020. Then it calculates the net impacts of these levels of market penetration in terms of petroleum displacement, reduction of GHG emissions, reduction of criteria pollutants, and the increase in electrical demand.
 - Docketed; provided to staff; presented to CEC, ARB, CAT.

Non-Road Electric Vehicles

- About 300,000 electrics in CA today
- Wide range of electric equipment
 - large units such as forklifts, airport ground support equipment, tow tractors.
 - small units such as burden carriers, sweepers, scrubbers, burnishers.
- Significant market-share today.
- Electrics are a compliance option in adopted ARB fleet rules, beginning in 2009.
- Financial incentives available through Moyer.
- Trend is for increasing market share.



Truck Idling Reduction with Electrification

- 76,000+ sleeper cab trucks in California today and growing fast
- Idle at truck stops up to 16 hours per day.
- Off-Board & On-Board options.
- Truckers can SAVE money.
- Electric is a compliance option in ARB idling reduction regulations.
- 2,000 – 3,000 spaces today.
- Financial incentives available through Moyer.
- Trend is increasing market share.



Port Electrification



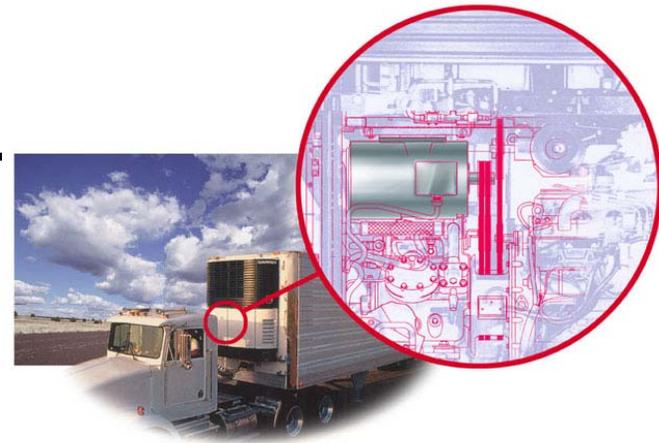
- One ship = 4 tons pollutants at the dock.
- 16 ships = emissions of 1 million cars.
- POLA-LB is largest source of emissions in SCAQMD.
- Shipping expected to triple by 2020.
- ARB Goal: 80% of future ship visits electrified
- Financial incentives available.
- Trend is increasing market.

Navy has used “cold ironing” for 50 + years (San Diego).

Commercial examples in Alaska, Seattle, Bay Area, Los Angeles, Europe

Electric-Standby Truck/Container Refrigeration Units

- E-TRUs plug in at dock, use diesel on road.
- About 4,000 – 7,000 E-TRUs in CA today, but little infrastructure.
- Plug in at distribution centers, warehouses or ports.
- 31,000 diesel TRUs could switch to e-TRUs.
- Electric TRUs are a compliance option in adopted ARB fleet regulations.
- Financial incentives available through Moyer.
- Trend is increasing market share.



What is “significant” petroleum reduction?

- **Draft Report: “In summary, grid-supplied electricity does not currently, and is not forecast to reduce significant petroleum transportation fuel use in California.”**
- **This assertion is NOT supported by any analysis in the Draft Report.**
- **Does this hinge on a definition of “significant” petroleum reduction?**
- **What are the policy implications of this definition?**

Non-Road Electric Transportation Technologies

Breakout of estimated **Expected** displacement of gasoline
by category / application

(million gge / year)

Electric Drive Technology or Application	million gge / Year
	2020
Truck Stop Electrification	106 – 141
Alternative Marine Power	7 – 40
Electric Transport Refrigeration Units	12 – 12
Off-Road Industrial Vehicles	15 – 41
Lawn & Garden Equipment	Not included
Plug-In HEVs	Not included
Hydrogen FCVs	Not included
On-Road Battery Electric Vehicles	Not included
Other	Not included
TOTAL of Estimated Displacement	140 – 234

Displacement of 140-234 million gge of gasoline is “not significant”?

- **CNG = 120 million gge in 2017.**
- **LPG = 19 million gge in 2004.**
- **E85 = 0.07 million gge in 2005; 200 million gge if 50% use in all current FFVs.**
- **B100 = 4 million gge production; 11.6 million gge capacity in CA.**
- **H2 = 0.02 million gge in 2005.**
- **BART = 73 million gge per year today.**
 - **(electric rail not in the Assessment)**

Policy Flaw in the Electricity Conclusion

- **Points to a “silver bullet” solution approach.**
- **But we have been down that road before, and it’s a mistake.**
- **We should learn from our experience with air pollution reduction.**
 - **Get reductions from many sources.**
- **Need a “portfolio approach”**
 - **Reductions from many sources, after evaluation of benefits including reduction in air pollution and GHG.**

Plug-In Hybrids

- **No market assessment.**
- **No discussion of recent advances in technology, and cost reduction.**
- **No discussion of ongoing work by DOE, National Labs, private research, etc.**
- **No discussion of PHEV performance results, or benefits.**
- **Ask that this proceeding take official notice of the presentations of the recent ARB ZEV Technology Symposium, and that all presentations be docketed.**



Breakout of estimated **Achievable** displacement of gasoline by category / application

(million gge / year)

Electric Drive Technology or Application	million gge / Year
	2020
Truck Stop Electrification	220 – 294
Alternative Marine Power	10 – 59
Electric Transport Refrigeration Units	37 – 37
Off-Road Industrial Vehicles	232 – 265
Lawn & Garden Equipment	18 – 50
Plug-In HEVs	957 – 1,333
Hydrogen FCVs	65 – 65
On-Road Battery Electric Vehicles	131 – 131
Other	---
TOTAL of Estimated Displacement	1,670 – 2,234

Breakout of estimated **Achievable** reductions in GHG and Criteria
 Pollutant emissions by category / application
 GHG (million tons per year, CO2 equivalent); Criteria (tons per day)

Electric Drive Technology or Application	Pollutant / Year	
	GHG / 2020	Criteria / 2020
Truck Stop Electrification	3.02	121
Alternative Marine Power	0.30	11.5
Electric Transport Refrigeration Units	0.28	13.8
Off-Road Industrial Vehicles	2.90	17.1
Lawn & Garden Equipment	0.39	18.6
Plug-In HEVs	11.50	7.95
Hydrogen FCVs	0.65	1.08
On-Road Battery Electric Vehicles	1.24	1.23
Other	0.23	2.24
TOTAL of Estimated Avg. Reductions	20.50	194.5

Conclusion:

Electric drive technologies are a viable component of a portfolio to reduce emissions and petroleum use

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