

California Energy Commission's Fuel Efficient Tire Program

Arnold Ward

Transportation Technology

**California Energy
Commission**

**Presentation to the National
Academy of Sciences
Committee for the National
Tire Efficiency Study**

Davis, CA.

May 17, 2005



The California Energy Commission

- History: Origins from 1970's Energy Crisis
- Early major effort Appliance Efficiency
- Today includes divisions regarding electricity generation, licensing, R&D, as well as Transportation and the Efficiency division (regs)
- CEC believes that the dissemination of tire fuel efficiency information will improve competition in CA replacement tire market



Presentation Overview

- I. AB 844: Historical perspective
- II. Summary of AB 844 requirements:
 - A. RR Reporting Requirements
 - B. Efficiency Standard
 - C. On Road vehicle fuel economy test
 - D. Other elements
- III. CEC Tire Testing Contract



I. AB 844: Historical perspective



Historical Perspective for CEC Tire Program (1990-2000)

- OEM supplied tires by tire mfrs with specific and often stringent fuel economy requirements—Competitive and extremely secretive
- Prior unsuccessful federal attempts to adopt RR and fuel economy reporting for replacement tire market



I. History of CEC Fuel Efficient Tire Program: SB 1170- October 2001

Ecos, under contract with the CEC completed Fuel Efficient Tire report to Legislature in January 2003:

- A. Substantial fuel savings (up to 300 million gallons of gas/year) in CA possible
- B. But more information needed--\$400K promised by CIWMB for more testing



Tire Bill: AB 844—October 2003

- Occurred as a result of CEC's Fuel Efficient Tire Program and SB1170 Report
- Supported by NRDC, RMA neutral on final bill language



II. Summary of AB 844 reqmts:

A. RR Reporting Requirements

Requires the CEC to develop regulations that establish: Rolling resistance reporting requirements for manufacturers of tires for light duty vehicles and a rating system for comparing fuel economy characteristics of tires (orig due July 2006, revised to Jan 2008)



Goals for RR Reporting Regulations

- Rating system with accurate reporting
- System easily understood with repeatable and useable data
- Yet to be determined: Ranges of RR—for all tires or for specific tire types—i.e. high performance, all season etc.



AB 844 Activity Timeline to Start Rulemaking for Reporting Requirements

- 10/03 AB 844 signed into law
- 2/04 CIWMB approves \$400K funding for CEC Tire Study
- 7/04 State spending freeze lifted
- 8/04 RFP released for \$400K Tire Study
- 11/04 Proposal awarded
- 4/05 Tire Study Contract in place
- 9/06 Completion of contract activities
- 1/07 Begin Rulemaking (Part I)



II. Summary of AB 844 Requirements:

B. Efficiency Standard

Adopt minimum fuel economy standards for tires **if feasible** (original due July 2007 rev'd to Jan 2009) with criteria per Section 25773 (a) (1) A-D :

A---technical feasibility or cost

B--- tire safety

C---tire life

D---tire recycling



What if there is no clear answer regarding Fuel Efficient Tires and the Exceptions?

- CEC will NOT entertain a fuel efficiency Standard immediately after the results of current tire testing contract
- AB 844 Timeline 1 year after reporting regs established CEC considers Fuel efficiency standard
- CEC will carefully consider all information and consult with NHTSA before acting



II. Summary of AB 844 Requirements :

C. On Road vehicle fuel economy test

- Tire Mfrs-RMA to develop plan for and complete on road testing program for investigating fuel efficiency impact of low rolling resistance tires (due date Jan 2006)
- Specifically requested by Tire Manufacturers



II. Summary of AB 844 requirements:

D. Other elements

- Exemption of emergency vehicles if efficiency standard deployed
- Exemption of low production volume tires from efficiency standards
- CEC Review and revise, if necessary, Fuel Efficient Tire Program on 3 year basis



AB 844 if Successful might be Nationwide

- Numerous other states waiting for our results (NYSERDA, MASSPIRG, etc.)
- Federal legislation may mirror our regulatory action or expand upon it



II. Tire Testing Contract: \$400K from CIWMB

- awarded to Smithers Scientific with subcontracted activities to STL
- Main Objectives to determine appropriate RR test, discover distribution of RR, explore relationships, if any, of RR and other tire characteristics



Detailed Objectives of the RFP

- Study & select an SAE test type (J1269 or J2452) to measure rolling resistance
- Investigate low rolling resistance in tires vs wear, safety, recycling, cost
- Investigate effect of under-inflation on low rolling resistance tires
- Discover general distribution of rolling resistance in tires



Tire Study Approach for Tire RFP

1. Compare two RR tests—recommend one
2.  Through RR testing, create a small database of broadly representative tires
Select Low RR and High RR tires for:
3. Wear: Modified UTQG for treadwear life
4. Safety: wet and dry traction testing (modified UTQG)
5. Select Low RR and High RR tires for wear with under-inflation
6. Recycling Study with RMA input



Tire sizes to be tested

- 4 vehicle classes tentatively selected
 - most popular vehicles based on DMV Database from each class chosen
- Tire sizes



Selecting the Rolling Resistance Test Type:

SAE J1269:

Single speed, older
test, common usage

SAE J2452:

Multiple speed, more:
complex, costly and
complete data but
hard to compare



Select large Group of High and low RR tires to test

- OEM type tires
- High RR tires
- Diverse types and models
- Comparative tires used for later tasks of longevity and safety
- ? Suggestions
- Estimated total about 110-150 depending on costs



Investigate Low Rolling Resistance in Tires vs Wear

- Do low rolling resistance tires wear out faster than other tire types?

Or.....

- Do tires that have good wear characteristics have higher rolling resistance?



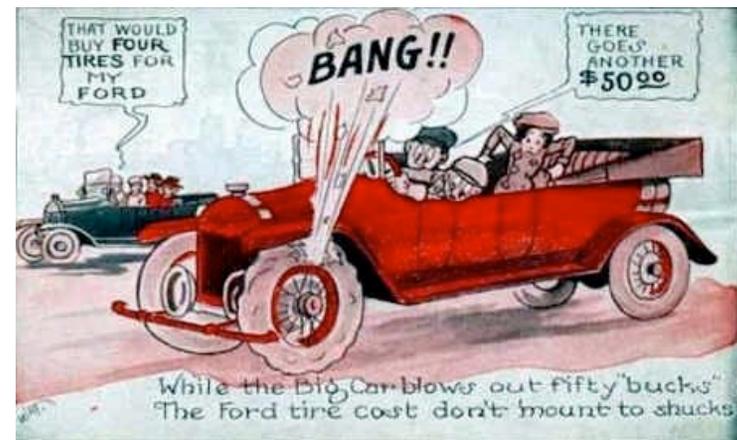
Investigate Low Rolling Resistance in Tires vs Safety

- Are tire characteristics relating to safety such as wet traction, stopping distance, etc., inversely related to rolling resistance?



Investigate Low Rolling Resistance In Tires vs Recycling, Cost

- Are low rolling resistance tires in any way, different from other tires regarding their recycle-ability?
- Are low rolling resistance tires more costly?



Investigate Low Rolling Resistance In Tires vs Under-inflation

- Do under-inflated, low rolling resistance tires wear out faster than other under-inflated tires?



Competency of our approach

- Two of the most recognized Tire labs are being utilized to acquire our data—Smithers Scientific and STL (under subcontract)
- We have incorporated RMA input in the development of our solicitation for tire testing (the drafting of activities, the overall approach, and the tires selected for testing)



Tire Testing Activities Timetable

July 15 2005	Report on SAE Tests for Rolling Resistance and Tire Testing Plan
January 15, 2006	Rolling Resistance Test Results
Feb 15 2006	Plan to Compare Low to High Rolling Resistance



Tire Testing Activities Timetable (cont'd)

May 15 2006	Report on the Relationship of Low Rolling Resistance to Tire Recycling
June 15 2006	Test Results of Low to High Rolling Resistance Comparison
August 15 2006	Final Results Analysis Report



Expected Results of Tire Testing Contract

- Selection of a useable RR test
- Understanding of range of RR for Light duty replacement tires
- Recommendation of areas of interest requiring further information—possible additional testing



Who is Intended Beneficiary of AB 844 and our Fuel Efficient Tire Program?

- Replacement Tire Consumer: Added piece of product information to existing knowledge of Performance, Cost, tire life, etc.
- OEM car manufacturers already stringently use this information in selecting tires equipped on new vehicles

