

Natural Resources Defense
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Fuel Efficient Replacement Tires for Cars and Light Trucks

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Light-Duty Tire and Wheel Weight Webcast
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www.ResponsiblePurchasing.org



Low Rolling Resistance Tires Reduce Fuel Consumption and GHG Emissions

- Range of rolling resistance across existing tire models
- Tires deform as they roll; flexing tread and sidewall loses energy as heat
- Manufacturers create rubber compounds to minimize rolling resistance (RR)
 - Tire formulations can be optimized to maintain traction and wear life with low rolling resistance
 - 10% reduction in RR improves fuel economy by 1-2% (estimate from National Academies of Science report)
 - Light-duty fuel economy can increase at least 2-4%

Tire Efficiency Technical Potential Is Likely Higher than 4%

- NAS Panel: Rolling resistance among tires in today's market with same size, traction and speed ratings can vary by as much as 20%, which could result in fuel economy benefits of 4%.
- Michelin Green Meter Press Kit, October 10, 2007:
 - “Today, further advances are still possible. Researchers at Michelin believe that significant additional reductions in rolling resistance, up to 50 percent, are possible within the next 10 to 15 years—a technical challenge to which Michelin is responding with special research programs.”
 - “These differences may be as much as 50 percent for different tire brands produced for the same car [in Europe]. For a car at 40 mpg, a difference of more than 50 percent in rolling resistance can improve fuel consumption by up to 4 mpg and lower CO2 emissions by up to 10 percent.”

Fuel Savings Are Cost-Effective

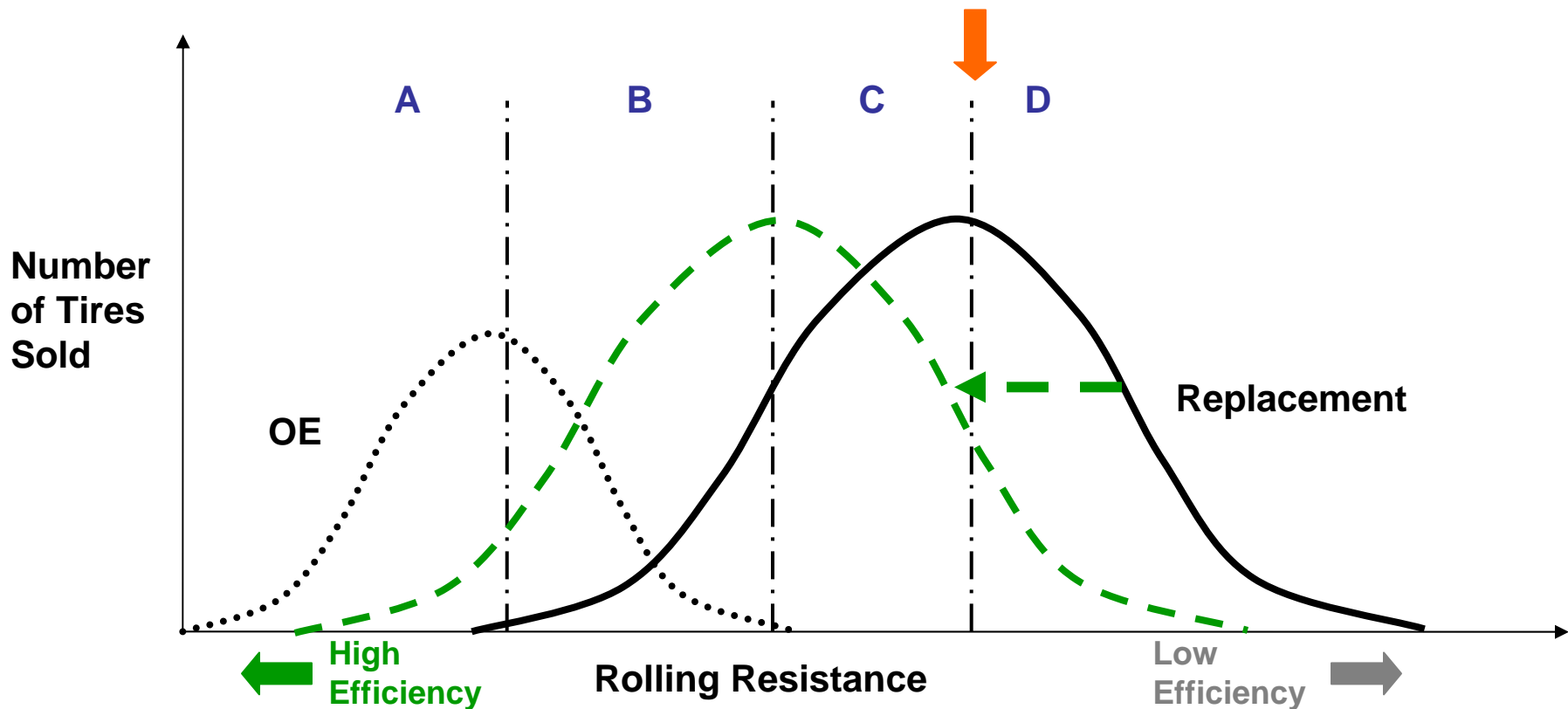
- \$1 - \$2 per year incremental cost to consumer for set of four low rolling resistance tires
 - NAS Panel report, assumes 42,000 mile, 3.5 year tire life
- **Net Savings to Consumer for Using Fuel Efficient Tires**

Fuel Economy Improvement	F.E. Tire Incremental Cost (\$/yr)	Fuel Savings (gal/yr)	Fuel Savings (\$/yr)	Net Savings (\$/yr)
2%	\$2.00	11.6	\$29.12	\$27.12
3%	\$2.00	17.3	\$43.26	\$41.26
4%	\$2.00	22.8	\$57.12	\$55.12

Assumes \$2.50/gallon gasoline; baseline on-road fuel economy is 20.2 mpg (EPA Fuel Economy Trends 2007); and annual VMT is 12,000 miles.

Ratings and Standards Shift Market to Lower Rolling Resistance

Future Minimum Standard



CA and Federal Tire Efficiency Programs

- California Replacement Tire Efficiency Program
 - By statute, must establish labeling system, public database and minimum efficiency standards
 - Evaluated test procedures; supports J1269
 - Status: Working on manufacturer rolling resistance reporting procedures
- National Tire Consumer Information Program
 - Required by Energy Independence and Security Act 2007; NHTSA regulations within 2 years
 - Establishes rating and information system

Buying Fuel Efficient Tires

- Look for tires with low rolling resistance claims
 - Michelin *Energy* line
- Require tire rolling resistance data in bids
 - SAE J1269 is low-cost, rolling resistance test
 - Sufficient for ranking tires
 - Test results from multiple facilities may vary
 - Look rolling resistance coefficient values ≤ 0.01



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