

Industry Research Update

Rebecca M. Brewster
President and COO
American Transportation
Research Institute



Board of Directors

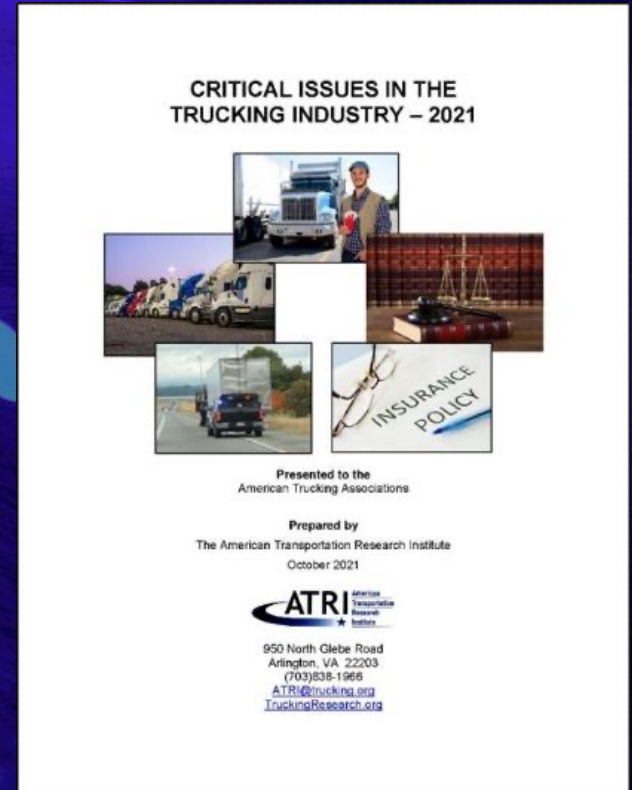


Research Advisory Committee



2021 Top Industry Issues

1. Driver Shortage (1)
2. Driver Retention (6)
3. Driver Compensation (2)
4. Lawsuit Abuse Reform (7)
5. Truck Parking (3)
6. Compliance, Safety, Accountability (4)
7. Detention / Delay at Customer Facilities (9)
8. Transportation Infrastructure / Congestion / Funding (#9 in 2019)
9. Insurance Cost / Availability (5)
10. Diesel Technician Shortage



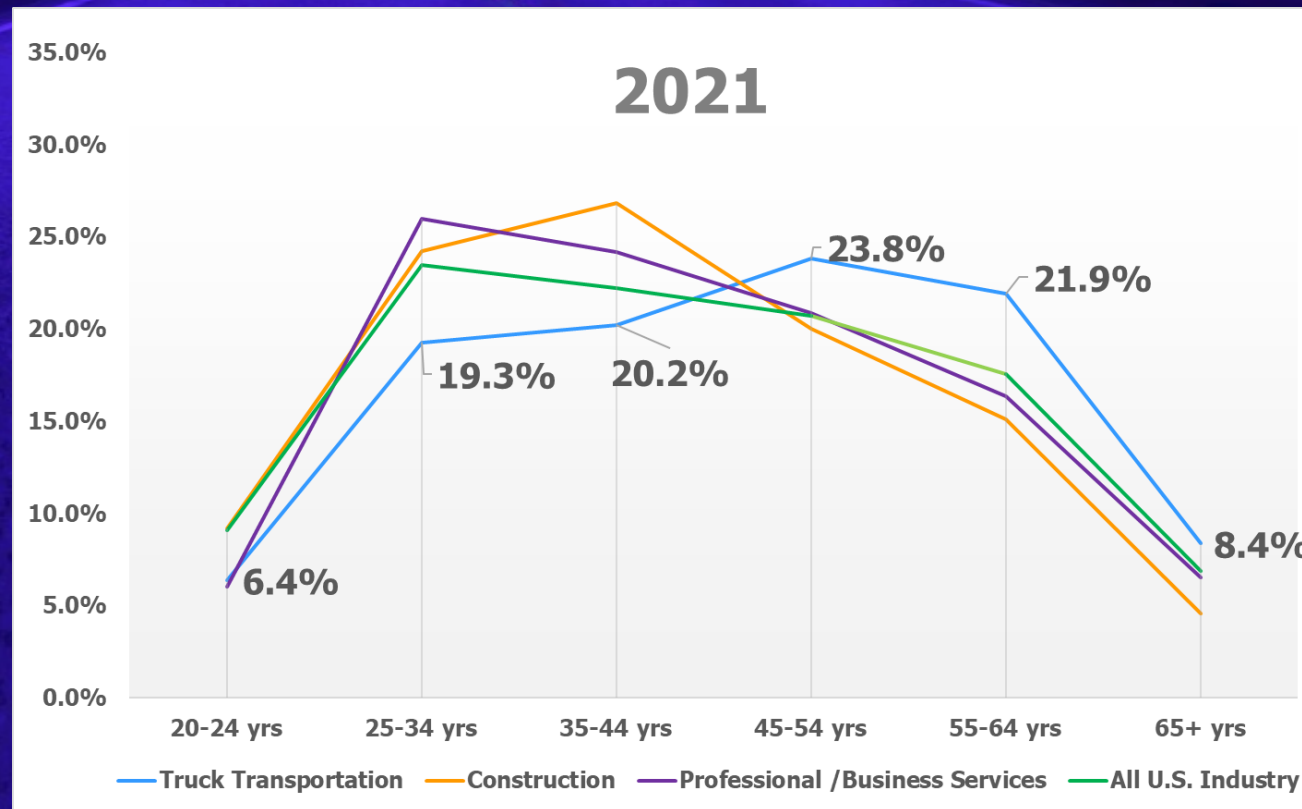
2021 Top Industry Issues

Rank	Commercial Drivers		Motor Carriers
1	Driver Compensation (tie)	Truck Parking (tie)	Driver Shortage
2	Detention / Delay at Customer Facilities		Driver Retention
3	Fuel Prices		Lawsuit Abuse Reform
4	Driver Training Standards		CSA
5	Hours-of-Service Rules		Driver Compensation
6	ELD Mandate		Insurance Cost / Availability
7	Driver Distraction		Diesel Technician Shortage
8	Transportation Infrastructure / Congestion / Funding		Transportation Infrastructure / Congestion / Funding
9	Speed Limiters		Driver Distraction
10	CSA		Detention / Delay at Customer Facilities

The More Things Change...

2005	2021
1. Fuel Costs	1. Driver Shortage
2. Driver Shortage	2. Driver Retention
3. Insurance Costs	3. Driver Compensation
4. HOS	4. Lawsuit Abuse Reform
5. Tolls / Highway Funding	5. Truck Parking
6. Tort Reform / Legal Issues	6. CSA
7. Overlapping / Burdensome Regulations	7. Detention / Delay at Customer Facilities
8. Congestion	8. Transportation Infrastructure / Congestion / Funding
9. Environmental Issues	9. Insurance Cost / Availability
10. Truck Security	10. Diesel Technician Shortage

Truck Driver Age Demographics



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Operational Costs of Trucking

- Collects and analyzes real-world motor carrier operational data
- Covers data 2008-2020
- Calculates costs by mile and by hour
- Includes sector, regional analyses
 - ◆ TL, LTL, Specialized/Other
 - ◆ Small vs Large Fleets



Operational Costs of Trucking

Average Carrier Costs per Mile

Motor Carrier Costs	2016	2017	2018	2019	2020
Vehicle-based					
Fuel Costs	\$0.336	\$0.368	\$0.433	\$0.384	\$0.308
Truck/Trailer Lease or Purchase Payments	\$0.255	\$0.264	\$0.265	\$0.256	\$0.271
Repair & Maintenance	\$0.166	\$0.167	\$0.171	\$0.149	\$0.148
Truck Insurance Premiums	\$0.075	\$0.075	\$0.084	\$0.071	\$0.087
Permits and Licenses	\$0.022	\$0.023	\$0.024	\$0.020	\$0.016
Tires	\$0.035	\$0.038	\$0.038	\$0.039	\$0.043
Tolls	\$0.024	\$0.027	\$0.030	\$0.035	\$0.037
Driver-based					
Driver Wages	\$0.523	\$0.557	\$0.596	\$0.554	\$0.566
Driver Benefits	\$0.155	\$0.172	\$0.180	\$0.190	\$0.171
TOTAL	\$1.592	\$1.691	\$1.821	\$1.699	\$1.646

Motor Carrier Costs	Share of Total Average Cost
<i>Vehicle-Based</i>	
Fuel Costs	19%
Truck/Trailer Lease or Purchase Payments	17%
Repair & Maintenance	9%
Truck Insurance Premiums	5%
Permits & Licenses	1%
Tires	3%
Tolls	2%
<i>Driver-Based</i>	
Driver Wages	34%
Driver Benefits	10%
TOTAL	100%

An Analysis of the Operational Costs of Trucking: 2021 Update

November 2021






Prepared by the American Transportation Research Institute



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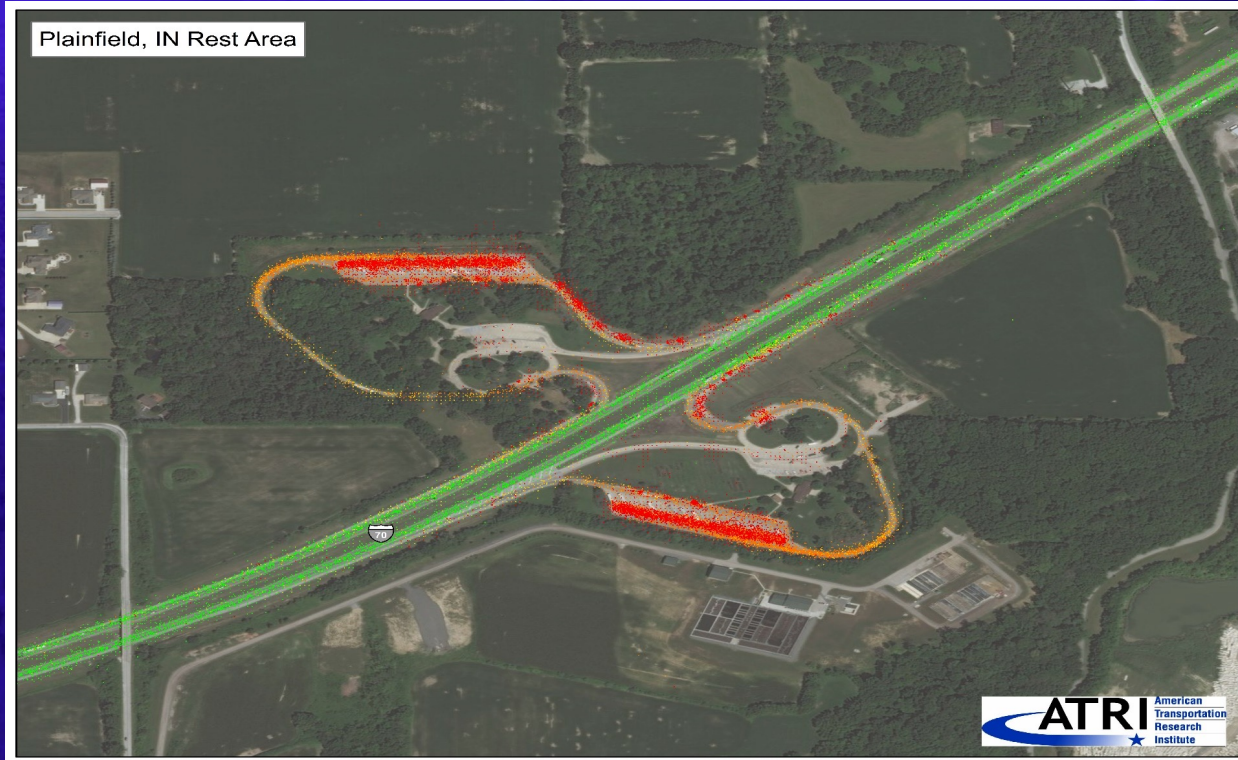
COVID-19 Impacts

- Overall, 44% reported truck parking “somewhat harder” or “much harder” to find
- Overall, 34% reported longer detention times; more pronounced among smaller fleets
 - ◆ 73% of respondents who reported longer detention times were from fleets of fewer than 50 trucks

COVID-19 Impacts



No Vacancy

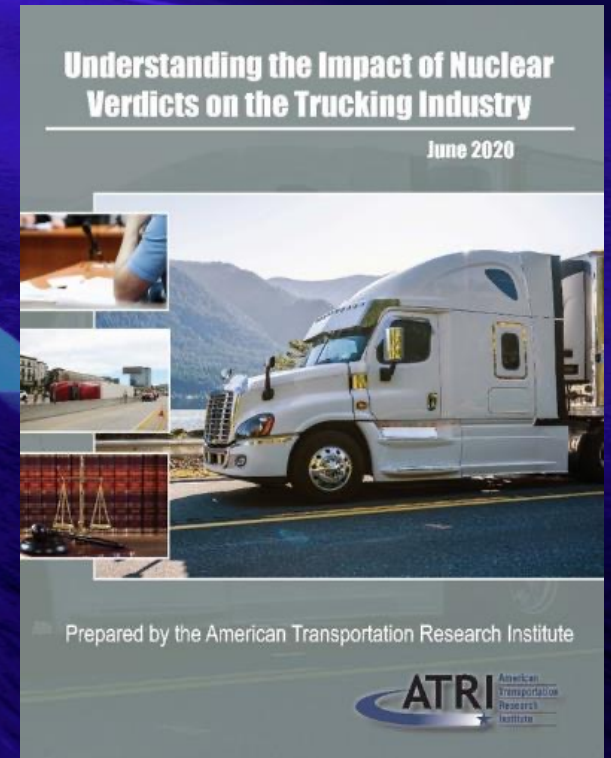


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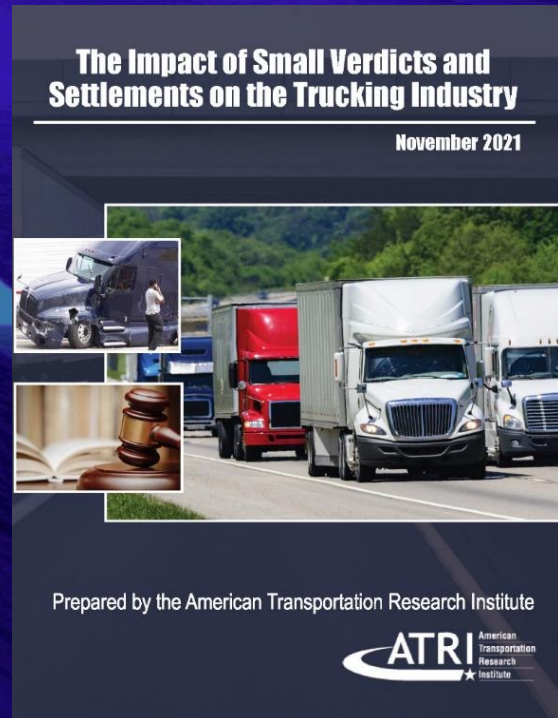
Nuclear Verdict Impacts

- Comprehensive analysis of 600+ cases spanning 15 years
- Documents growth in frequency and size of large verdicts
- In-depth interviews with defense and plaintiff attorneys, as well as insurance industry and safety experts
- Detailed analysis of litigation financing



Impact of Small Verdicts and Settlements on Trucking

- Focuses on verdicts and settlements <\$1 million
- Settlement payments 37.7% larger than verdicts
- Rise in crash severity
 - ◆ Fatality cases 393% more likely to result in settlements
 - ◆ Incidents involving a severe injury 217% more likely to settle and 199% more likely to result in payments to plaintiffs over \$600,000
- Litigious states like CA, MI, NJ, and NC have 50% higher payments

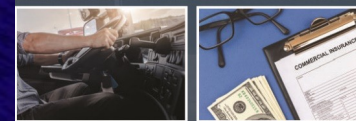


The Impact of Rising Insurance Costs on the Trucking Industry

- ATRI Ops Costs documented multiple years of substantial insurance cost growth
- RAC identified as top priority in 2020 to provide a more granular analysis of insurance costs
- Data collected from motor carriers and insurers

The Impact of Rising Insurance Costs on the Trucking Industry

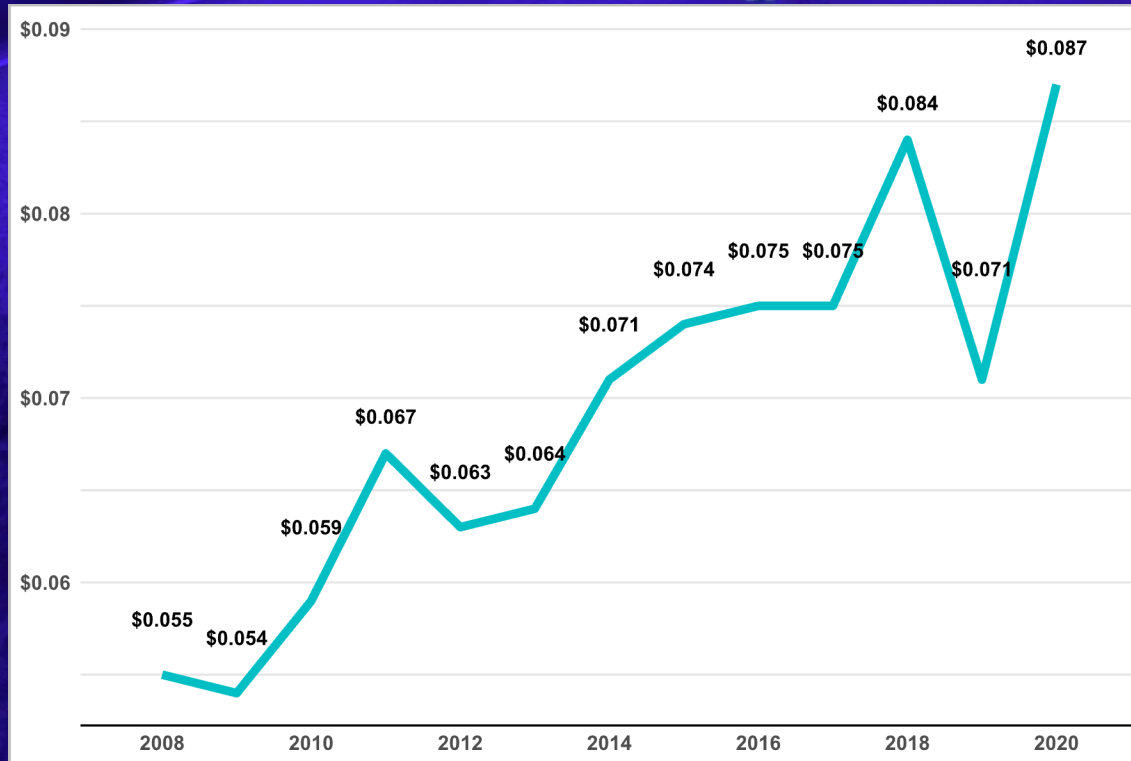
February 2022



Prepared by the American Transportation Research Institute

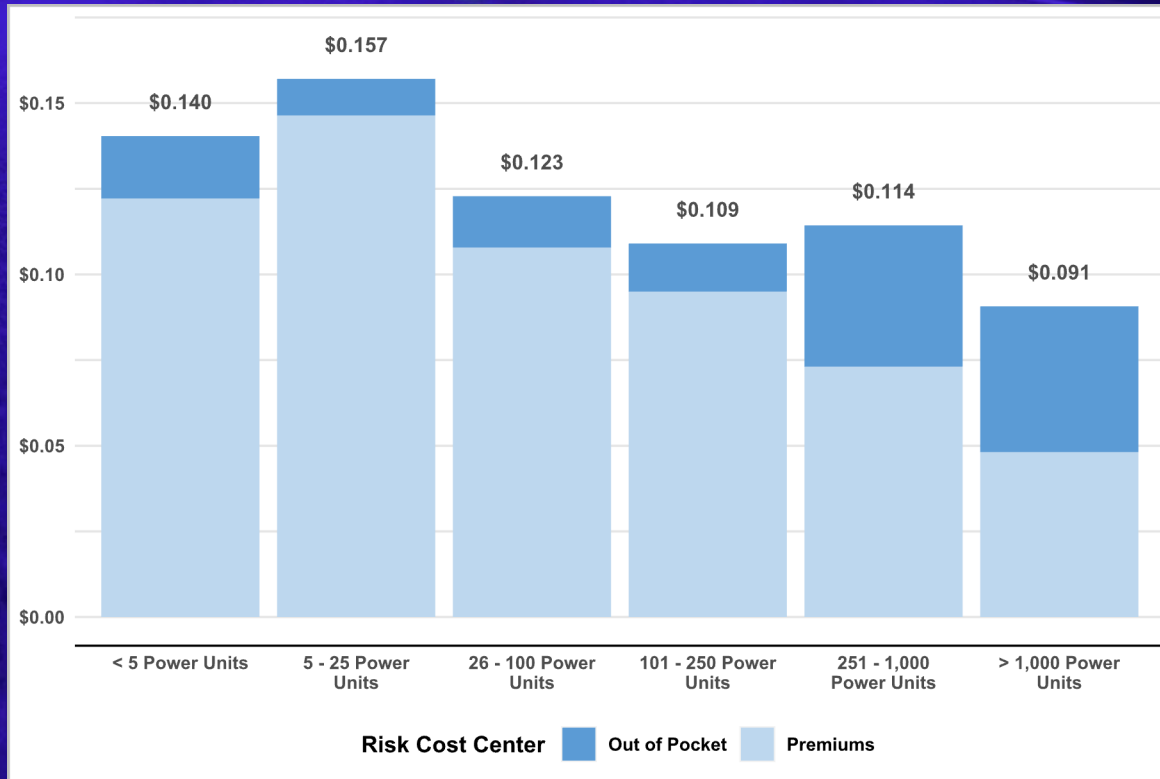


Insurance Costs Over Time

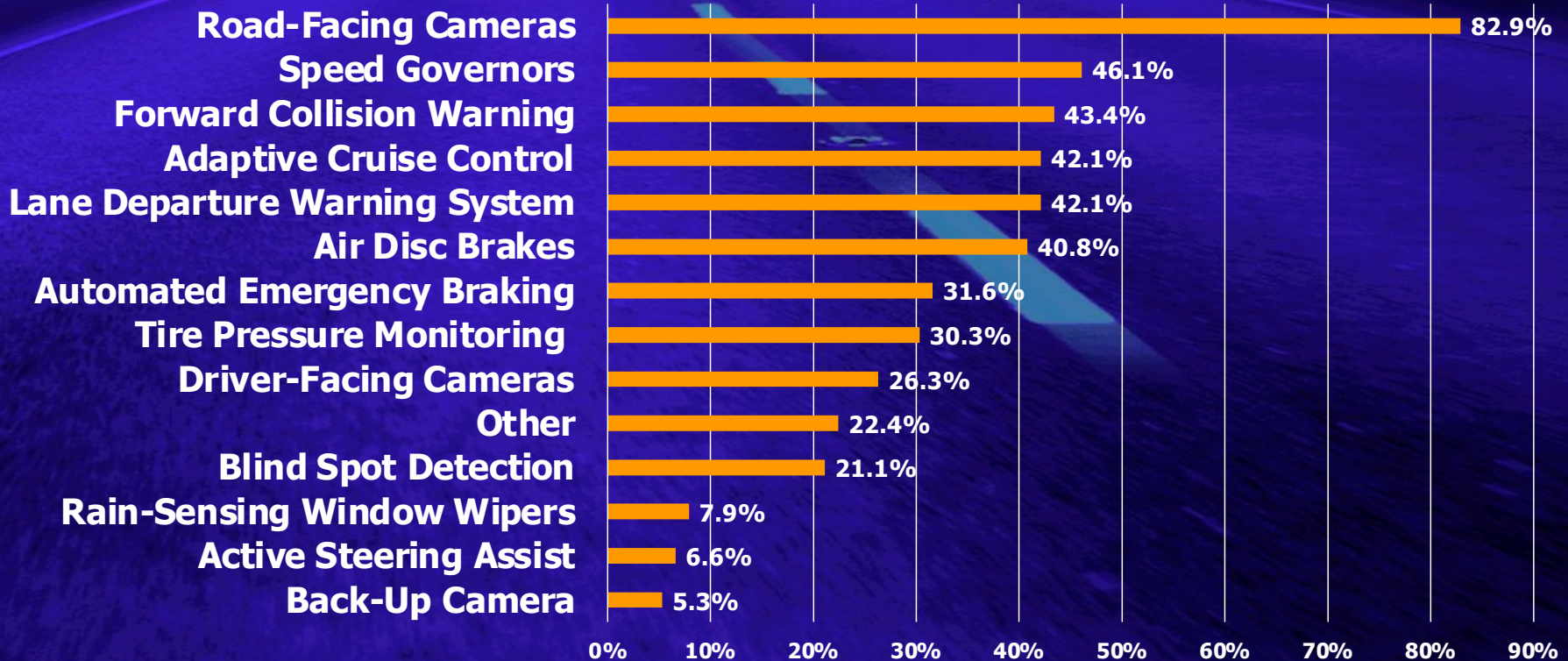


**Premium cost
per mile up
47% over the
last 10 years**

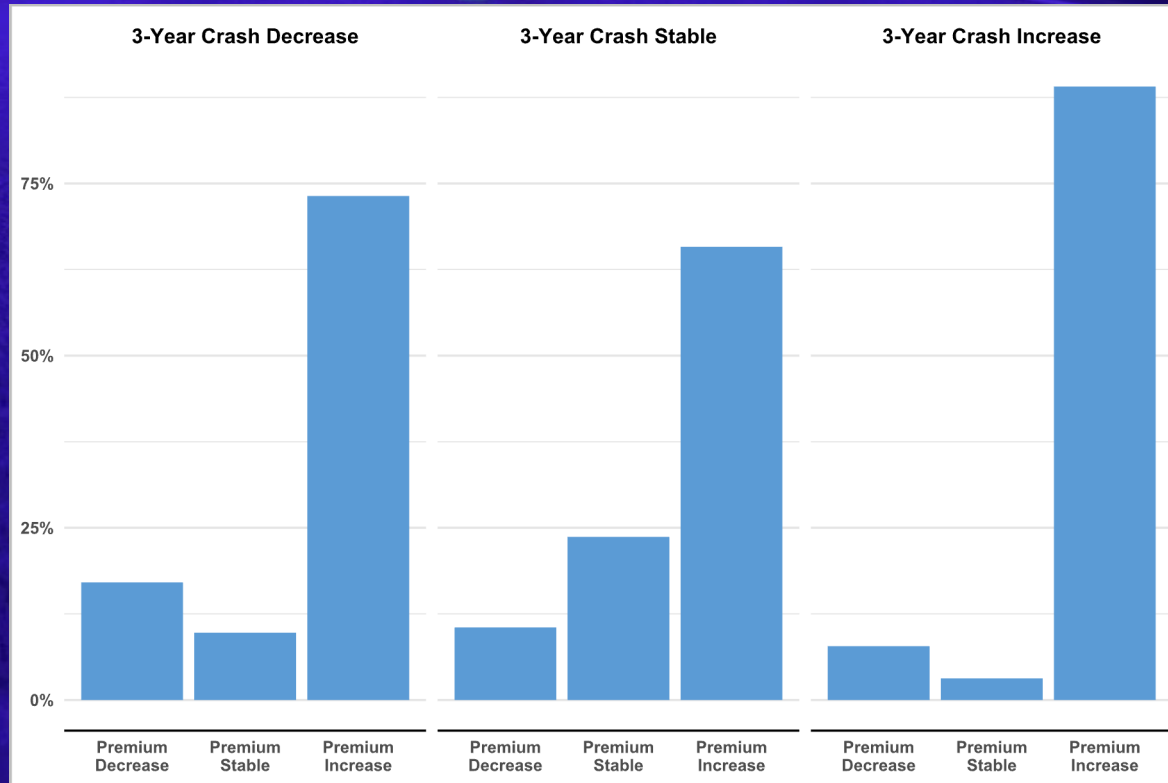
Insurance Cost Impacts by Fleet Size



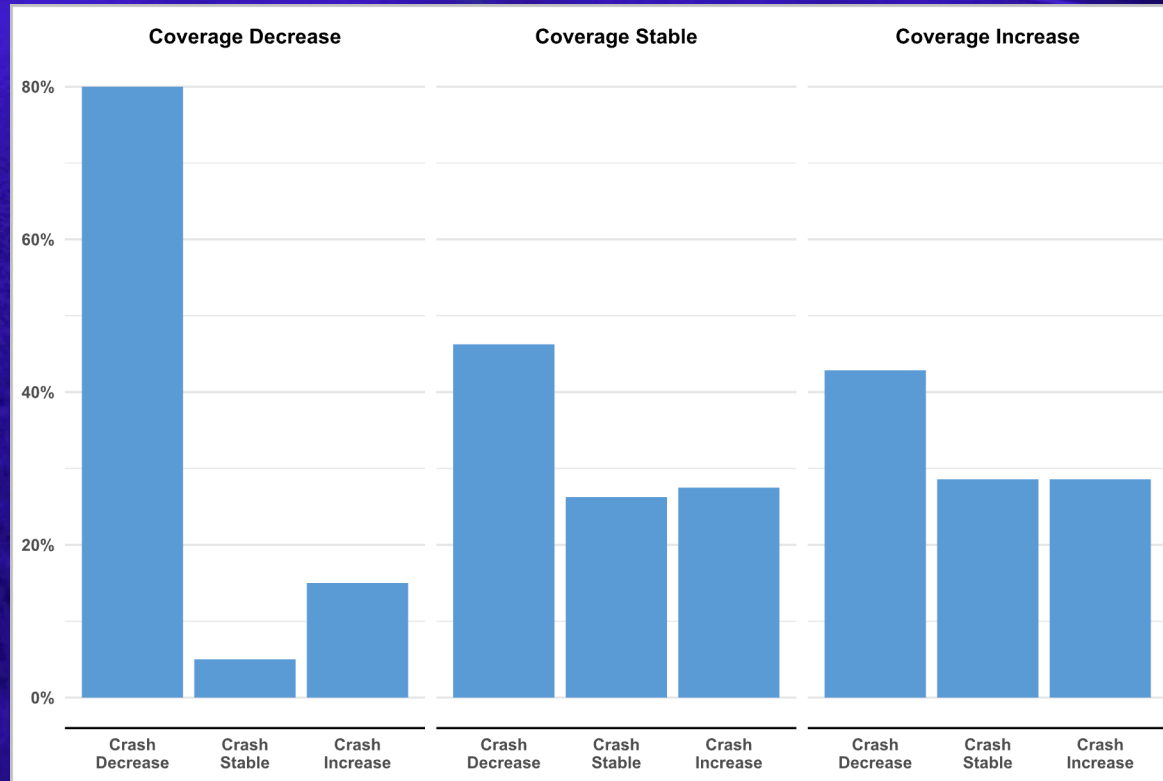
Safety Technology Deployment 2018 - 2020



Impact of 3-Year Crash Rate on Premiums



Impact of Coverage Changes on Crashes



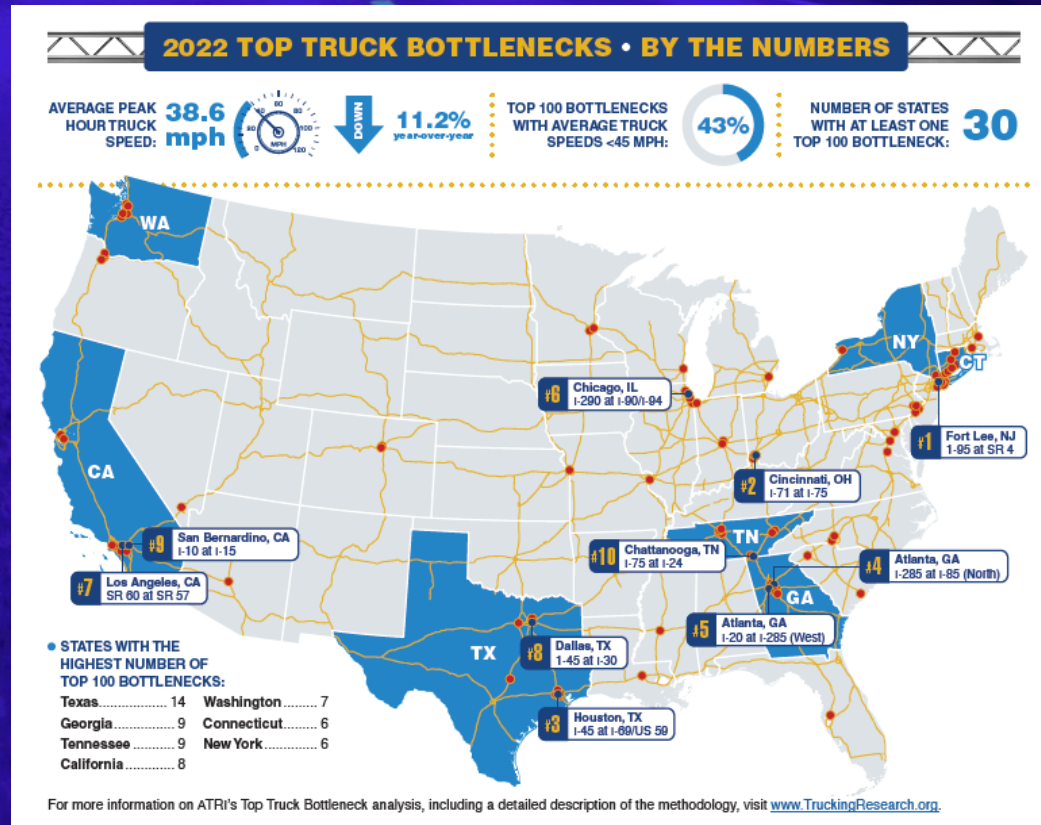
Top Spending Cuts to Address Rising Insurance Costs

Cost Center	Percent of Respondents
Salary/Wages/Benefits	34.1%
Insurance	24.4%
Equipment Purchase/Maintenance	22.0%
Employee Hiring/Lay-Offs	13.4%

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2022 Top Truck Bottlenecks

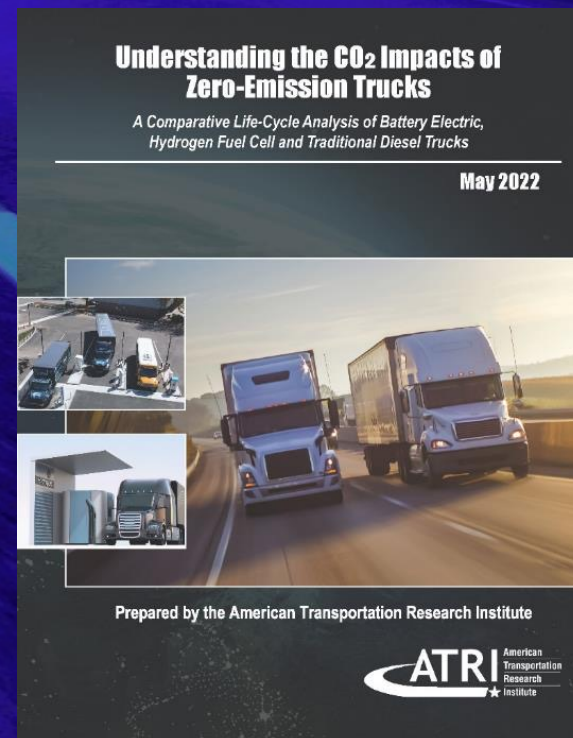


2022 Top 10 Truck Bottlenecks

Rank	Location	Average Peak Speed	Y-o-Y Change in Average Peak Speed
1	Fort Lee, NJ: I-95 at SR 4	22.4	-28.2%
2	Cincinnati, OH: I-71 at I-75	33.6	-16.3%
3	Houston, TX: I-45 at I-69/US 59	24.4	-22.4%
4	Atlanta, GA: I-285 at I-85 (North)	30.4	-11.7%
5	Atlanta, GA: I-20 at I-285 (West)	37.2	-9.0%
6	Chicago, IL: I-290 at I-90/I-94	20.3	-20.0%
7	Los Angeles, CA: SR 60 at SR 57	36.9	-12.1%
8	Dallas, TX: I-45 at I-30	27.3	-18.6%
9	San Bernardino, CA: I-10 at I-15	35.7	-12.1%
10	Chattanooga, TN: I-75 at I-24	45.8	-2.3%

Understanding the CO₂ Impacts of Zero-Emission Trucks

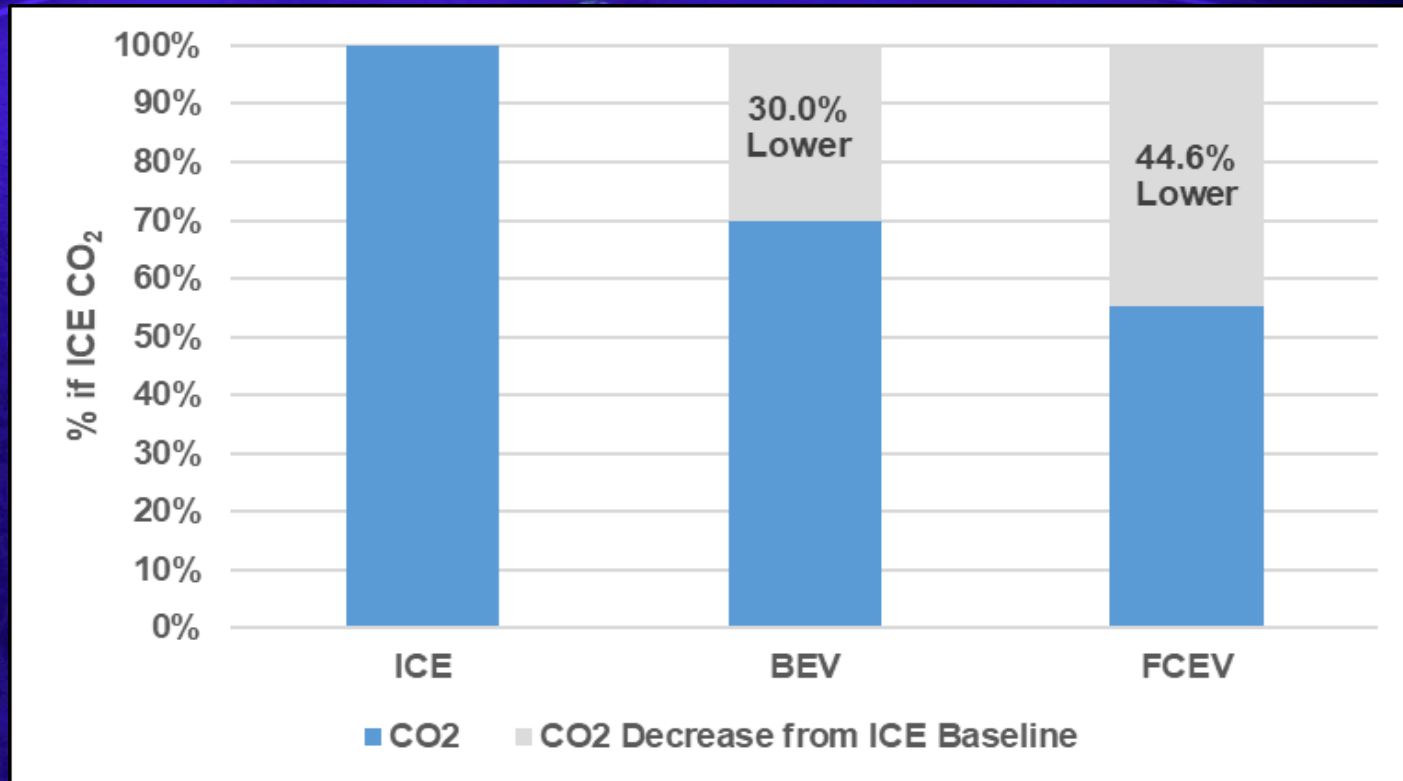
- 2021 RAC Priority
- Life-cycle CO₂ emissions study for:
 - ◆ Internal combustion engine (ICE) trucks powered by diesel
 - ◆ Battery electric vehicle (BEV) trucks powered by electricity
 - ◆ Fuel cell electric vehicle (FCEV) trucks powered by hydrogen
- Compares CO₂ emissions across from the full vehicle life-cycle:
 - ◆ Vehicle production
 - ◆ Energy production and consumption
 - ◆ Vehicle disposal/recycling



Realities

- **Vehicle costs – new Class 8 BEV truck could cost over \$400,000**
- **No refueling infrastructure**
- **CO₂ emissions are still substantial**
- **Material sourced from outside U.S.**
 - ◆ **Lithium, graphite, cobalt, manganese and nickel**

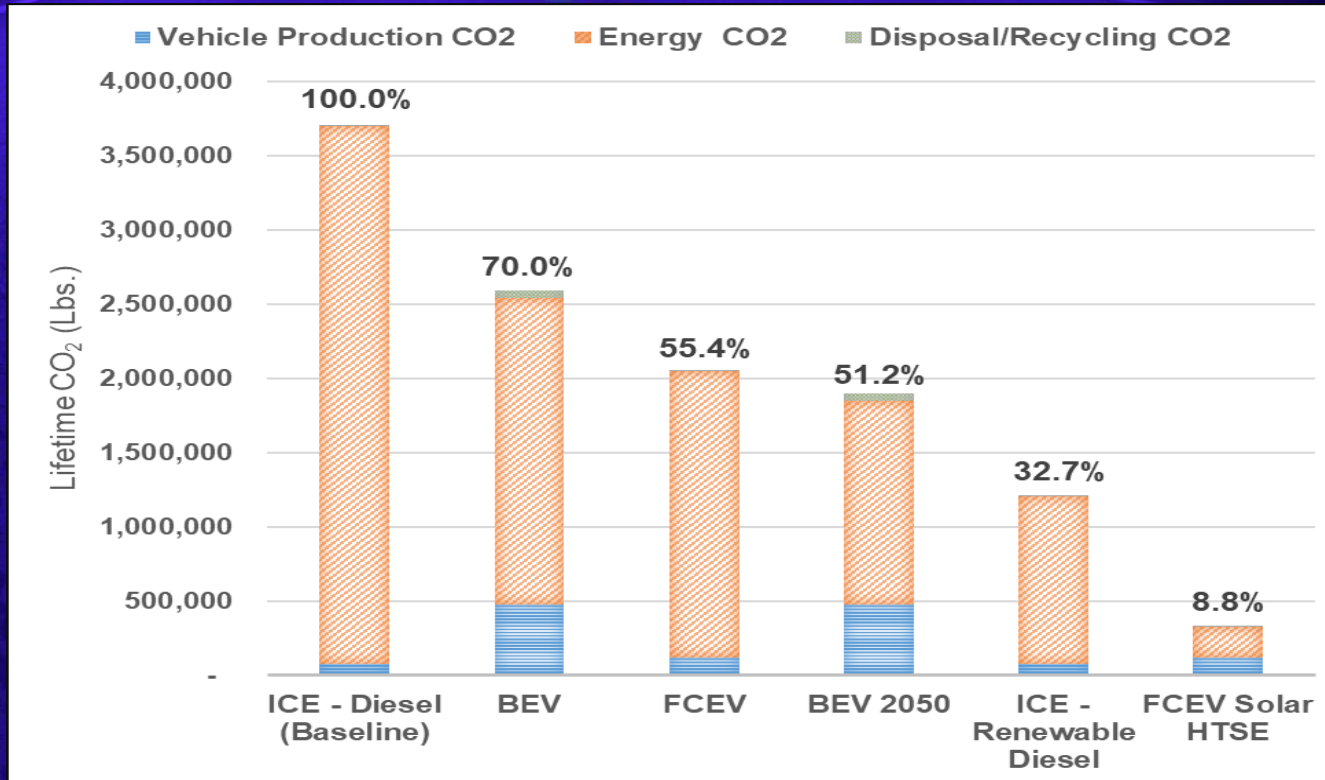
ICE Life-Cycle CO₂ vs BEV & FCEV



Lost Revenue Weight Analysis

Weight (lbs.)	ICE	BEV	FCEV
Maximum Gross Weight	80,000	80,000	80,000
Tractor Weight	18,216	32,016	21,337
Trailer Weight	11,264	11,264	11,264
Vehicle Tare Weight	29,480	43,280	32,601
Available Revenue Weight	50,520	36,720	47,399
Lost Revenue Weight from Baseline		-13,800	-3,121

Key Findings



2022 Top Research Priorities

- **Marijuana and Other Drugs: Impacts of Decriminalization on the Trucking Industry**
- **Quantifying Industry Impacts from Predatory Towing**
- **Efficacy of Driver Training on Safety Outcomes and Driver Retention**
- **Utilizing EB-3 Work Permits to Help Mitigate the Driver Shortage**
- **SEC Climate Rule Impacts on the Trucking Industry**

The ATRI Team



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Supporting the Industry's Research Agenda

- Participate in ATRI surveys/data collection –
Operational Costs, Top Industry Issues Survey
- Encourage your drivers to participate
- Recommend research ideas

www.TruckingResearch.org



Questions?

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