Insurance Institute for Highway Safety
Highway Loss Data Institute

Crash Avoidance Technologies: Assessing The Building Blocks For Tomorrow's Driverless Vehicles

I-95 Corridor Coalition Connected & Automated Vehicles Conference: What States Need to Know

June 22, 2016

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iihs.org

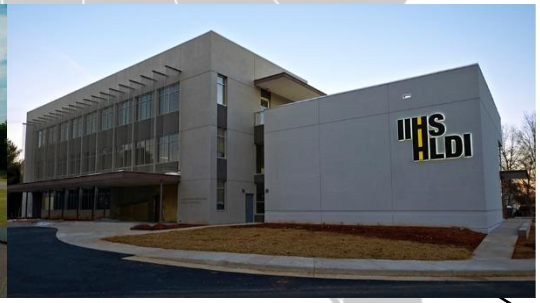
IIHS is an independent, nonprofit scientific and educational organization dedicated to reducing the losses — deaths, injuries and property damage — from crashes on the nation's roads.

HLDI shares this mission by analyzing insurance data representing human and economic losses from crashes and other events related to vehicle ownership.

Both organizations are wholly supported by auto insurers.

Where are we?

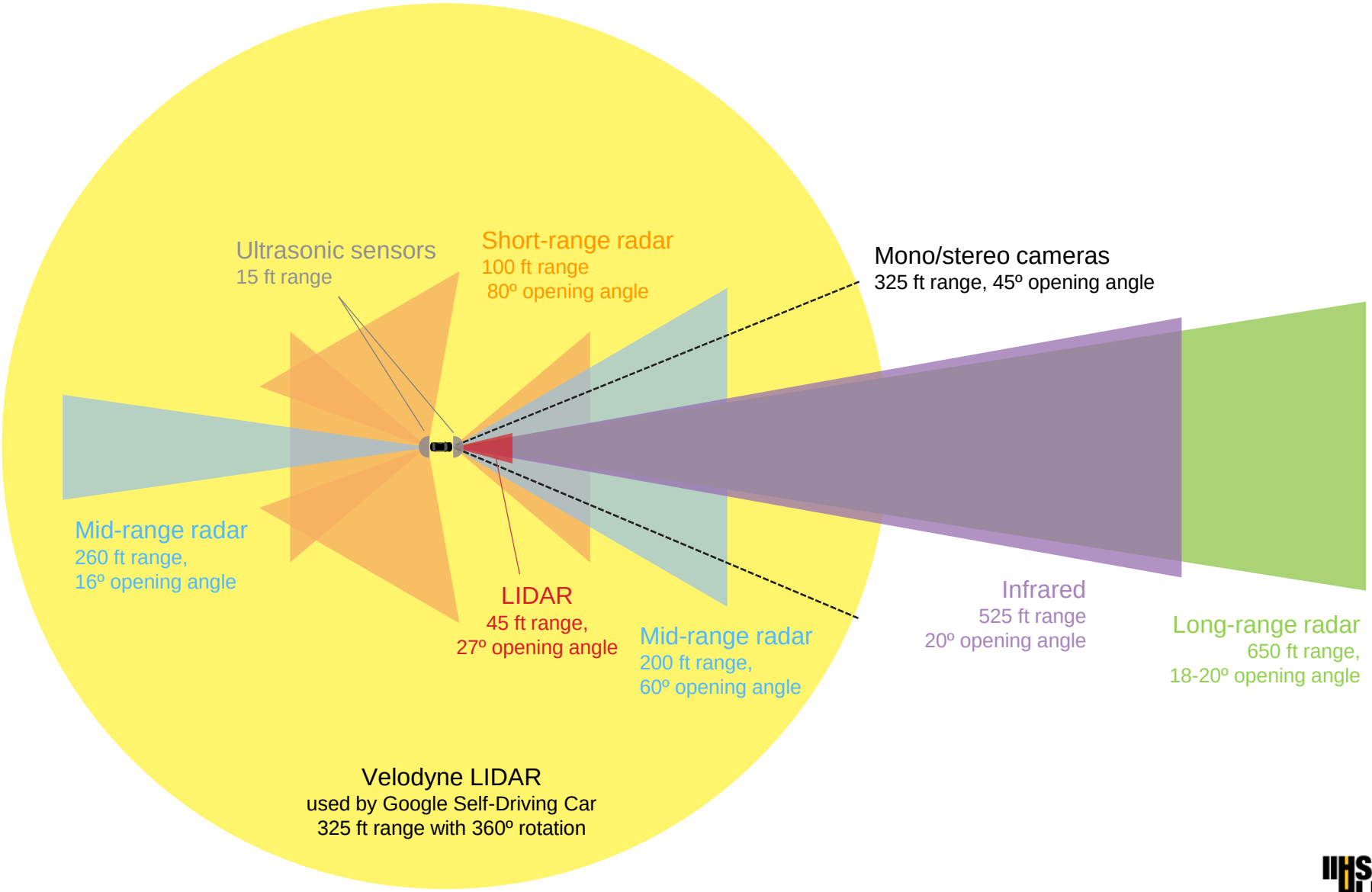
Washington, DC



Arlington, VA

Ruckersville, VA

Driver assistance features



Crashes relevant to 4 crash avoidance systems

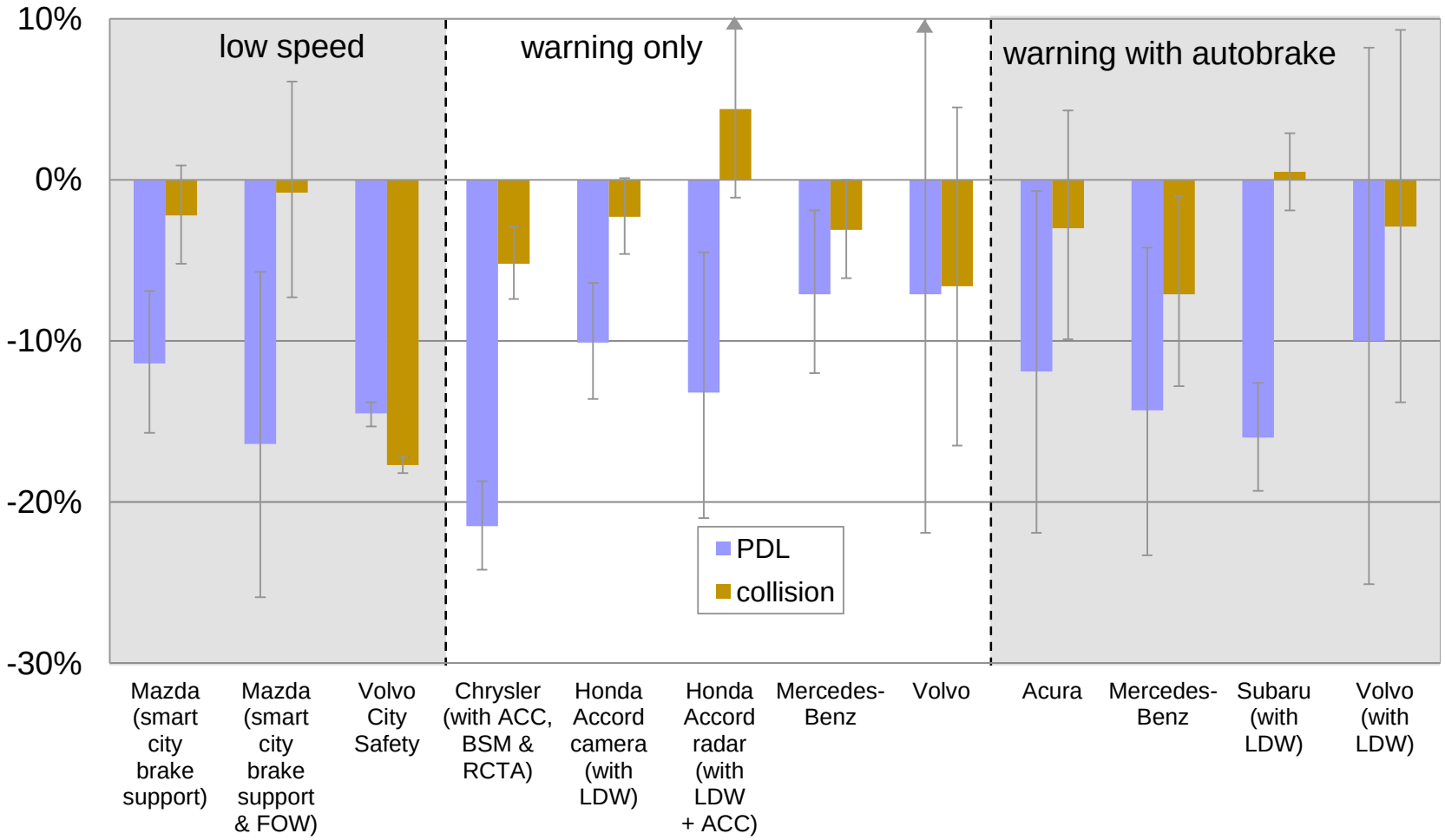
FARS and GES, 2004-08

	all	injury	fatal
front crash prevention	1,165,000	66,000	879
lane departure prevention	179,000	37,000	7,529
side view assist	395,000	20,000	393
adaptive headlights	142,000	29,000	2,484
total unique crashes	1,866,000	149,000	10,238

Crash avoidance technology effects on insurance claims

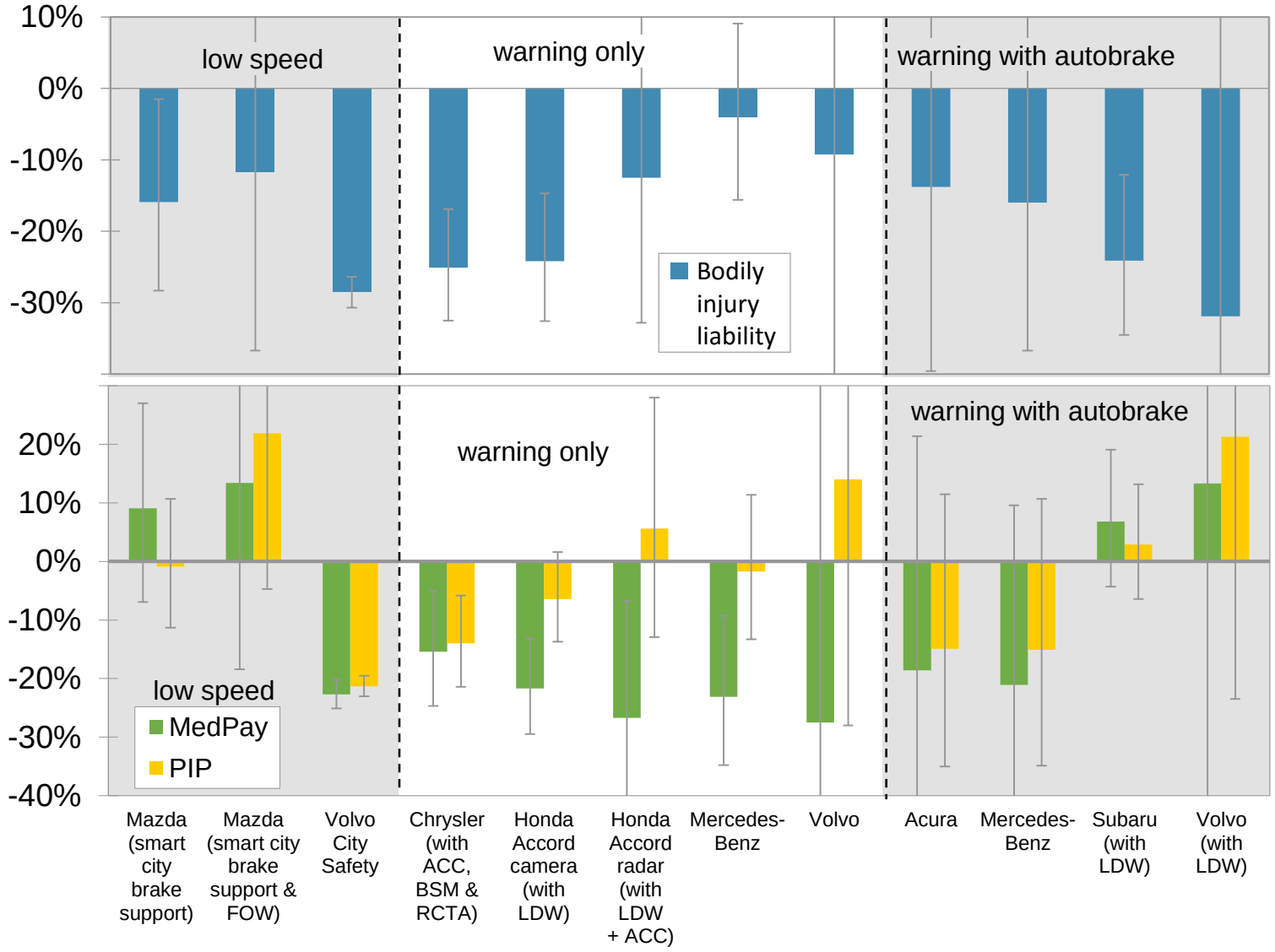
Front crash prevention systems

Change in claim frequency



Front crash prevention systems

Change in claim frequency



Speed reduction in 12 and 24 mph tests

Volvo S60 2 point advanced	Dodge Durango 3 point advanced	Subaru Outback 6 point superior
		
		

25 mph

$28,131

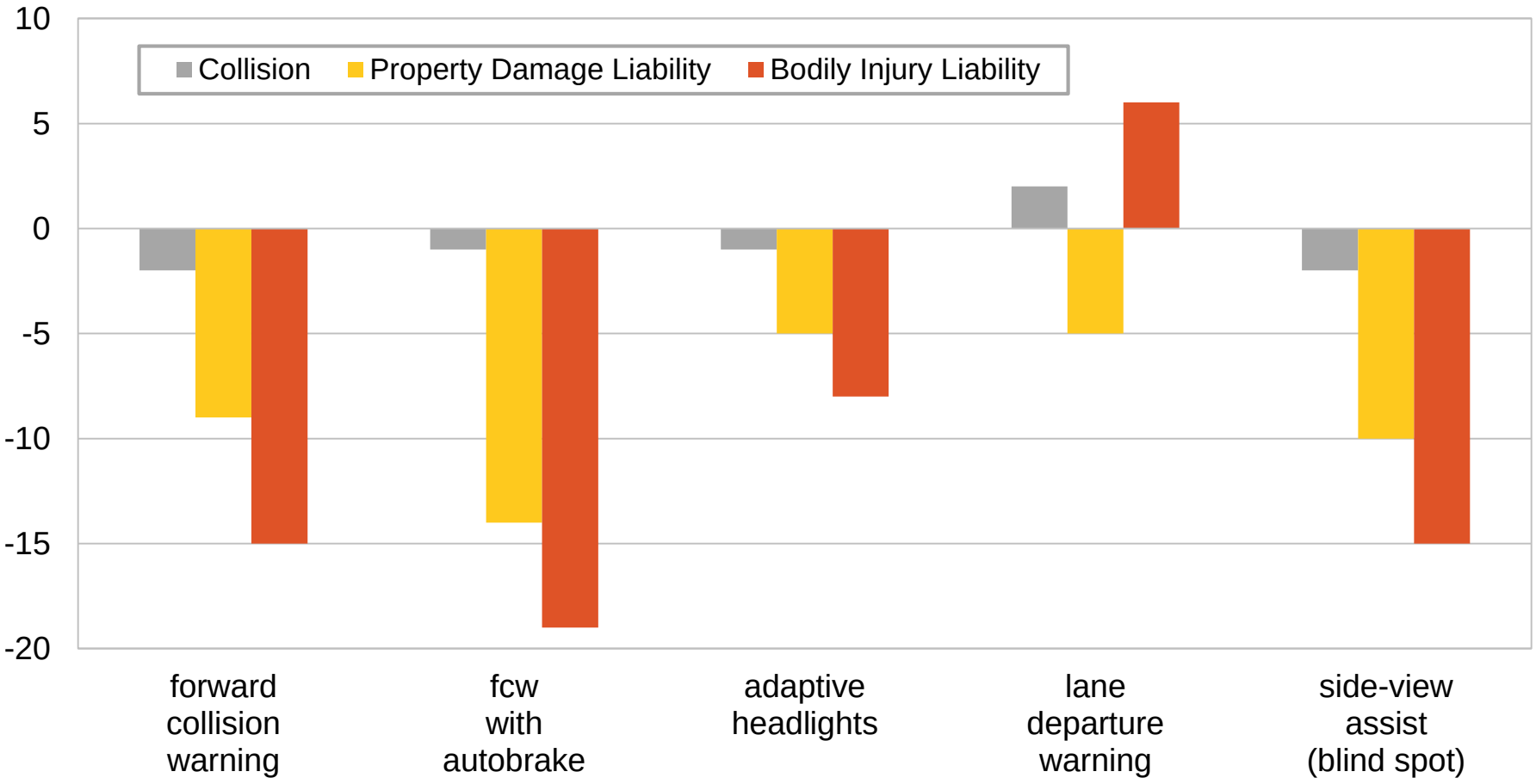
12 mph

$5,715

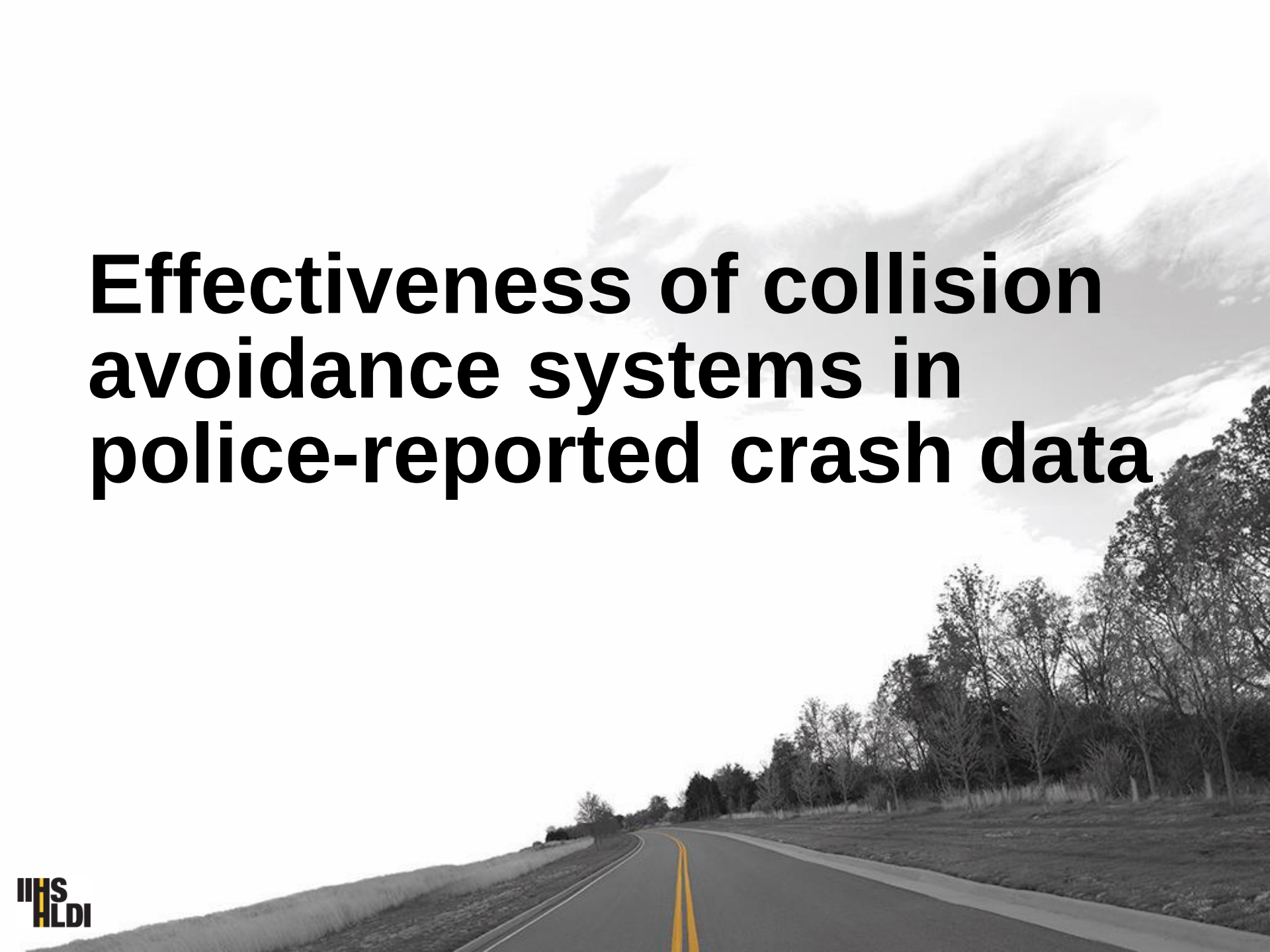
		Speed reduction
2014 Infiniti Q50		7 mph
2015 Subaru Legacy		6 mph
2014 Volvo S80		4 mph

Summary of technology effects on insurance claim frequency

Results pooled across automakers



Effectiveness of collision avoidance systems in police-reported crash data



Effects of systems on police-reported crashes

- 2009-14 data on police-reported crashes from states with VINs
  - Analyses include data from 19-26 states, depending on crash type
- Compared crash rates for vehicles with systems and same make/model/year vehicles without systems in most analyses
- In analyses of Volvo's standard City Safety system, compared vehicles with system to similar vehicles in same class
- HLDI data
  - Insured vehicle years as exposure measure
  - Covariates: other collision avoidance technologies, calendar year, vehicle series/model year, state, vehicle density, rated driver age group, gender, marital status, insurance policy characteristics

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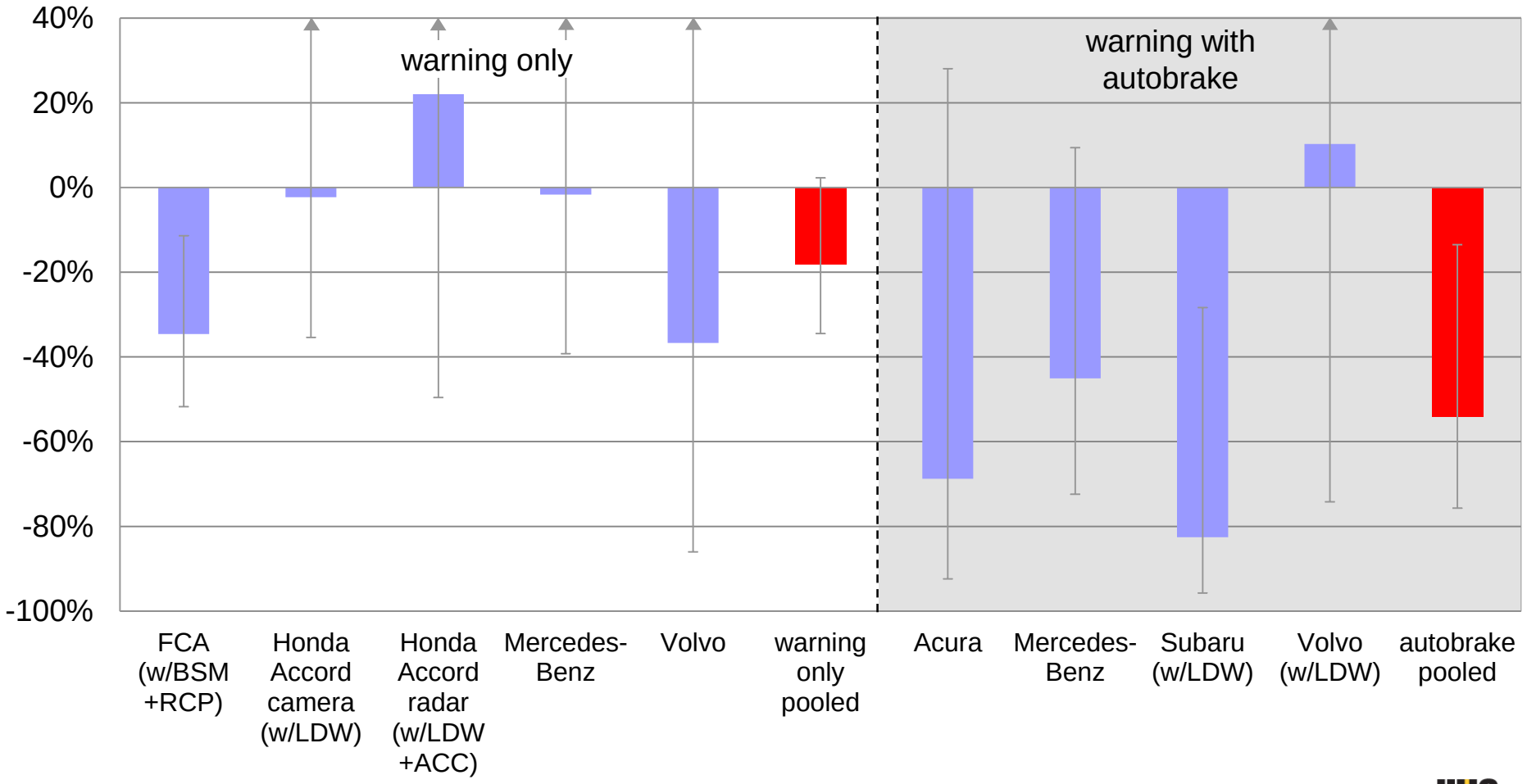
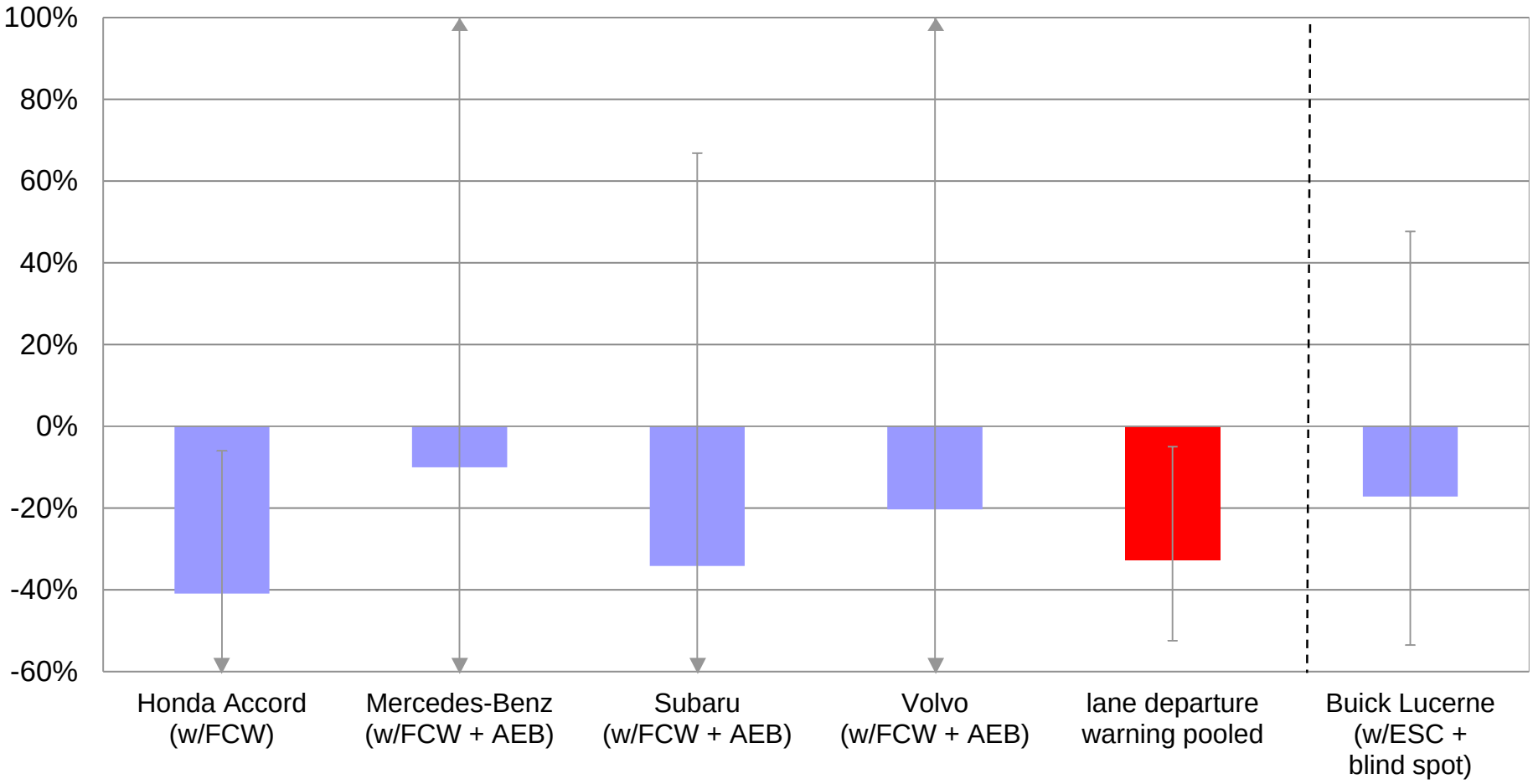
Effects of front crash prevention systems on rear-end strikes with third-party injuries

Percent difference in crash rates



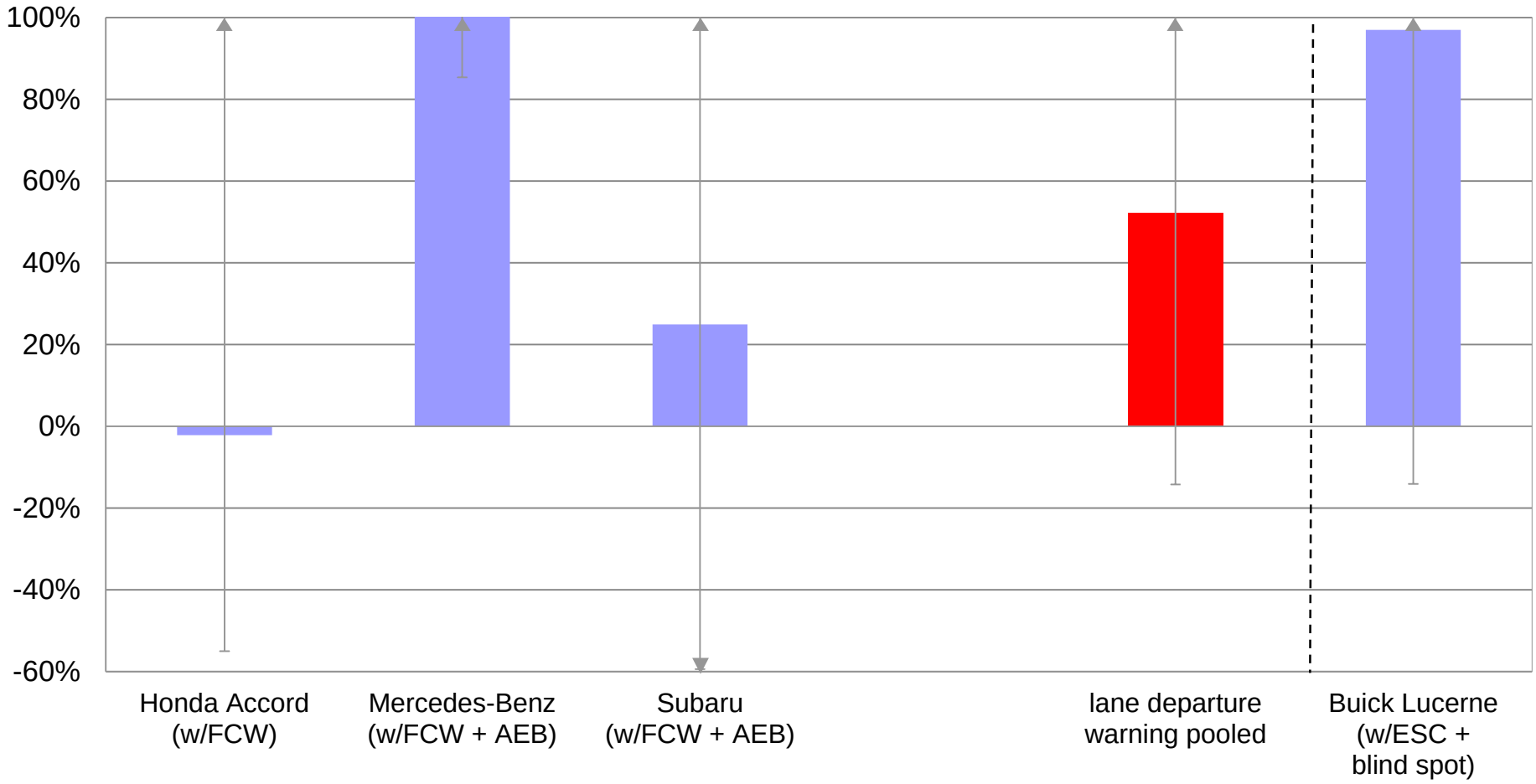
Effects of lane departure warning systems on single-vehicle run-off-road and head-on injury crashes

Percent difference in crash rates



Effects of lane departure warning systems on sideswipe injury crashes, with no prior lane change

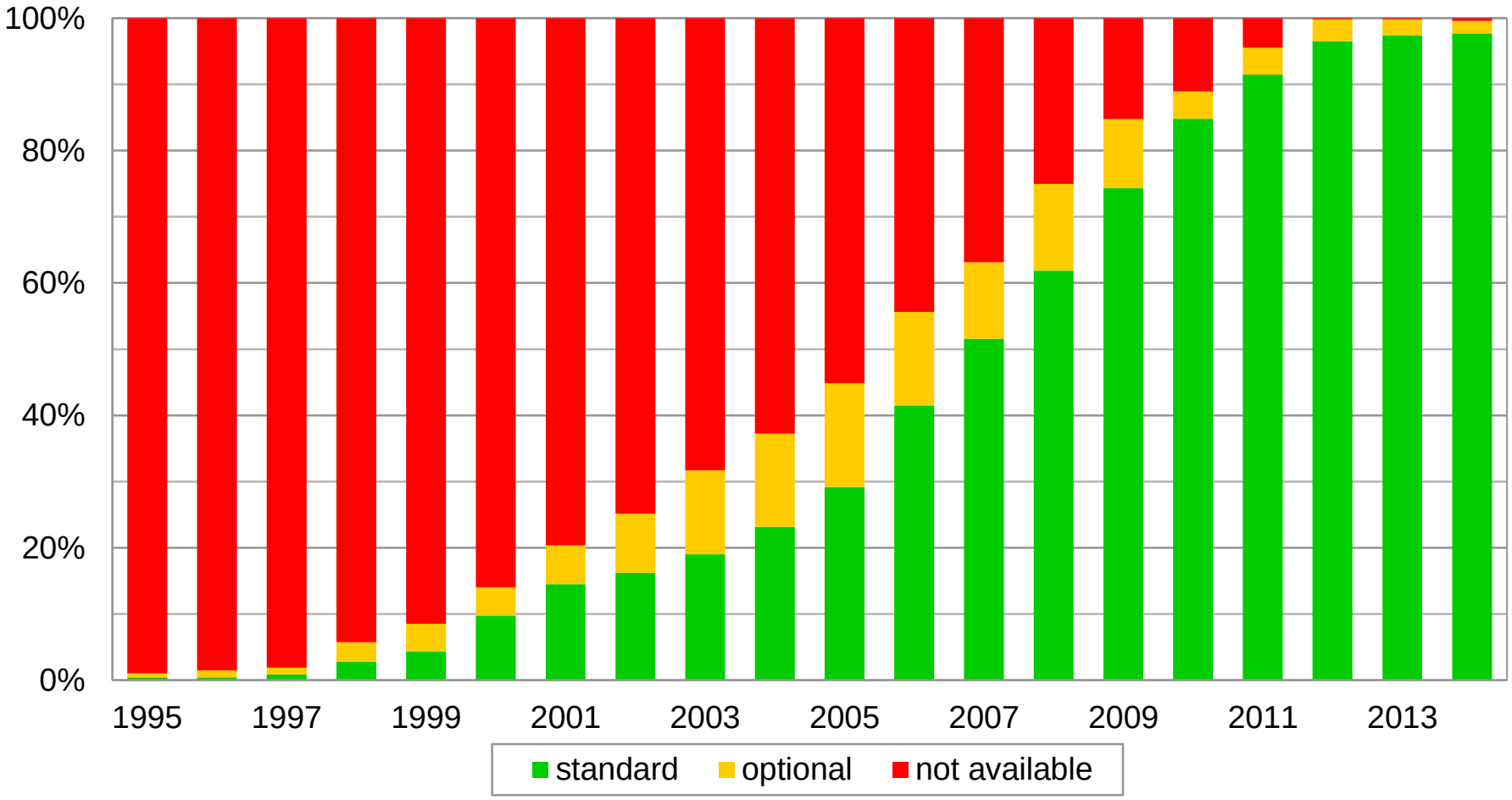
Percent difference in crash rates



Spread of technology through the fleet

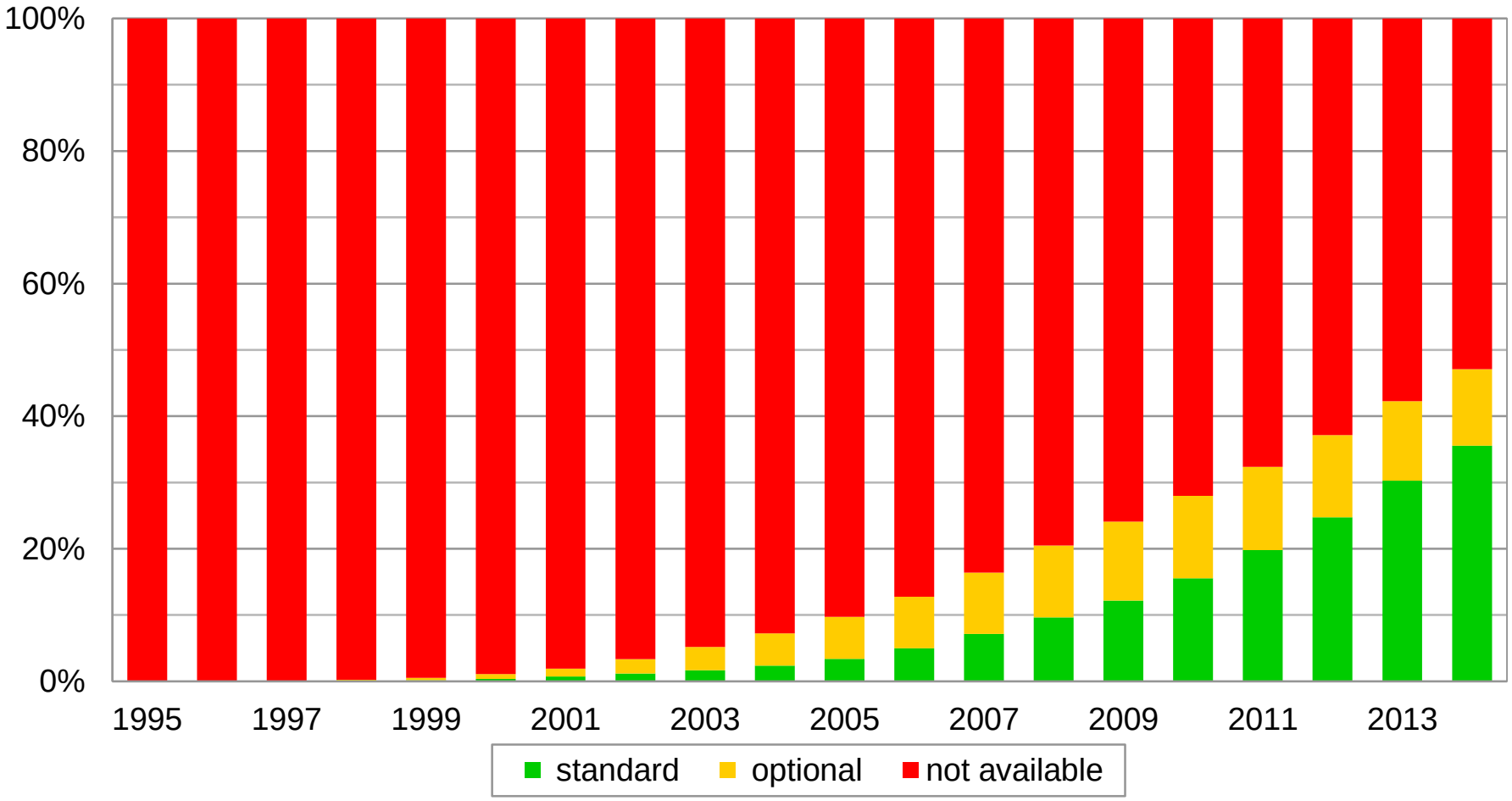
New vehicle series with electronic stability control

By model year



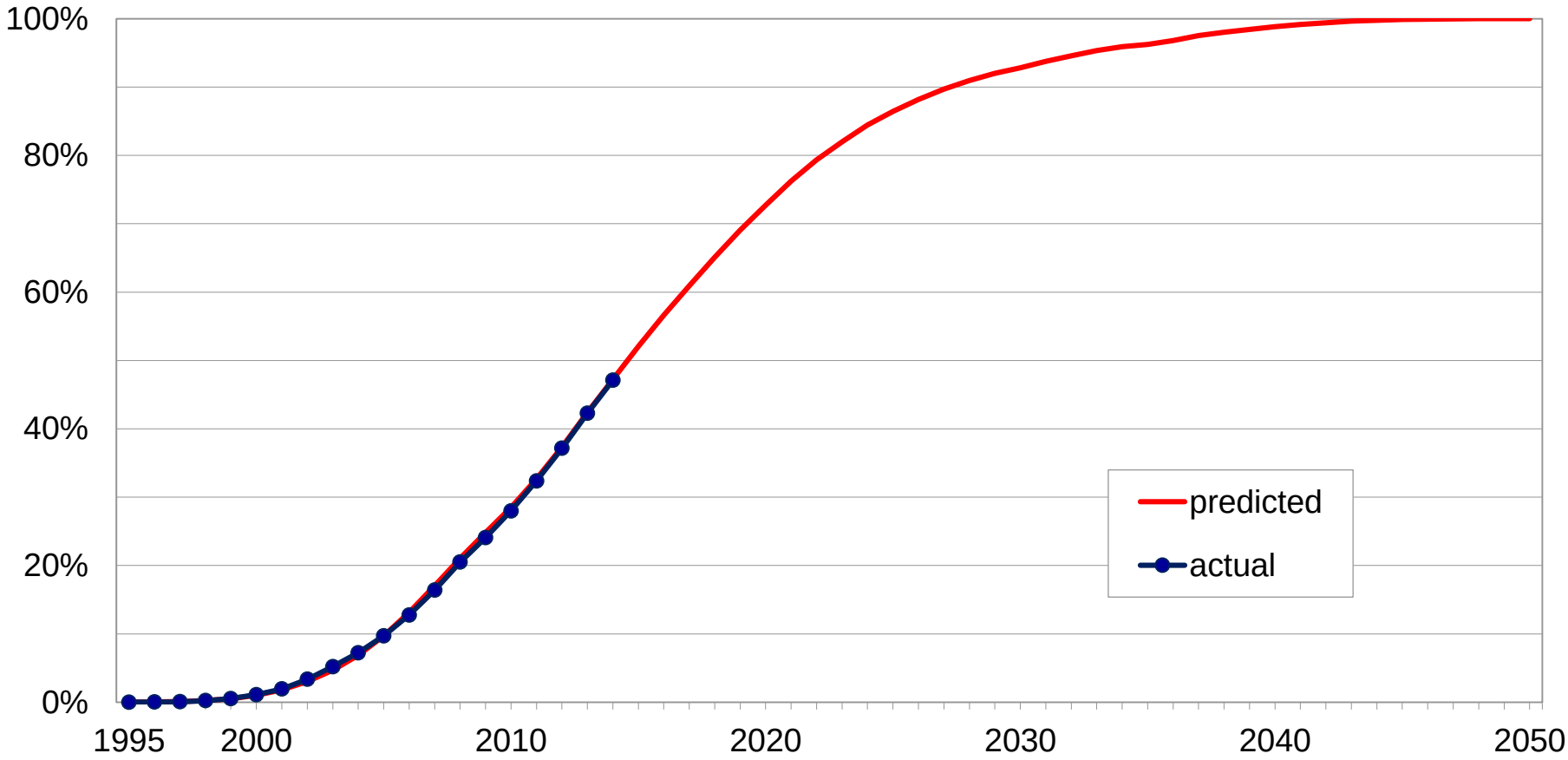
Registered vehicles with electronic stability control

By calendar year



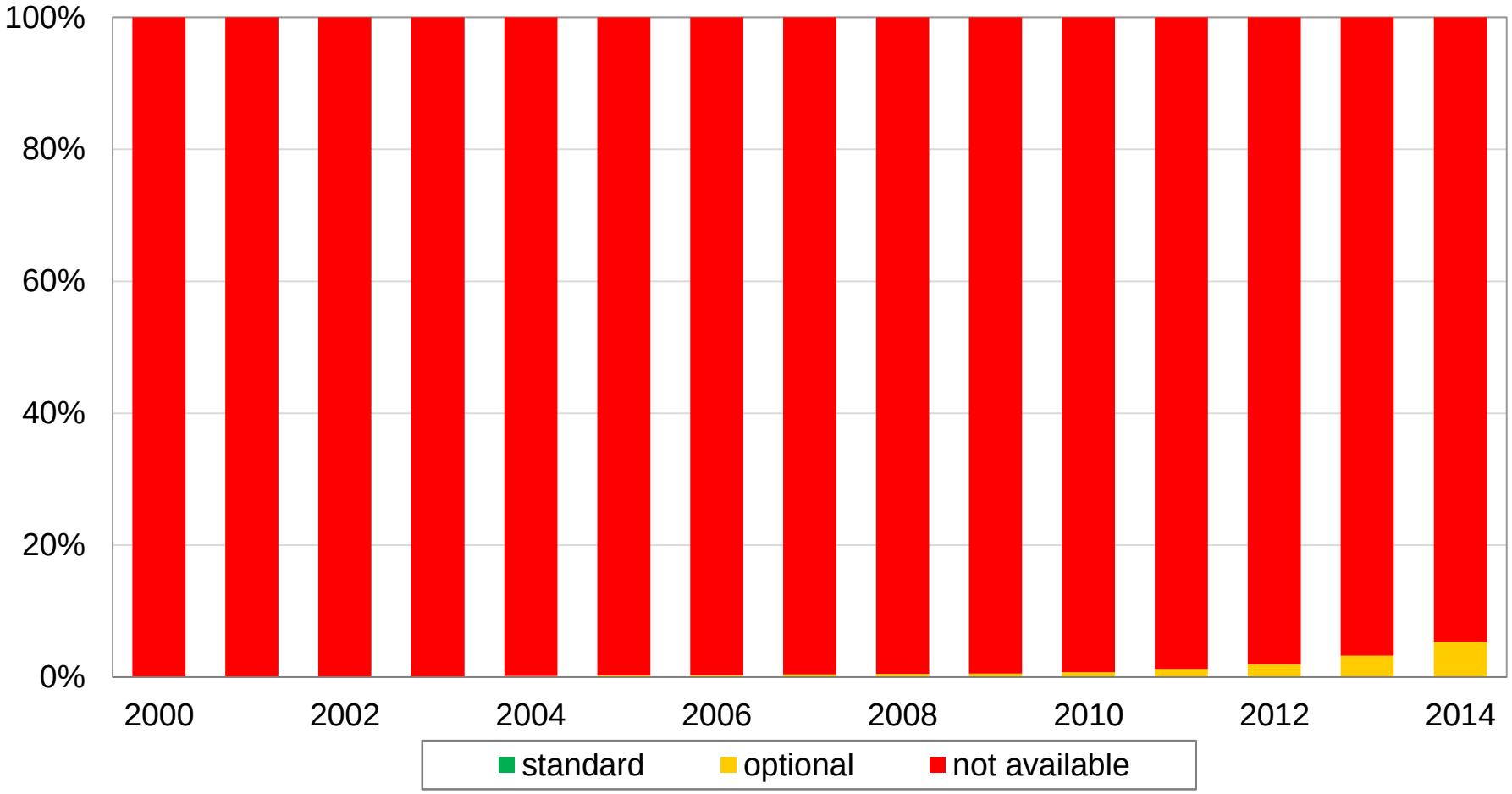
Registered vehicles with available electronic stability control, actual and predicted

By calendar year

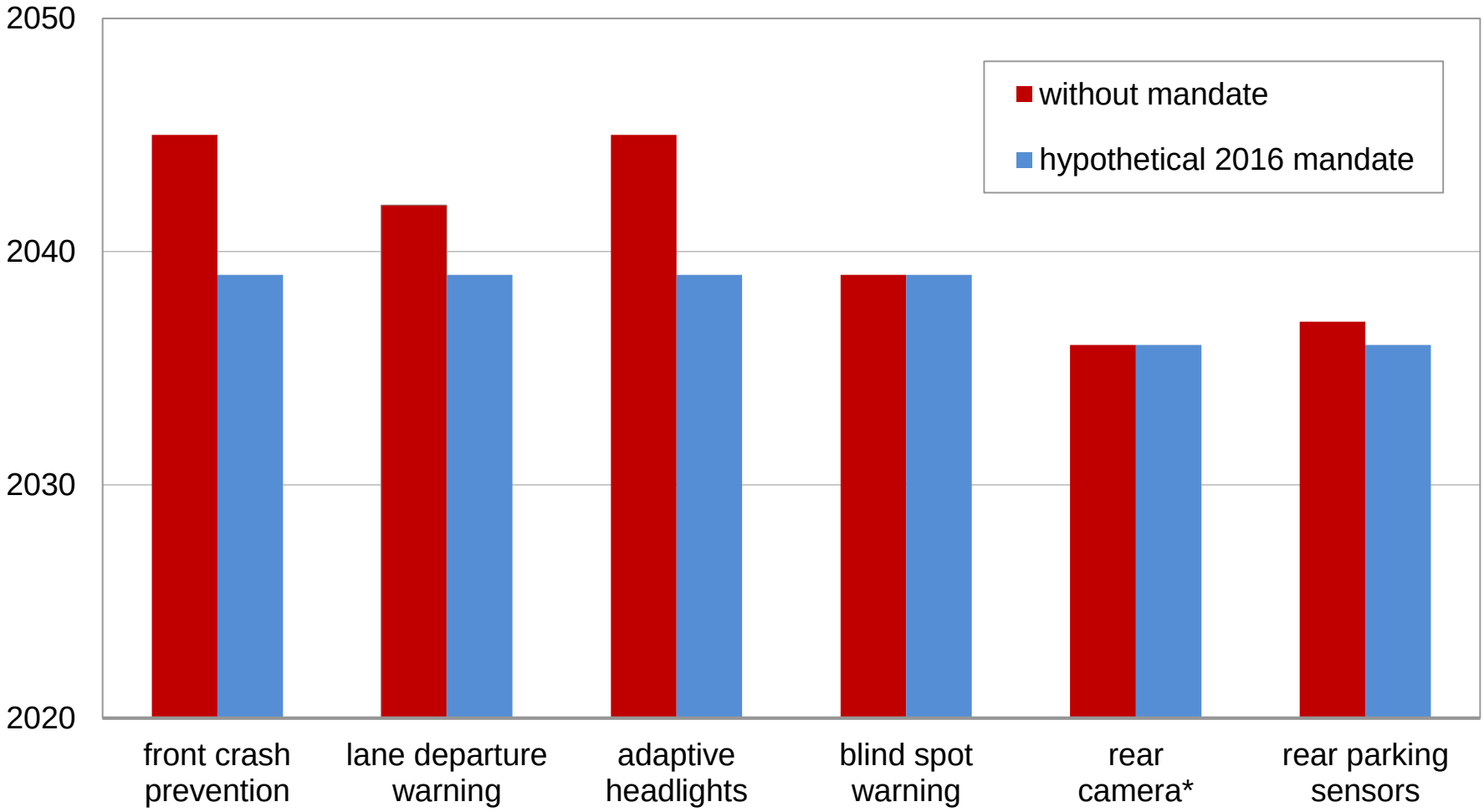


Registered vehicles with front crash prevention

By calendar year



Year available features reach 95% of registered vehicles with and without hypothetical mandate



* rear camera mandate May 1, 2018

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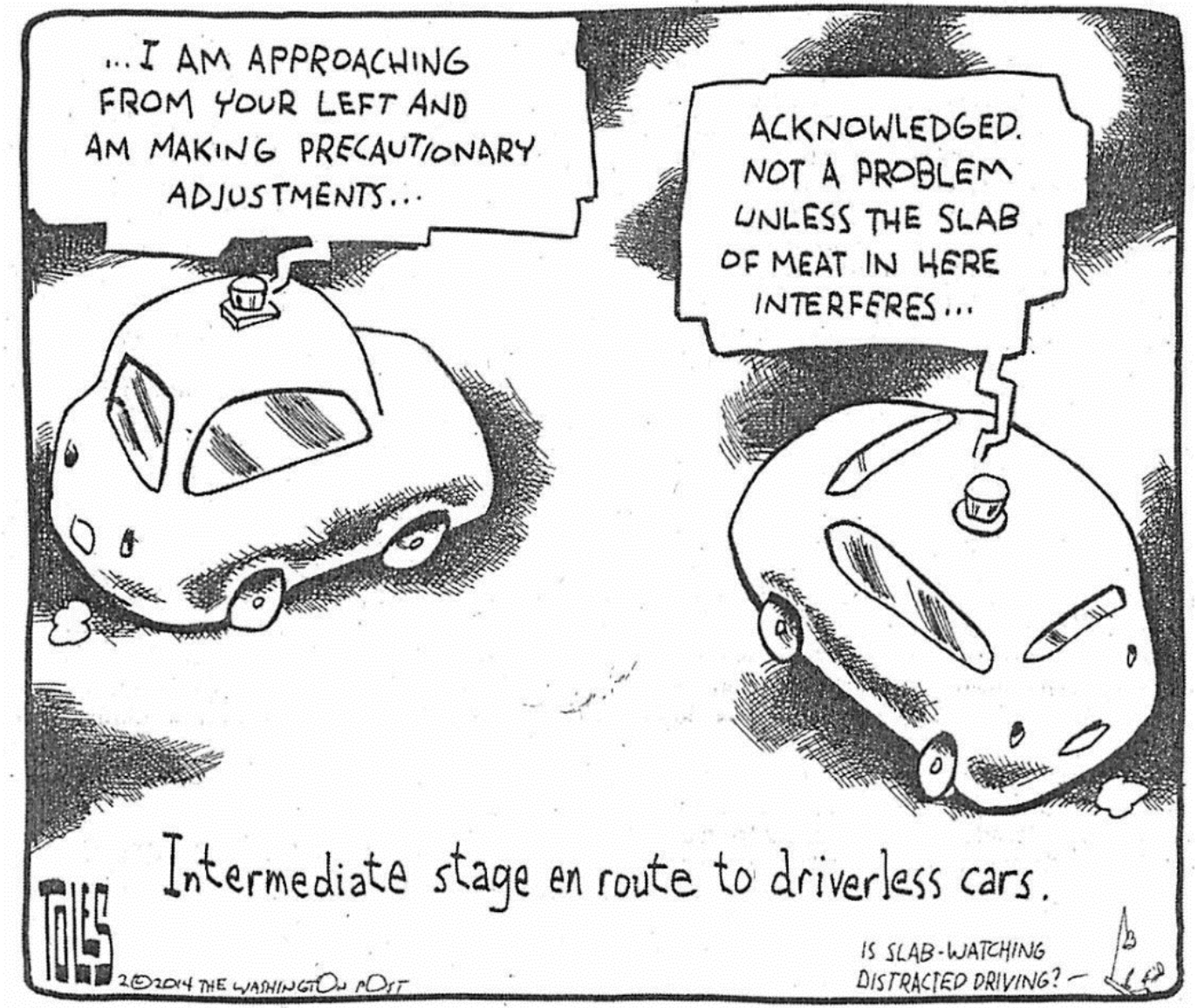
...I AM APPROACHING FROM YOUR LEFT AND AM MAKING PRECAUTIONARY ADJUSTMENTS...
ACKNOWLEDGED. NOT A PROBLEM UNLESS THE SLAB OF MEAT IN HERE INTERFERES...
TOLES
©2014 THE WASHINGTON POST
Intermediate stage en route to driverless cars.
IS SLAB-WATCHING DISTRACTED DRIVING?

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