

Losure: Going and Making: Making the True Impact of "Green" in the Auto I

GOING AND MAKING

THE TRUE IMPACT OF "GREEN" IN THE AUTO INDUSTRY

MADISON LOSURE | MARKETING & BUSINESS ADMINISTRATION | 2017

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EXECUTIVE SUMMARY

Academic Festival, Event 10 [2017]

AN INVESTIGATION OF HOW CONSUMER PERCEPTIONS OF THE ENVIRONMENTAL CRISIS TRANSLATE TO BUYING BEHAVIORS AND HOW AUTO COMPANIES REACT TO THESE CONSUMER ATTITUDE SHIFTS.

- Environmental issues
 - Overview of climate change
 - Contribution of auto industry
- Government involvement
- Consumer perceptions
 - Of climate change and air pollution
 - Translation to buying habits
- Response of Auto makers
 - Classifications of Electric Vehicles (EV)
 - Mercedes Benz
 - B-Class and EQ Line
 - Interview with Steve Cannon
- Conclusions
- References

<https://digitalcommons.sacredheart.edu/acadfest/2017/all/10>

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ENVIRONMENTAL ISSUES

THE CONTRIBUTION OF CARS IN CLIMATE CHANGE

CLIMATE CHANGE

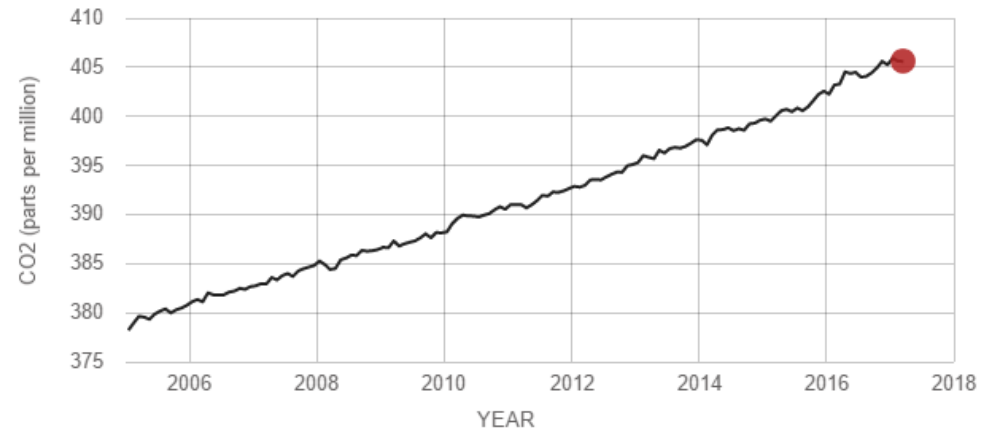
- Earth's average temperature ↑ 1.5°F over the past century
 - ↑ 0.5°F to 8.6°F over the next century
- Northeast – 1895 to 2011 ↑ of 2°F
 - ↑ of 4.5°F to 10°F by 2080
 - 1958 to 2012 70% ↑ rainfall
- Regional consequences include:
 - Sea level rise damage infrastructure
 - Reduced crop yields
 - More intense/frequent heat waves threaten health

<https://digitalcommons.sacredheart.edu/acadfest/2017/all/10>

DIRECT MEASUREMENTS: 2005-PRESENT

Data source: Monthly measurements (average seasonal cycle removed). Credit: NOAA

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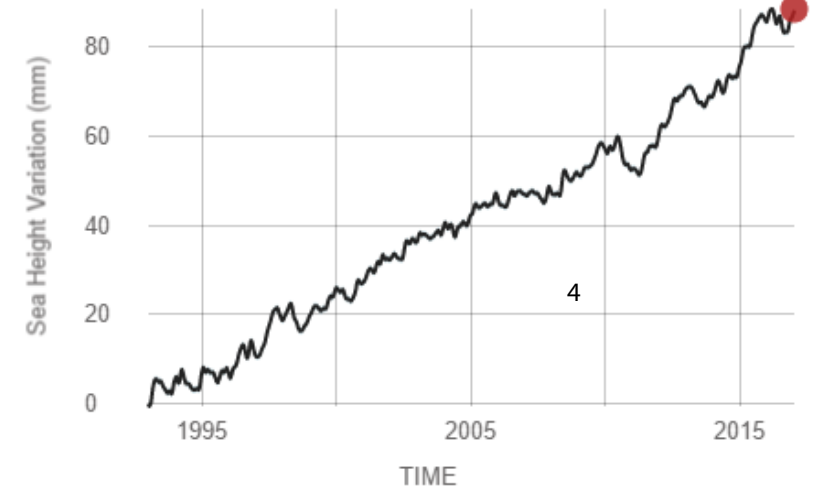
SATELLITE DATA: 1993-PRESENT

Data source: Satellite sea level observations. Credit: NASA Goddard Space Flight Center

RATE OF CHANGE

↑ 3.4

millimeters per year
margin: ±0.4



AUTO INDUSTRY'S CONTRIBUTION

- 14% of world's greenhouse emissions come from transportation
 - Cars create 1/3 of all U.S. air pollution
- CO₂ and CFC's major byproducts of vehicle production and usage
 - From burning fossil fuels in production and driving
 - Chlorofluorocarbons are synthetic compounds as a byproduct of industrial endeavors



GOVERNMENT IMPACT

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- CAFE Standards | Corporate Average Fuel Economy
 - Initially enacted in 1975
 - Response to petitions
 - Civil penalties shift from 2015 to 2019
 - Save 2 Billion barrels of oil and ↓ CO₂ emissions by 1.1 Billion metric tons
 - Model years 2018 to 2029
 - Scrutiny of Trump administration
- CARB | California Air Resources Board
 - Affected model years 2009 to 2016
 - Currently pending sales tax exemptions for electric vehicles, penalties for emissions, stickers for ride sharing
- EVI | Electric Vehicle Initiative
 - Pledge of 14 countries to ↑ amount of electric cars in gov. fleet
- “Trump Card”
 - Withdrawal from Paris Climate Agreement
 - Decrease methane standards
 - Reduce carbon emissions regulations – difficult with Massachusetts vs. EPA in 2005

FEDERAL TAX CREDITS AND STATE BUYING INCENTIVES AND REBATES HELP PURSUADE CONSUMERS TO GO ELECTRIC | CONNECTICUT OFFERS UP TO \$3,000 IN REBATES



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CONSUMER PERCEPTIONS

HOW ENVIRONMENTAL BELIEFS TRANSLATE TO BUYING HABITS

ENVIRONMENTAL ISSUES

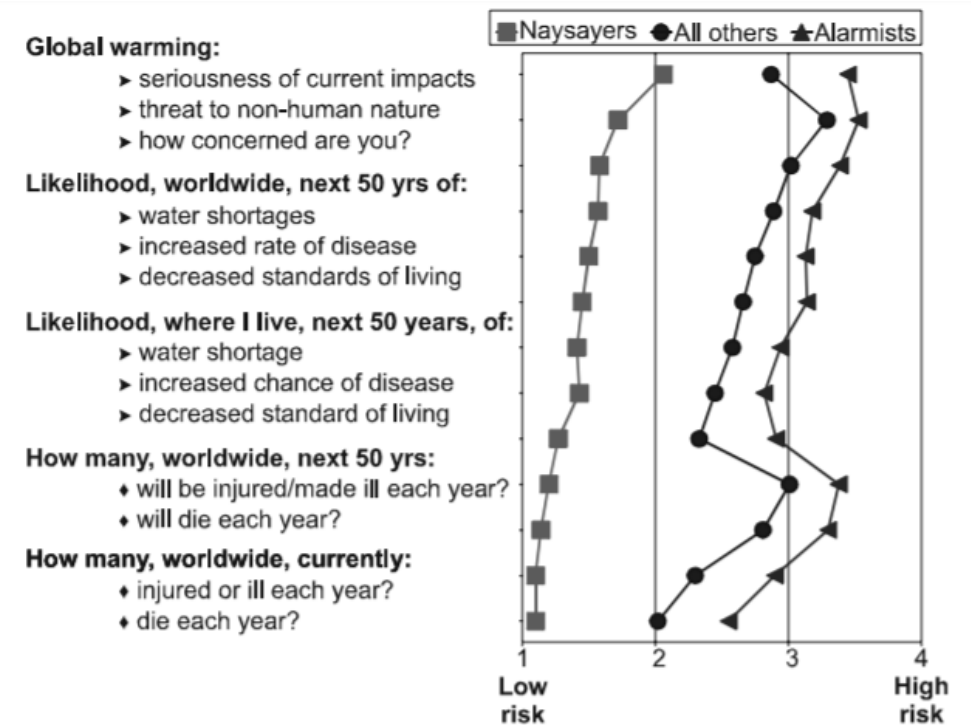
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- “American Risk Perceptions: Is Climate Change Dangerous?”

- 16 page mail-out | 673 Respondents
- Gallup survey - “How much do you personally worry about the greenhouse effect or global warming?”
 - 35% worried “a great deal”
 - 28% worried “a fair amount”
 - 18% worried “only a little”
 - 12% worried “not at all”



<https://digitalcommons.sacredheart.edu/acadfest/2017/all/10>



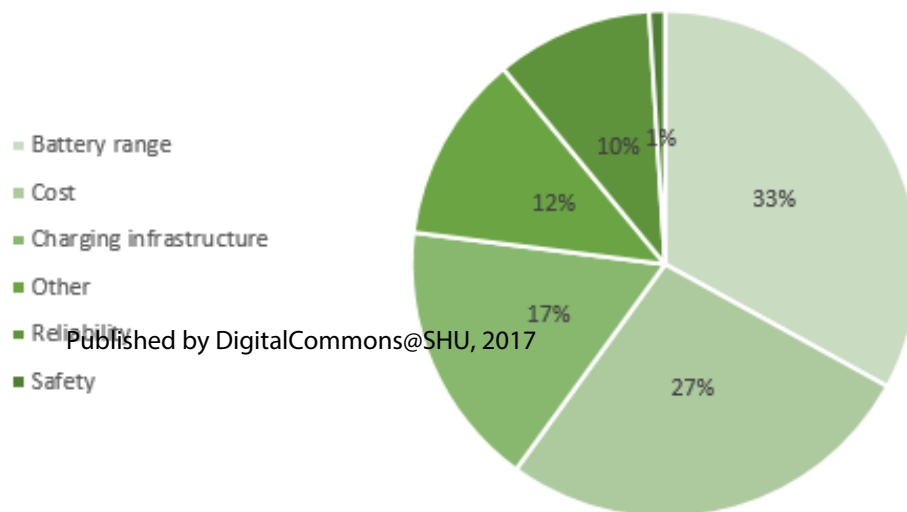
5% of respondents stand as naysayers and 9% as alarmists⁸

ELECTRIC VEHICLES

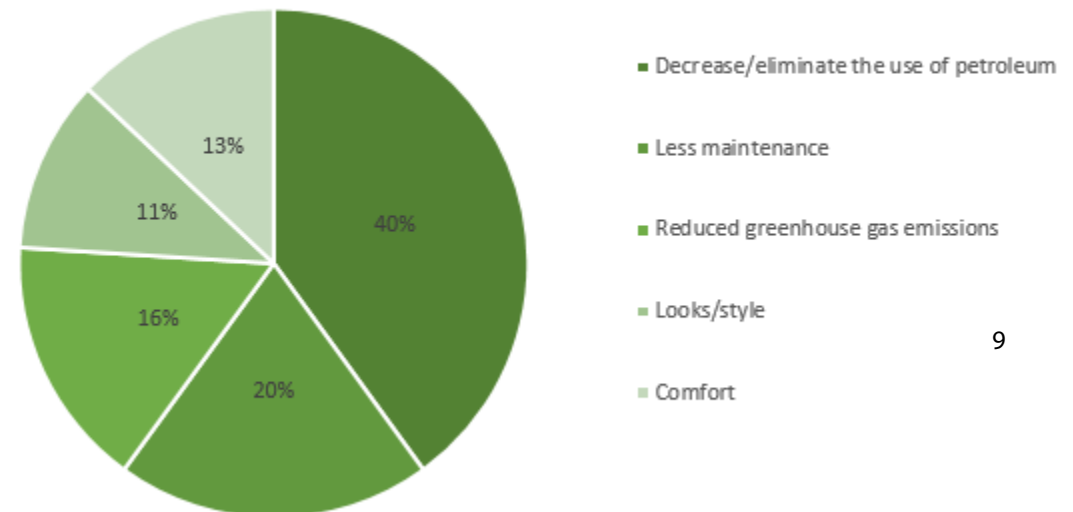
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- “Barriers to widespread adoption of electric vehicles: An analysis of consumer attitudes and perceptions”
 - Internet survey | 481 participants | Students, Faculty, and Staff at a Technological Institute
 - **Financial:** Extra cost of owning a HEV ranges between \$2500 and \$14,000 compared to ICE vehicles
 - Spikes in HEV sales when gas prices fluctuate
 - **Social:** Purchasers of EV’s are much more likely to identify as environmentally conscious than those who purchase ICE vehicles – flipside of “tree-hugger” portrayal
 - Products are a reflection of self

Biggest Concern about EVs



Ranking of EV Attributes



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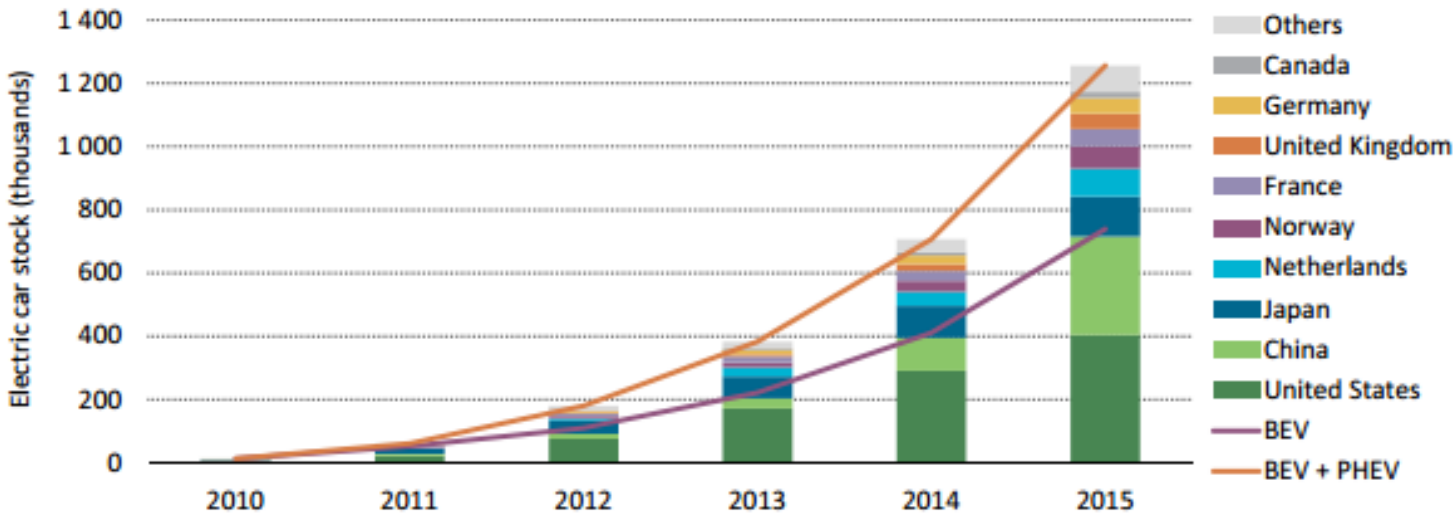
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THE AUTO INDUSTRY

HOW MERCEDES BENZ MAKES SENSE OF SUSTAINABILITY

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Evolution of the Global Electric Car Stock 2010 - 2015



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EV CLASSIFICATIONS

- HEV | Hybrid Electric Vehicle
 - Internal combustion engine and electric motor
- PHEV | Plug-in Hybrid Electric Vehicle
 - Smaller internal combustion engine and more powerful, rechargeable electric batteries
- BEV | Battery Electric Vehicle
 - Derive power exclusively from onboard electrical battery packs that can be charged with a plug

MERCEDES BENZ

"THE BEST OR NOTHING"

- Subsidiary of Daimler
 - "MBUSA"
 - Accounts for about 54% of revenue
- Founded in 1926 by Karl Benz
 - Roots back to 1886
- Current CEO Dieter Zetsche
 - Degree in engineering that permeates outlook
- 2016 financials
 - Current Ratio
 - 1.21
 - Gross Profit Margin
 - 20.61%

<https://digitalcommons.sacredheart.edu/acadfest/2017/all/10>

Hybrid & Electric

B-Class Electric Drive Academic Festival, Event 10 [2017] Starting at \$39,900*

Emissions-free driving with the highest possible standards of comfort, safety and innovation.



▶ Models

Build

C-Class Sedan Starting at \$46,050*

A stylish performer that embodies sophistication and intelligence.



▶ Models

Build

GLE SUV Starting at \$66,300*

The next generation of safety and style in a luxury SUV.



▶ Models

Build

S-Class Sedan Starting at \$96,600*

A leader in luxury, performance and safety and of an entire industry.



▶ Models

Build



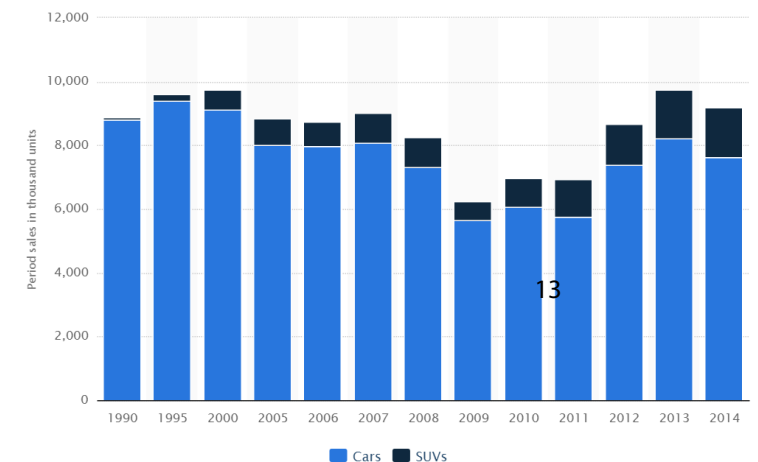
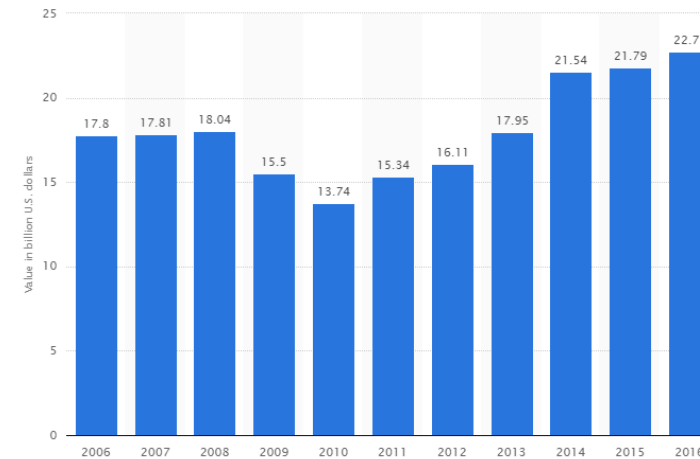
MACROECONOMIC IMPACTS

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- Global brand value of MBUSA in USD to the right
 - Large jump in 2014 – when they announced B-Class EV
 - Recession 2007 to 2011
 - Overnight frenzy to sell trucks
- Sales of SUV's increasing due to consumer trends
 - Response to economic growth

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So much more to purchase decisions than just conscience and global responsibility



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ELECTRIC OFFERINGS

- B-Class
 - Introduced in 2014
 - Adjusting current frameworks to new engine concept
 - Same look, just electric
 - *"Econo-box" vibe*
- EQ
 - Unveiled at 2016 Paris Auto Show
 - Response to the "Tesla Effect"
 - Electric can be sexy
 - A new cache
 - Completely unique and stand alone
 - Combining desire for larger cars with sleek and innovative electric concept
 - Its own identity

INTERVIEW WITH STEVE CANNON

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- CMO of Mercedes Benz USA from 2007 to 2012
- CEO Of Mercedes Benz USA from January 2011 to December 2016
 - Current CEO of AMB group
- Graduated from West Point with a degree in economics
 - 1st Lieutenant Airborne Ranger Infantry

- Could also be attributed to the SUV versus small car trend, when it comes down to it a Prius just can't hold the ten hockey bags and cooler you need to pack on the way to a game
 - Cars are a direct reflection of perceptions of self, consumers will not change their lifestyle because of their conscience – ***the only way we are going to get people to adopt these technologies is to hit them in their pocketbook, not their conscience***

INTERVIEW WITH STEVE CANNON

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- We are attempting to solve the greenhouse gas problem the wrong way in attempting to regulate **supply** versus **demand**
 - Success and change in Europe is not because companies are being forced to put out new models and increase MPG's
 - Large taxes on “gas guzzling” cars and increased rebates and tax deductions on electric
 - *What's the solution?*
 - Two front approach – auto makers keep innovating, but put higher federal **taxes** on gasoline
 - Can pay for new infrastructure projects while consumers are nudges toward **sustainability**
 - **Gas prices** the most impactful factor in switching

CONCLUSIONS

- Perceptions of the environment have insignificant impact on industry wide buying behavior
 - Economic factors
 - SUV sales and trends
- Perceptions of self are directly reflected by purchase decisions
 - Especially auto
 - Straying from "econo-box" to sleeker and sexier models
 - Tesla effect
- Presents a conundrum
 - People want to buy electric for two conflicting reasons:
 1. To save money
 2. To feel luxurious and express lifestyle
- Further research on perceptions and sales by income level

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