Relevant “Market” Opinion
from MORNING CONSULT
&
The Alliance Auto Index Project
4 in 5 consumers recognize that vehicles are more fuel-efficient than they were a decade ago.

Compared to a decade ago, how much more fuel-efficient are vehicles today?

- **78% to 4%** – Cars today are more fuel efficient.
Majority say gas prices will decrease, remain the same, or increase slightly - only 14% predict prices to dramatically rise in the next decade.

In the next decade will gas prices...

- 74% do not expect gas prices to rise sharply over the next decade.
Nearly 2 in 3 consumers say that the government should continue to increase fuel efficiency standards and enforce them.

... the U.S. govt should continue to increase fuel efficiency standards and enforce them...

- 4 to 1, consumers favor increased FE
- But stay tuned... that perspective is not backed up with action
General consensus across demographics that government should continue to increase fuel-efficiency standards and enforce them

... the U.S. govt should continue to increase fuel efficiency standards and enforce them?

<table>
<thead>
<tr>
<th>Category</th>
<th>Agree</th>
<th>Disagree</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>64%</td>
<td>16%</td>
<td>20%</td>
</tr>
<tr>
<td>Gender: Male</td>
<td>67%</td>
<td>17%</td>
<td>16%</td>
</tr>
<tr>
<td>Gender: Female</td>
<td>61%</td>
<td>14%</td>
<td>24%</td>
</tr>
<tr>
<td>Age: 18-29</td>
<td>61%</td>
<td>19%</td>
<td>20%</td>
</tr>
<tr>
<td>Age: 30-44</td>
<td>61%</td>
<td>16%</td>
<td>23%</td>
</tr>
<tr>
<td>Age: 45-64</td>
<td>65%</td>
<td>16%</td>
<td>19%</td>
</tr>
<tr>
<td>Age: 65+</td>
<td>71%</td>
<td>10%</td>
<td>19%</td>
</tr>
<tr>
<td>PID: Dem (no lean)</td>
<td>69%</td>
<td>12%</td>
<td>19%</td>
</tr>
<tr>
<td>PID: Ind (no lean)</td>
<td>60%</td>
<td>17%</td>
<td>22%</td>
</tr>
<tr>
<td>PID: Rep (no lean)</td>
<td>63%</td>
<td>18%</td>
<td>19%</td>
</tr>
</tbody>
</table>

- Conceptual support cuts across all demographics; GOP favor 63 - 18 and Dems 69 – 12
- But – as you’ll see – they neither want their choices limited nor are they willing to back that view up with dollars
A majority of consumers believe the government should require companies to produce more fuel-efficient vehicles for sale at dealerships. The best way for the government to achieve the goal of having more fuel efficient vehicles on the road is...
2 in 3 adults would pay under $2,500 to meet government’s new fuel efficiency standards; 1 in 4 would pay nothing at all

How much more are you willing to pay for a new car so it will meet the govt's new FE standards?

- Just 17% would pay more than $2.5k to meet standards
- 24% would pay NOTHING; 20% under $1k
Even if adults were given additional money when purchasing a vehicle, more would choose extra safety features over increased fuel efficiency.

If you had to spend an additional $2,000 on the purchase of your next vehicle, would you prefer to spend that money on extra safety features like blind spot monitoring and automatic braking, or additional fuel efficiency?

- 45% would choose extra safety features.
- 41% would choose additional fuel efficiency.
- 14% are not sure.
And, adults place equal importance on freedom of mobility as they do on addressing global warming.

As a society, what is more important, freedom of mobility or addressing global warming?
Disagreement across party lines on which issue is more important

As a society, what is more important, freedom of mobility or addressing global warming?

<table>
<thead>
<tr>
<th>Category</th>
<th>Freedom of Mobility</th>
<th>Addressing Global Warming</th>
<th>Not Sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>42%</td>
<td>40%</td>
<td>18%</td>
</tr>
<tr>
<td>Gender: Male</td>
<td>50%</td>
<td>35%</td>
<td>15%</td>
</tr>
<tr>
<td>Gender: Female</td>
<td>35%</td>
<td>44%</td>
<td>21%</td>
</tr>
<tr>
<td>Age: 18-29</td>
<td>37%</td>
<td>43%</td>
<td>20%</td>
</tr>
<tr>
<td>Age: 30-44</td>
<td>37%</td>
<td>41%</td>
<td>22%</td>
</tr>
<tr>
<td>Age: 45-64</td>
<td>48%</td>
<td>37%</td>
<td>15%</td>
</tr>
<tr>
<td>Age: 65+</td>
<td>45%</td>
<td>41%</td>
<td>14%</td>
</tr>
<tr>
<td>PID: Dem (no lean)</td>
<td>26%</td>
<td>57%</td>
<td>17%</td>
</tr>
<tr>
<td>PID: Ind (no lean)</td>
<td>41%</td>
<td>38%</td>
<td>21%</td>
</tr>
<tr>
<td>PID: Rep (no lean)</td>
<td>59%</td>
<td>25%</td>
<td>16%</td>
</tr>
</tbody>
</table>

- Big net gender (24) and even bigger net party gap (65)
### Most Have NOT Tried Ride Sharing Services

How often do you use ride-sharing services like Uber and Lyft?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>ALL</th>
<th>18-29</th>
<th>65+</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least once a day on average</td>
<td>6%</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>At least several times a week</td>
<td>6%</td>
<td>14</td>
<td>-</td>
</tr>
<tr>
<td>Occasionally</td>
<td>13%</td>
<td>22</td>
<td>4</td>
</tr>
<tr>
<td>Rarely</td>
<td>12%</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Never</td>
<td>58%</td>
<td>35</td>
<td>86</td>
</tr>
<tr>
<td>Not sure</td>
<td>5%</td>
<td>6</td>
<td>2</td>
</tr>
</tbody>
</table>
Ownership Bias Remains Strong

Many say that in about 10 years from now, ride-sharing services like Uber and Lyft will operate with self-driving electric vehicles that will be less expensive for riders because there will be no human driver. Do you look forward to this innovation or not?

<table>
<thead>
<tr>
<th>Response</th>
<th>All</th>
<th>18-29</th>
<th>65+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Look forward to this innovation</td>
<td>28%</td>
<td>39</td>
<td>15</td>
</tr>
<tr>
<td>Do NOT look forward to this innovation</td>
<td>51%</td>
<td>40</td>
<td>64</td>
</tr>
<tr>
<td>Not sure</td>
<td>22%</td>
<td>21</td>
<td>21</td>
</tr>
</tbody>
</table>
Quite Strong...

When these ride sharing services like Uber and Lyft are more prevalent, do you think you will buy a new car for yourself or do you think you will use ride-sharing services instead of owning a car?

<table>
<thead>
<tr>
<th>Option</th>
<th>ALL</th>
<th>18-29</th>
<th>65+</th>
</tr>
</thead>
<tbody>
<tr>
<td>I will buy a new car no matter what</td>
<td>59%</td>
<td>54</td>
<td>59</td>
</tr>
<tr>
<td>I will use ride-sharing services instead</td>
<td>15%</td>
<td>24</td>
<td>10</td>
</tr>
<tr>
<td>Not sure</td>
<td>25%</td>
<td>22</td>
<td>31</td>
</tr>
</tbody>
</table>
More People **SAY** They Might Shift From Rental

Will the availability of ride sharing services like Uber and Lyft impact the likelihood of you renting a car while traveling?

<table>
<thead>
<tr>
<th></th>
<th>ALL</th>
<th>18-29</th>
<th>65+</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>23%</td>
<td>38</td>
<td>12</td>
</tr>
<tr>
<td>No</td>
<td>64%</td>
<td>50</td>
<td>74</td>
</tr>
<tr>
<td>Not sure</td>
<td>13%</td>
<td>12</td>
<td>14</td>
</tr>
</tbody>
</table>

*Alliance Survey*
Destiny – Not Timing – Is Clear
Here’s What We Know About The Future

“We can break our dependence on oil... become the first country to have one million electric vehicles on the road by 2015”

President Obama January 2011 SOTU

• Predictions are tough to make...
  - 2016 electrics: 0.9%
  - 2017 electrics: 1.0% (through June)

• BUT 4 trends are real
  - Autonomy
  - Sharing
  - Connectivity
  - Electrification

• Independent but reinforcing
Here’s What We Don’t Know About The Future...

1. transition speed and ratio of ownership to access
2. combined sales impact of regulations, economic conditions, access models and consumer choice
3. timing of full autonomy (significant/majority/ubiquity)
4. impact of ride sharing on electrification adoption
5. impact of ride sharing and autonomy on VMT
6. when EVs mitigate current range, utility and price advantages of ICE
7. whether gas prices remain historically low
8. unanticipated breakthroughs in technology capability / costs
9. if U.S. / California policy relating to FE harmonizes / rationalizes
10. how political leadership here / abroad impacts future policy decisions
Rube Goldberg Would Be Proud!
Connecticut, Delaware, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont, Washington

Connecticut, Maine, Maryland, Massachusetts, New Jersey, New York, Oregon, Rhode Island, Vermont
The Last Administration Argued FOR Harmonization

**OBAMA ADMINISTRATION:** "Continuing the National Program ensures that auto manufacturers can build a single fleet of U.S. vehicles that satisfy the requirements of both federal programs as well as California's program, thus helping to reduce costs and regulatory complexity while providing significant energy security and environmental benefits to the nation as a whole."

(NHTSA, Fact Sheet, “NHTSA and EPA Propose to Extend the National Program to Improve Fuel Economy and Greenhouse Gases for Passenger Cars and Light Trucks,” 8/12)

**PRESIDENT OBAMA:** “In the past, an agreement such as this would have been considered impossible. . . . And at a time of historic crisis in our auto industry, this rule provides the clear certainty that will allow these companies to plan for a future in which they are building the cars of the 21st century.”

(Obama Administration, Press Release, “President Obama Announces National Fuel Efficiency Policy,” 5/19/09)

**CAROL BROWNER:** “A clear and uniform national policy is not only good news for consumers who will save money at the pump, but this policy is also good news for the auto industry which will no longer be subject to a costly patchwork of differing rules and regulations. . . . This an incredible step forward for our country. . .”

(Obama Administration, Press Release, “President Obama Announces National Fuel Efficiency Policy,” 5/19/09)
Facts - Not Politics - Matter
Here Today; Gone Tomorrow...

November 29

November 30

Website
Industry Completely United on Reboot of MTR

"We write you today to ask that you reinstate the data-driven Midterm Review of the fuel economy/GHG rules through Model Year 2025 – without prejudging the outcome - and to harmonize the federal requirements."

"Two commitments underlying that agreement were (1) the concept of One National Program under which rules from two federal agencies and California would be harmonized; and (2) the Midterm Review."

"We are committed to continued gains in fuel efficiency and carbon reduction."
A Midterm – At the Midterm – Tells A Different Story

<table>
<thead>
<tr>
<th>Measure</th>
<th>Nov 16</th>
<th>July 17</th>
<th>Spring 18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>Record Year</td>
<td>Softening</td>
<td>?</td>
</tr>
<tr>
<td>Compliance</td>
<td>Over</td>
<td>Under</td>
<td>?</td>
</tr>
<tr>
<td>Gas price projection*</td>
<td>$3.58</td>
<td>$3.63</td>
<td>$3.66</td>
</tr>
<tr>
<td>Gas price actual</td>
<td>$2.18</td>
<td>$2.28</td>
<td>$2.36</td>
</tr>
<tr>
<td>ICE share</td>
<td>97.2%</td>
<td>96.8%</td>
<td>?</td>
</tr>
<tr>
<td>Fleet mix</td>
<td>40/60% (Car/Light Truck)</td>
<td>37/63% (Car/Light Truck)</td>
<td>?</td>
</tr>
</tbody>
</table>

* Based on 2012 EIA Annual Energy Outlook
Industry Average Annual CAFE (Fuel Economy) Compliance Margin
[miles per gallon, mpg]

- 2012: 1.0
- 2013: 1.3
- 2014: 1.2
- 2015: 0.6
- 2016 Projected: (0.7)
- 2017 Projected: (1.2)

Source: NHTSA

Similar trends are observed for CAFE (fuel economy) compliance:
- Between 2012 and 2014, manufacturers averaged 1.0 to 1.3 miles per gallon (mpg) better fuel economy than their standards.
- In 2015, this compliance margin dropped in half to 0.6 mpg.
- NHTSA projects that manufacturers on average will fail to meet the CAFE standards in 2016 and 2017.
Gas Prices: The Bet Was Off

August 2012: $3.72
Projected: $3.63

July 2017: $2.35
-37%

Source: EIA
Shell sees future of 'lower forever' oil prices

By Sarah Kent
Published: July 27, 2017 9:12 a.m. ET

LONDON-- Royal Dutch Shell PLC laid out a pessimistic vision for the future of oil on Thursday, even as the company reported success in generating cash during a prolonged downturn.

Shell has cut costs and said it is preparing for a world in which crude prices never return to precrash levels and petroleum demand eventually declines. Shell Chief Executive Ben van Beurden said the company has a mind-set that oil prices would remain "lower forever"--a riff on the "lower for longer" mantra the industry adopted for a price slump that proved unexpectedly lasting.

"We have to have projects that are resilient in a world where oil has peaked," Mr. van Beurden told reporters on a conference call discussing the company's second-quarter financial results. "When it will happen we don't know, but that it will happen we are certain."

The views of the British-Dutch oil company reflect the transition underway in a global energy industry grappling with the twin forces of an oil-supply glut and a looming consumer shift away from petroleum.
Powertrain Market Share: 2008 - 2017

- **Good spin:** electrification up dramatically
- **Bad spin:** alternative powertrains combined show no movement
- **No spin:** electrification cannibalizing hybrids

Source: Wards Automotive
Early CAFE Success + Low Gas $ = More ICE

What Type of Engine Will Your Next Vehicle Most Likely Be Powered By?

- Hybrid
- Gasoline
- Electric
- Diesel
- Something Else
- Column1

37% Gasoline
49% Gasoline
Surprise! The Divide Is Narrow
As MPG Rises, Fuel / Carbon Savings Fall

- **10 to 20 mpg over 1000 miles**
  - 10 requires 100 gallons
  - 20 requires 50 gallons
  - *Savings is 50 gallons*

- **40 to 50 mpg over 1000 miles**
  - 40 requires 25 gallons
  - 50 requires 20 gallons
  - *Savings is 5 gallons*
Massive Divide Between Rhetoric & Facts

Trump and Pruitt “want to pump the brakes on fuel efficiency standards, throw us into reverse and recklessly roll back down the road we just came from,” said Sen. Jeff Merkley, D-Ore. “It's bad for our economy, it's bad for the environment and it’s bad for middle-class families.”
## Cumulative Savings Locked Down

<table>
<thead>
<tr>
<th></th>
<th>Gallons (billions)</th>
<th>% of NHTSA Savings as Proposed</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHTSA as proposed</td>
<td>179.19</td>
<td></td>
</tr>
<tr>
<td>(4.7% per year average)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2021 +1% increase per year</td>
<td>175.15</td>
<td>97.74%</td>
</tr>
<tr>
<td>2021 +2% increase per year</td>
<td>176.27</td>
<td>98.37%</td>
</tr>
<tr>
<td>2021 +3% increase per year</td>
<td>177.36</td>
<td>98.98%</td>
</tr>
</tbody>
</table>

Remarkably – Interests Align!
Three Ways To Look At This Challenge....

GHG Primacy

Consumer Primacy

Striking a Balance
“Washington is already a leader in autonomous vehicle technology, and these early tests demonstrate how AVs could help save lives, improve mobility and be an important tool in our efforts to combat climate change.”

Washington Governor Jay Inslee, July 12, 2017
Why the **INDUSTRY** wants a compromise deal...
1. It’s both the right thing to do and a competitive thing to do
2. We are global companies meeting global requirements
3. Given product planning cycles, we need stability, harmonization and rationality

Why the **TRUMP ADMINISTRATION** should want a compromise deal...
1. Reducing energy usage is good economics and good environmental policy
2. Litigation is costly, risky and takes a LONG time
3. It’s great politics to find a workable compromise

Why **CALIFORNIA** should want a compromise deal...
1. To maximize GHG reduction, it’s prudent to stay in the game and stretch the deal
2. Sound policy and updated facts cannot be ignored -- reality affects program success
3. Litigation is risky
4. Flexibility pre 2025 could yield post 2025 compromise
Four Last Points to Drive Home...

1. The nature of mobility is changing - the regulatory regime should be modernized to enhance coherence, affordability and efficacy.

2. Policy is less complex than we make it appear; we don’t need studies to tell us gas prices are down dramatically and consumers have adjusted their behavior accordingly – both regarding fleet mix and powertrain choices. Facts - not hopeful predictions - should guide decision-making.

3. The political debate – intense, polarized and hyperbolic – obscures the fundamental truth that there is a profound consensus on FE/GHG – the only issue is the degree of the slope.

4. Always remember the virtuous cycle - given the safety and environmental advantages of new cars, affordability is critical to improved social outcomes.
THANK YOU!