

## ENERGY FACTS



## Relieving Pain at the Pump: Thanks to Stronger Standards, Consumers Have More Fuel-Efficient Choices

As gas prices are once again soaring, the oil industry and its allies are renewing their calls for more drilling, more pipelines, and continued taxpayers subsidies. But the reality is that greatly increased domestic drilling has failed to lower gasoline prices and had no impact on stopping the latest spike in global oil prices.

American drivers need real solutions that can provide them real relief at the gas pump. The good news is that with the proposed standards that require the equivalent of 54.5 miles per gallon (mpg), new cars by 2025 will get twice the fuel efficiency and use half of much gas as today's cars.

But the best news is that drivers do not have to wait until 2025 to reap the cost savings benefits of stronger fuel efficiency standards. In fact, thanks to the first phase of these stronger standards that started in model year (MY) 2012, a bumper crop of fuel-efficient cars are in the showrooms *today*. Drivers can start saving money immediately by trading in their gas guzzlers for today's gas sippers.



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## FIRST ROUND OF STANDARDS DELIVERING FUEL EFFICIENCY TODAY

In May of 2009, President Obama brought together automakers, the State of California, the United Auto Workers (UAW), and environmentalists in a historic announcement to raise the fuel efficiency of new cars and trucks to the equivalent of 35.5 mpg by MY 2016.<sup>1</sup> This historic clean car deal broke decades of gridlock on raising fuel efficiency of America's passenger cars and required automakers to phase in gas sipping technology starting in MY 2012.

Before the standards were announced, you could count on one hand the number of popular car nameplates that achieved at least 30 mpg (combined city and highway driving).<sup>2</sup> By the start of MY 2012, the number had tripled to 15 models as automakers steadily increased their fuel-efficient options in anticipation of the new standards, and higher fuel prices.

The rapid increase in high efficiency vehicles is not confined to compact and smaller cars. The number of mid-size nameplates that achieve 25 mpg or better increased from just six models in 2009 to 10 models in 2012 (see table 1).

Similarly, the number of minivans and crossover utility vehicle nameplates that achieve at least 20 mpg has doubled to 32 models from the 2009 to the 2012 MY.

**Table 1: Number of Popular Automobile Nameplates with Improved Efficiency\***

	MY 2009	MY 2012
Compact/Subcompact > 30 mpg	5	15
Midsize > 25 mpg	6	10
Crossovers > 20 mpg	16	32

\* "Popular" nameplates are defined as having sales of at least 30,000 per year. Fuel economy levels are combined city and highway window sticker values from the Environmental Protection Agency (EPA) ratings.

As shown in table 2, automakers are boosting the fuel economy across platforms to meet consumer demands and stronger standards.

Higher mpg translates into major savings for consumers. A driver trading in a car that gets 20 mpg for one that gets 30 mpg will save \$1,000 each year. A driver trading in a sports utility vehicle (SUV) that gets 15 mpg for one that gets 20 mpg will also save \$1,000 each year.<sup>3</sup>

**Table 2: Improved Efficiency Across Vehicle Types: Model Year 2012 Popular Nameplates\***

Manufacturer	Over 30 mpg		Over 25 mpg	Over 20 mpg
	Subcompact	Compact	Midsize	Crossovers
BMW		Mini Cooper		
Chrysler				Journey, Patriot, Compass, Caravan, Town & Country
Ford	Fiesta	Focus	Fusion	Explorer, Edge, Transit Connect
General Motors	Sonic		Malibu	Equinox, Terrain
Honda/Acura	Fit	Civic	Accord, TSX	CR-V, Pilot, Odyssey
Hyundai/Kia	Accent, Rio	Elantra	Sonata, Optima	Soul, Tucson, Sorento, Santa Fe, Sportage, Sedona
Mazda				CX-7
Nissan	Versa	Sentra	Altima	Juke, Rogue, Murano
Subaru		Impreza		Outback, Forester
Toyota/Scion	Yaris	Prius	Camry	RAV4, Highlander, xB, Venza, Sienna
Volkswagen		Golf	Jetta	

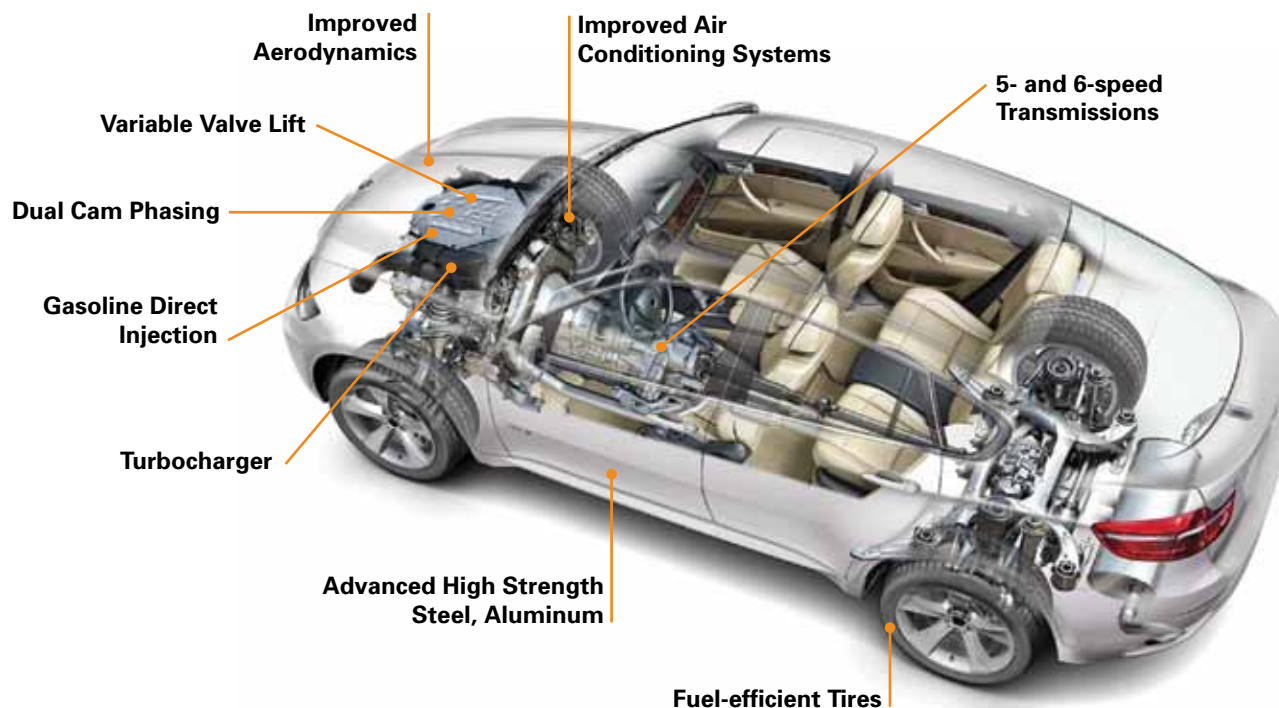
\* "Popular" nameplates are defined as having sales of at least 30,000 per year. Fuel economy levels are combined city and highway window sticker values from the Environmental Protection Agency (EPA) ratings.

## MODEL YEAR 2012 FUEL EFFICIENCY MAKEOVERS

Since 2009, automakers substantially retooled some of their most popular models to boost mpg, demonstrating how quickly the industry can respond to meet new challenges. Key strategies have been: 1) switch from heavy

body-on-frame SUVs to lighter, more efficient unibody crossover bodies; 2) using turbocharging, direct injection, and variable valve timing to make engines more efficient; 3) replacing 4-speed transmissions with more efficient 5- or 6-speed transmissions; and 4) better aerodynamics, more fuel-efficient tires, and lighter weight materials (see figure 1).

**Figure 1: Technologies to Improve Efficiency in Popular Gasoline Vehicles**



### After Decades of Stagnation, Fuel Efficiency Standards Increase and Improve All Cars and Light Trucks

Federal standards for new automobile fuel economy have been in existence since 1978, but they remained nearly unchanged from 1990 to 2010. Car standards remained at 27.5 mpg while light-duty truck standards—originally intended for work pickups, but now also covering SUVs, minivans, and vans—crept up modestly from 20 mpgs to 23.5 mpg over two decades. The combined car and light truck fuel economy during that twenty years was 25.1 mpg.<sup>4</sup>

With MY 2011, the fleet standards were boosted to 27.3 mpg and restructured to attribute-based requirements in which the stringency for each vehicle model was based on its size as measured by the rectangle formed by the wheels. The attribute-based system removes a previous incentive for automakers to shift production to small cars to have a higher fleet average fuel economy. Now, automakers make efficiency improvements across their offerings to meet standards in each size class. The size attribute structure has been carried forward in current and proposed standards.

Automobile standards started a series of multi-year improvements with MYs 2012 to 2016, which are part of the first-ever federal program that includes both carbon pollution and fuel economy standards. Automakers can meet carbon pollution standards through a combination of improved efficiency and cleaner air conditioning systems. In 2016 the fleet requirement is 250 grams of carbon dioxide (gCO<sub>2</sub>) per mile, which is equivalent to 35.5 mpg when using only technologies that improve fuel economy.

The U.S. Environmental Protection Agency and National Highway Traffic Safety Administration (NHTSA) proposed new standards in November 2011 that will ramp-up fuel efficiency standards from 2017 to 2025 to reach the equivalent of 54.5 mpg.

**Table 3: Examples of Popular Model Vehicle Makeovers for Efficiency**

Manufacturer	Model	Miles Per Gallon	Five Years of Fuel Savings, MY 2012 vs. earlier MY	MY 2012 Fuel Efficiency Technologies*
Ford	2010 Explorer 6 cylinder	16	\$5,707	Switch to unibody Turbocharged, direct injection, downsized engine Switch from 5- to 6-speed transmission
	2012 Explorer 4 cylinder	23		
Dodge	2009 Durango 8 cylinder	15	\$4,211	Switch to unibody Downsized engine
	2012 Durango 6 cylinder	19		
Chevrolet	2009 Equinox 6 cylinder	20	\$3,462	Downsized engine Switch from 5- to 6-speed transmission
	2012 Equinox 4 cylinder	26		
Chevrolet	2010 Cobalt 4 cylinder	27	\$1,111	Downsized engine Switch from 4- to 6-speed transmission
	2012 Cruze 4 cylinder	30		
Ford	2010 F150 8 cylinder	16	\$2,083	Turbocharged, direct injection, downsized engine Switch from 4- to 6-speed transmission
	2012 F150 6 cylinder	18		
Dodge	2010 Caravan 6 cylinder	18	\$1,667	Downsized engine
	2012 Caravan 6 cylinder	20		
Honda	2010 Odyssey 6 cylinder	18	\$3,030	Switch from 5- to 6-speed transmission
	2012 Odyssey 6 cylinder	22		
Ford	2010 Focus 4 cylinder	28	\$1,037	Switch from 4- to 6-speed transmission
	2012 Focus 4 cylinder	31		
Hyundai	2010 Sonata 4 cylinder	25	\$1,286	Switch from 5- to 6-speed transmission
	2012 Sonata 4 cylinder	28		

\* Additional technologies may also have been applied to improve efficiency.

## 54.5 MPG BY 2025: THE NEW AMERICAN STANDARD

In July of 2011, President Obama announced a new agreement that 13 automakers, the State of California, UAW and environmentalists supported: the equivalent of 54.5 mpg by MY 2025, making the United States the global leader with the strongest fuel efficiency standards on the books in the world.

As we have seen with the first round of standards, the 54.5 mpg target will drive more innovation and more fuel-efficient choices to the market well ahead of the 2025 MY.

Vehicles that meet the 2025 standard of 54.5 mpg will consume about half as much gasoline as the average vehicle on the road today. Consumers will make fewer trips to the pump and save money. Technologies to improve fuel efficiency will cost drivers about \$2,000, but ultimately they will save more than \$6,400 in fuel bills, resulting in a net saving of up to \$4,400 over the life of the vehicle.<sup>5</sup>

According to the EPA and the NHTSA, the MY 2017 to 2025 standards will cut U.S. oil consumption by 1.7 million barrels per day by 2030, which is equivalent to the combined U.S. imports from Saudi Arabia and Iraq in 2011. The standards will also cut carbon pollution by 297 million metric tons in 2030, which is equivalent to the carbon dioxide emissions of 76 coal-fired power plants.

## CONSUMERS IN ALL STATES WILL SAVE MONEY

Compared to the first round of efficiency improvements to 35.5 mpg, the proposed 54.5 mpg standards will result in billions of additional gallons saved annually across the states. Aggregate U.S. savings will be more than \$68 billion when accounting for both the incremental cost of more fuel-efficient vehicles and the savings from lower gasoline consumption. Consumer savings in each state will be in the millions of dollars and the top 24 states will each see annual savings in the billions of dollars by 2030.

**Table 4: Annual Consumer Savings of Proposed Model Year 2017 to 2025 Standards in 2030**

State	Fuel Savings (million gallons)	Fuel Savings (\$ millions)	Net Savings = Fuel Savings Minus Incremental Cost of Fuel-saving Technologies (\$ millions)	Carbon Pollution Reduction (Thousands of metric tons of CO <sub>2</sub> e)
Alabama	437	\$1,864	\$1,271	5,060
Alaska	54	\$235	\$141	620
Arizona	707	\$3,052	\$1,887	8,185
Arkansas	290	\$1,207	\$827	3,355
California	2,757	\$12,105	\$7,270	31,930
Colorado	398	\$1,717	\$1,026	4,605
Connecticut	230	\$1,015	\$580	2,660
Delaware	80	\$341	\$223	925
District of Columbia	39	\$166	\$111	450
Florida	2,362	\$10,062	\$6,683	27,350
Georgia	916	\$3,904	\$2,564	10,610
Hawaii	85	\$374	\$225	985
Idaho	127	\$550	\$334	1,470
Illinois	790	\$3,372	\$1,853	9,145
Indiana	416	\$1,777	\$980	4,815
Iowa	213	\$908	\$541	2,460
Kansas	208	\$888	\$541	2,405
Kentucky	411	\$1,755	\$1,207	4,760
Louisiana	408	\$1,700	\$1,151	4,730
Maine	94	\$413	\$238	1,080
Maryland	545	\$2,323	\$1,529	6,315
Massachusetts	440	\$1,943	\$1,116	5,095
Michigan	648	\$2,766	\$1,520	7,500
Minnesota	445	\$1,901	\$1,162	5,155
Mississippi	261	\$1,113	\$769	3,020
Missouri	462	\$1,974	\$1,204	5,350
Montana	74	\$319	\$190	855
Nebraska	130	\$555	\$335	1,500
Nevada	287	\$1,238	\$771	3,320
New Hampshire	103	\$455	\$264	1,190
New Jersey	587	\$2,531	\$1,453	6,790
New Mexico	139	\$602	\$363	1,610
New York	1,190	\$5,134	\$2,959	13,780
North Carolina	988	\$4,208	\$2,797	11,440
North Dakota	45	\$190	\$113	515
Ohio	719	\$3,071	\$1,664	8,325
Oklahoma	349	\$1,454	\$988	4,045
Oregon	329	\$1,446	\$881	3,810
Pennsylvania	816	\$3,520	\$2,004	9,450



**Table 4: Annual Consumer Savings of Proposed Model Year 2017 to 2025 Standards in 2030**

State	Fuel Savings (million gallons)	Fuel Savings (\$ millions)	Net Savings = Fuel Savings Minus Incremental Cost of Fuel-saving Technologies (\$ millions)	Carbon Pollution Reduction (Thousands of metric tons of CO <sub>2</sub> e)
South Carolina	409	\$1,741	\$1,145	4,730
South Dakota	56	\$241	\$145	650
Tennessee	665	\$2,835	\$1,958	7,695
Texas	2,711	\$11,282	\$7,750	31,400
Utah	195	\$842	\$507	2,255
Vermont	46	\$203	\$116	530
Virginia	778	\$3,314	\$2,179	9,005
Washington	581	\$2,551	\$1,547	6,725
West Virginia	145	\$620	\$405	1,680
Wisconsin	380	\$1,623	\$891	4,400
Wyoming	37	\$158	\$92	420
<b>U.S. Aggregate</b>	<b>25,655</b>	<b>\$109,881</b>	<b>\$68,655</b>	<b>297,000</b>

The calculations in table 4 are an update to previous analysis conducted jointly by NRDC and the Union of Concerned Scientists.<sup>6</sup> NRDC used the same methodology but updated fuel savings and vehicle cost assumptions from the EPA and NHTSA's "Notice of Proposed Rulemaking for 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards" (76 FR 74854). Fuel prices used in the analysis come from the Energy Information Administration Annual Energy Outlook 2012 Early Release.

## BETTER VEHICLE CHOICES IS THE REAL SOLUTION TO HIGH GAS PRICES

The "drill, baby, drill" approach to energy will not ease the pain at the pump because we cannot control global oil prices. But relief is available in showrooms today with more fuel-efficient car and truck models that go farther on a gallon of gasoline. Proposed 54.5 mpg standards can help cut transportation bills in half. While the new standards have the broad support of automakers, workers, consumers and environmentalists, some are stuck in the past. The National Automobile Dealers Association and their House Republican supporters are trying to stymie the standards. These opponents should step aside and let the 54.5 mpg standards be finalized this summer. Otherwise, they will be standing in the way of billions of dollars of savings for consumers, cleaner air, and an America that is more energy secure.

## Endnotes

1 Carbon pollution standards require a fleet average of 250 gCO<sub>2</sub> per mile. If pollution reductions are achieved through the application of fuel economy technologies, vehicles would average 35.5 mpg. Automakers can also reduce pollution from air conditioning systems in a way that does not improve fuel economy.

2 Nameplates are unique model names that have multiple variants. For example, the Toyota Camry nameplate includes the Toyota Camry 4 and 6 cylinder conventional and hybrid variants. The fuel economy associated with each nameplate is based on the sales-weighted average of the window sticker values for the nameplate variants.

3 Assuming 15,000 miles per year and \$4.00/gallon gasoline.

4 Production-weighted laboratory values from EPA, "Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2011," Report EPA-420-R-12-001a, March 2012.

5 Cost and savings are relative to vehicles that meet the existing 2016 standard. The standards are based on laboratory test values while the window sticker label accounts for on-road conditions. According to the EPA, new vehicles in 2025 will have an average fuel economy sticker value of about 40 miles per gallon.

6 Union of Concerned Scientists and NRDC, "Saving Money at the Gas Pump," September 2011. Available at [http://www.go60mpg.org/docs/NRDC\\_UCS-State\\_by\\_State\\_Savings-FINAL\\_9-11.pdf](http://www.go60mpg.org/docs/NRDC_UCS-State_by_State_Savings-FINAL_9-11.pdf).

