



OPIS  
By IHS Markit

# Octane in the Octagon

Tom Kloza

Global Head of Energy Analysis

732.730.2558 | [tkloza@opisnet.com](mailto:tkloza@opisnet.com) | [@tomkloza](https://twitter.com/tomkloza)

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# BATTLE ROYALE

**The Fight is Brewing between Refiners, Agriculture,  
and Chemical Interests**

# OPIS Octane Value Forum

October 25-26, 2017 | JW Marriott Houston

**Save the date for this meeting!**

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If you haven't been paying attention to the future needs for more octane, this is your opportunity to catch up and see how new mixtures and formulae will alter the supply and pricing chain from the refinery or production gate to a vehicle's tank.

**Learn more about the 1<sup>st</sup> Annual OPIS Octane Value Forum ...**

**[www.opisnet.com/octane-value-forum](http://www.opisnet.com/octane-value-forum)**

## First Some Disclaimers



# 40 Year Summary

- We are two generations removed from when some portions of the country saw premium market shares as high as 40-50%.
- From 1980-2011 the regular-premium spread (also referred to as the octane spread) was relatively narrow at the spot, rack and retail levels.
- From 2012 to the present, that dynamic has changed and may possibly change even more drastically soon.

# Dark Clouds Come with Silver Linings

- U.S. Permian shale output early next decade may top the production capability of Iran or Iraq.
- Almost all of the growth in US production is in light tight oil. It reduces the need for imports, and results in a seven-month SPR of sorts.
- But rising light tight oil, along with more condensate and condensate splitters has a major side effect . . .

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# CRAPHTHA



# Some Factors that Changed the Dynamic

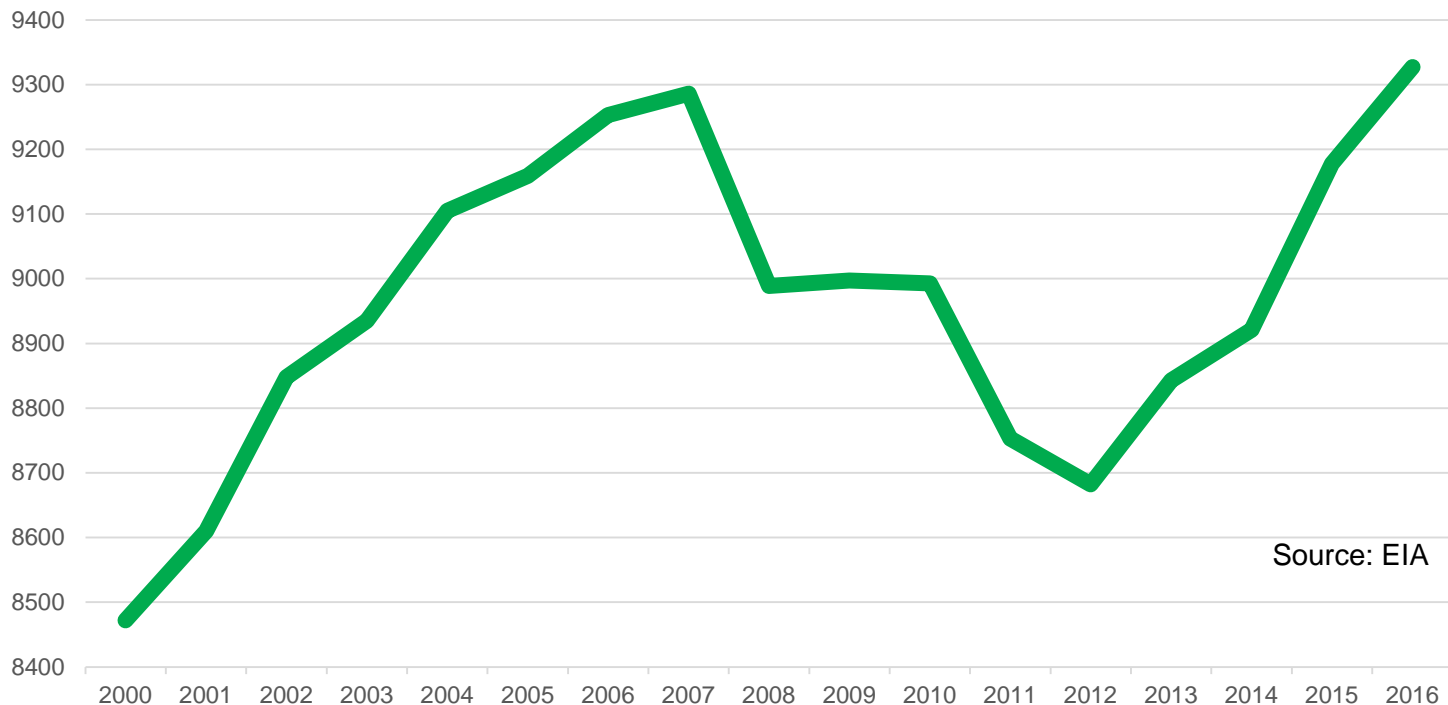
- Gasoline supply & demand balances.
- Gasoline pool octane, grade split and oxygenate use (ethanol for example).
- Refining capacity and utilization.
- Domestic oil, condensate and NGL production.
- Heavier reliance on light tight oil (LTO).

# Premium Gas is Different from Regular in More Ways than One

- Cheap regular gas is a part of “Americana”
- Premium is not the “fighting grade.”
- Brand loyalty still has a legacy.
- Incredible variation in wholesale prices. At press time, 34cts separates low and high avails in say, Florida.

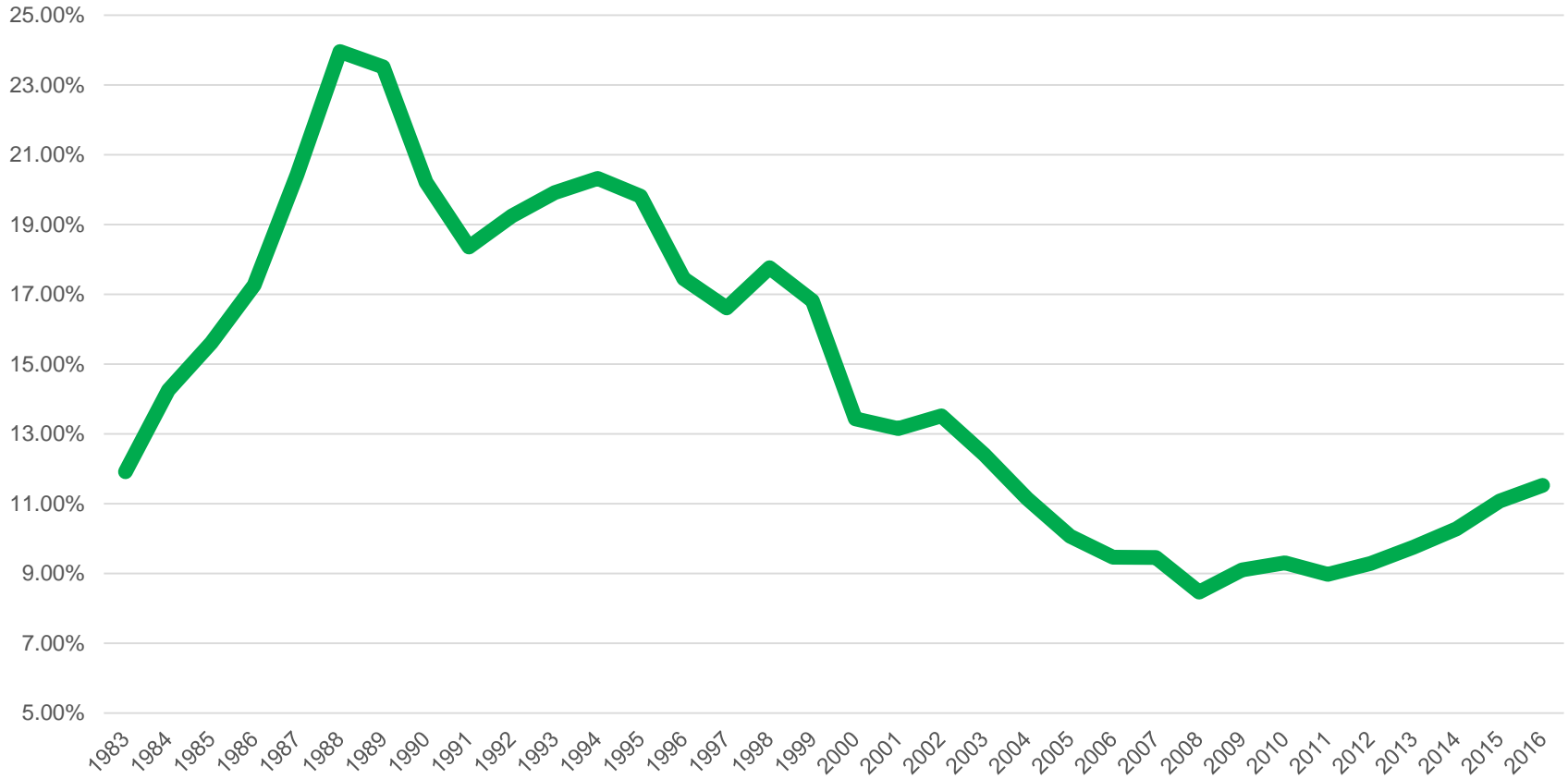
# Annual Gasoline Demand 2000-2016

U.S. Product Supplied of Finished Motor Gasoline (Thousand Barrels per Day)

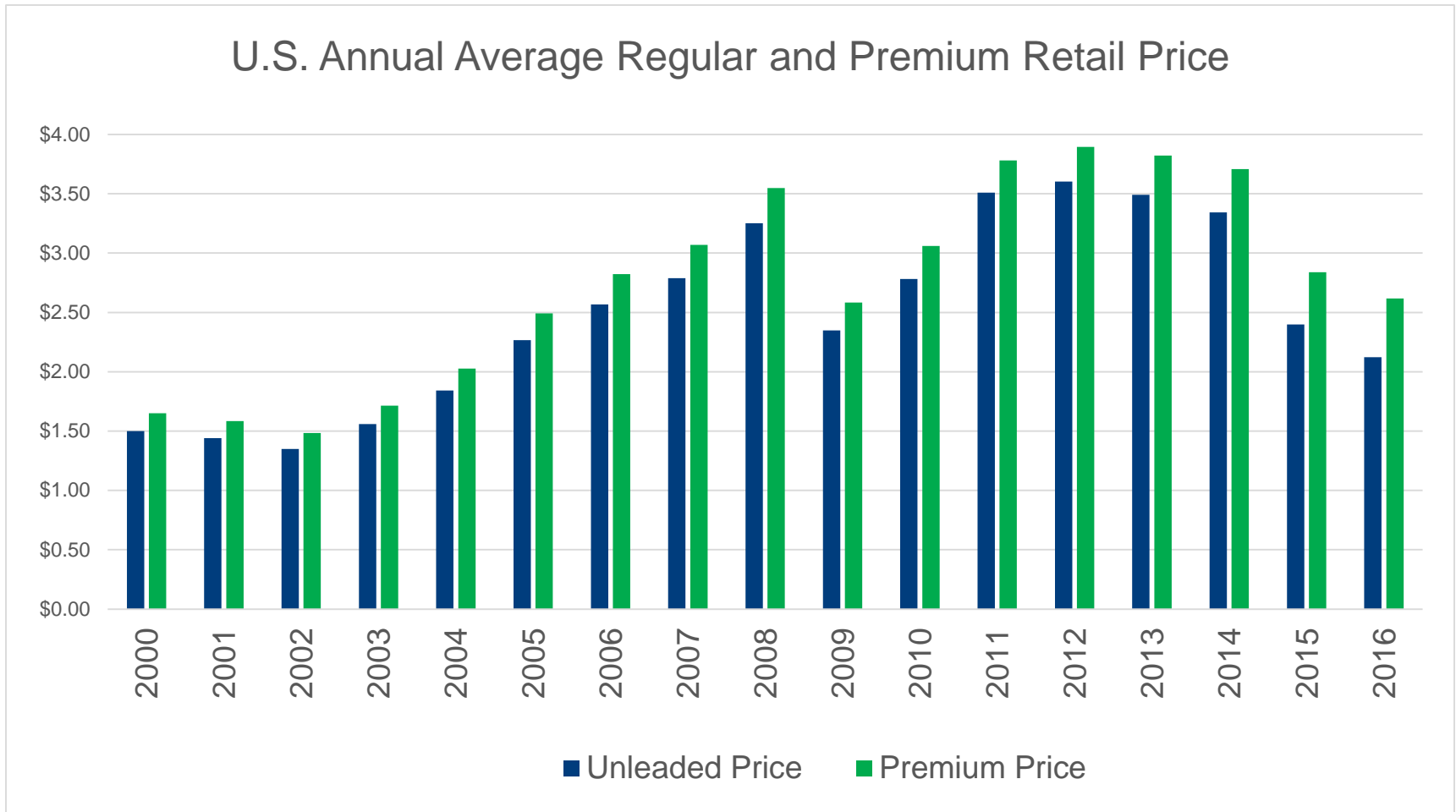


Source: EIA

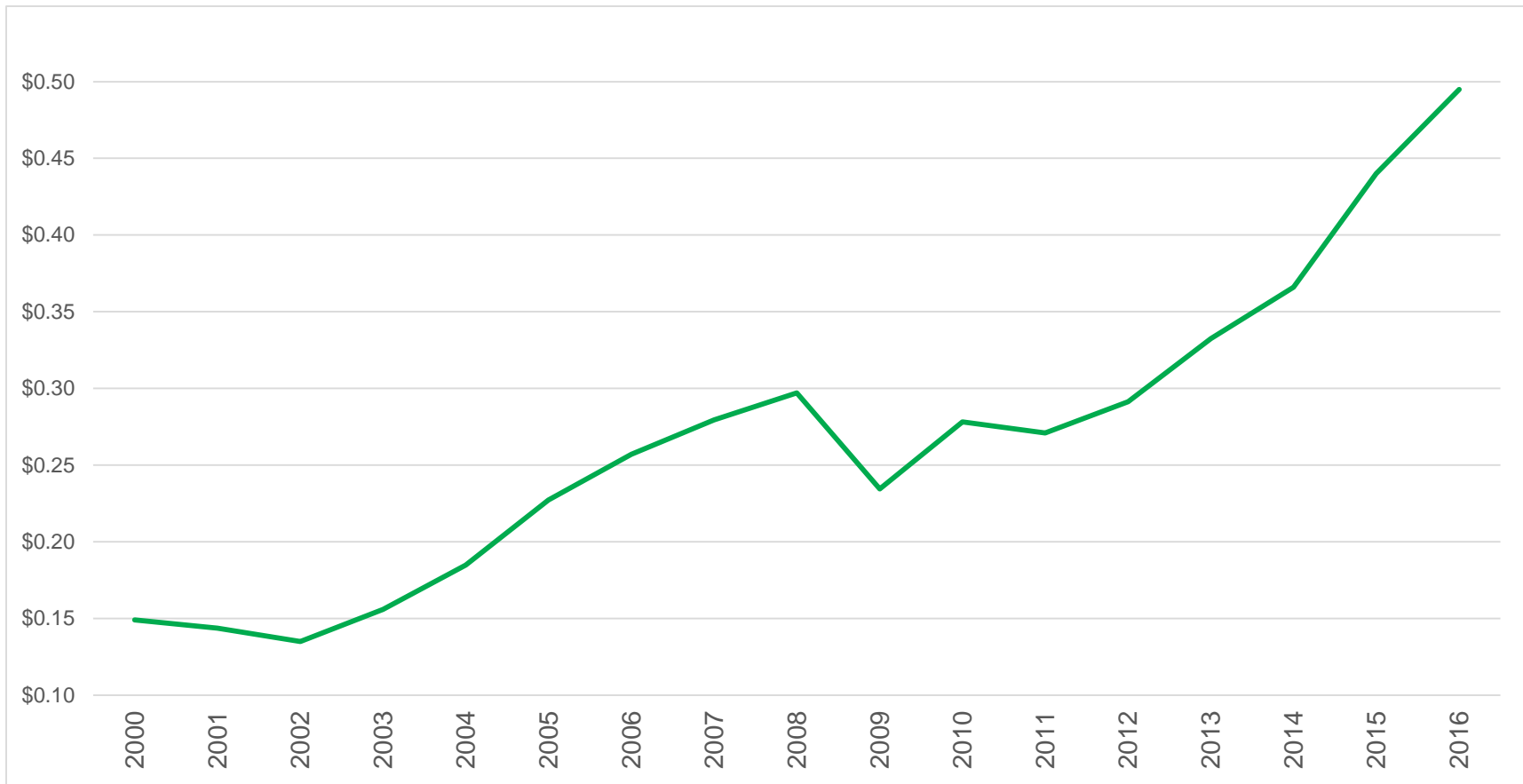
# Premium as a Percentage of Total Sales



# Regular vs. Premium Since 2000



# Growing Difference Between Regular and Premium (Retail)



# Premiums Premium...By State



# Annual Average Retail Gasoline Prices (2010-2017)

Year	Regular	Premium	Difference
2010	\$2.7819/gal	\$3.0601/gal	\$0.2782/gal
2011	\$3.5104/gal	\$3.7814/gal	\$0.2710/gal
2012	\$3.6035/gal	\$3.8948/gal	\$0.2913/gal
2013	\$3.4904/gal	\$3.8229/gal	\$0.2913/gal
2014	\$3.3431/gal	\$3.7090/gal	\$0.3659/gal
2015	\$2.3990/gal	\$2.8397/gal	\$0.4398/gal
2016	\$2.1233/gal	\$2.6164/gal	\$0.4931/gal
2017	\$2.3320/gal	\$2.8470/gal	\$0.5150/gal



# Annual Regular-to-Premium Spreads in the Spot Markets (2010-2017)

Market	2010	2011	2012	2013	2014	2015	2016	2017
NYH RBOB	10.82	18.54	23.11	21.60	19.48	21.93	13.59	14.12
GC Conv.	9.84	13.48	24.99	27.19	27.26	24.35	13.59	14.05
Chi. RBOB	11.11	19.49	36.56	32.95	39.13	45.82	37.90	22.68
G3 Sub-oct.*	9.45	15.93	17.83	41.68	29.49	34.96	27.74	23.85
L.A. CARBOB	9.29	7.62	12.68	18.47	11.32	28.87	30.00	24.35
S.F. CARBOB	11.18	9.04	13.15	15.94	11.46	20.58	31.69	25.10
PNW Sub-oct.	11.75	14.04	16.58	23.79	20.03	27.43	34.86	27.38

# Octane Needs Driven by OEM's

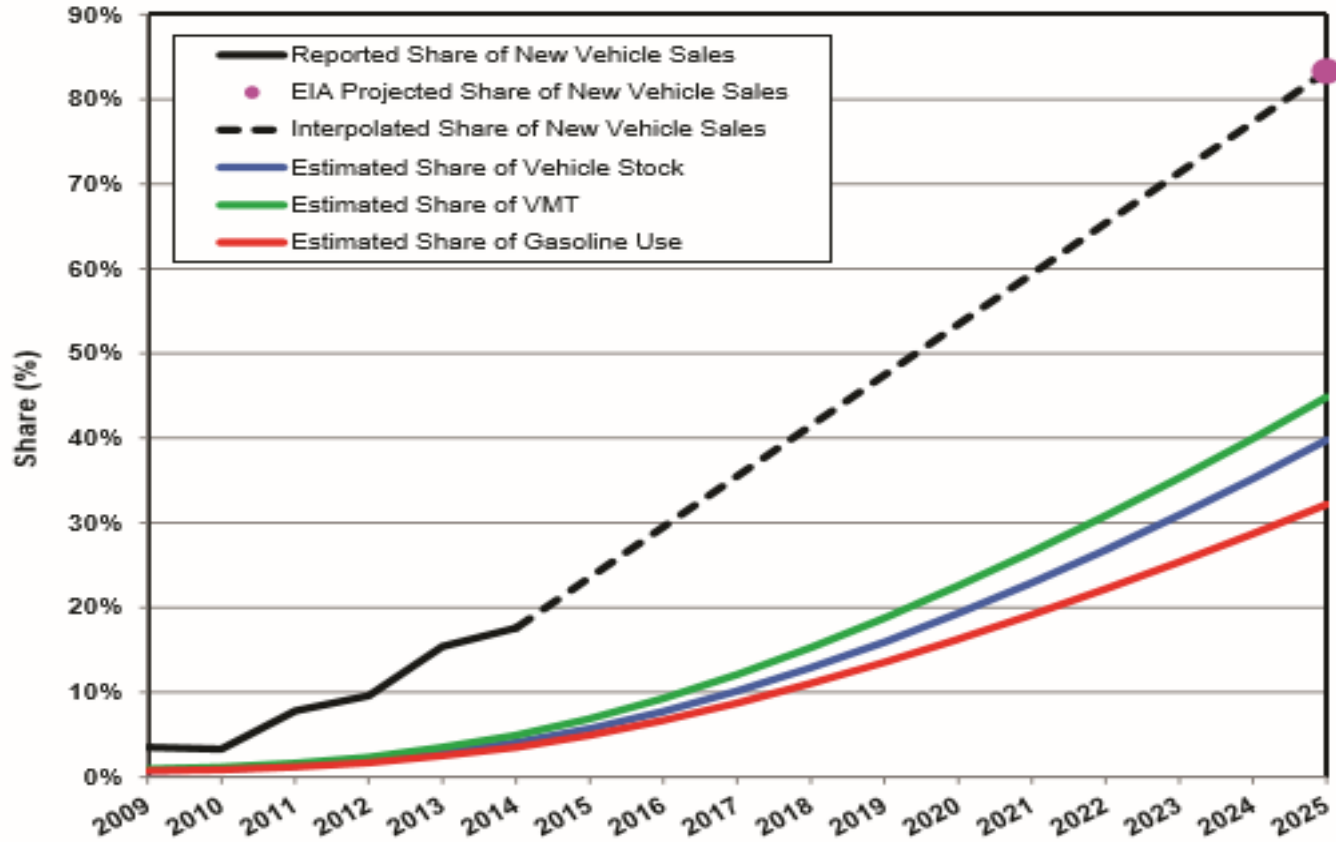
To reach CAFE standards engine manufacturers will need more octane going forward.

But the OEMs need to know soon, and not in 2025 or later, in order to move the R&D production cycle forward.

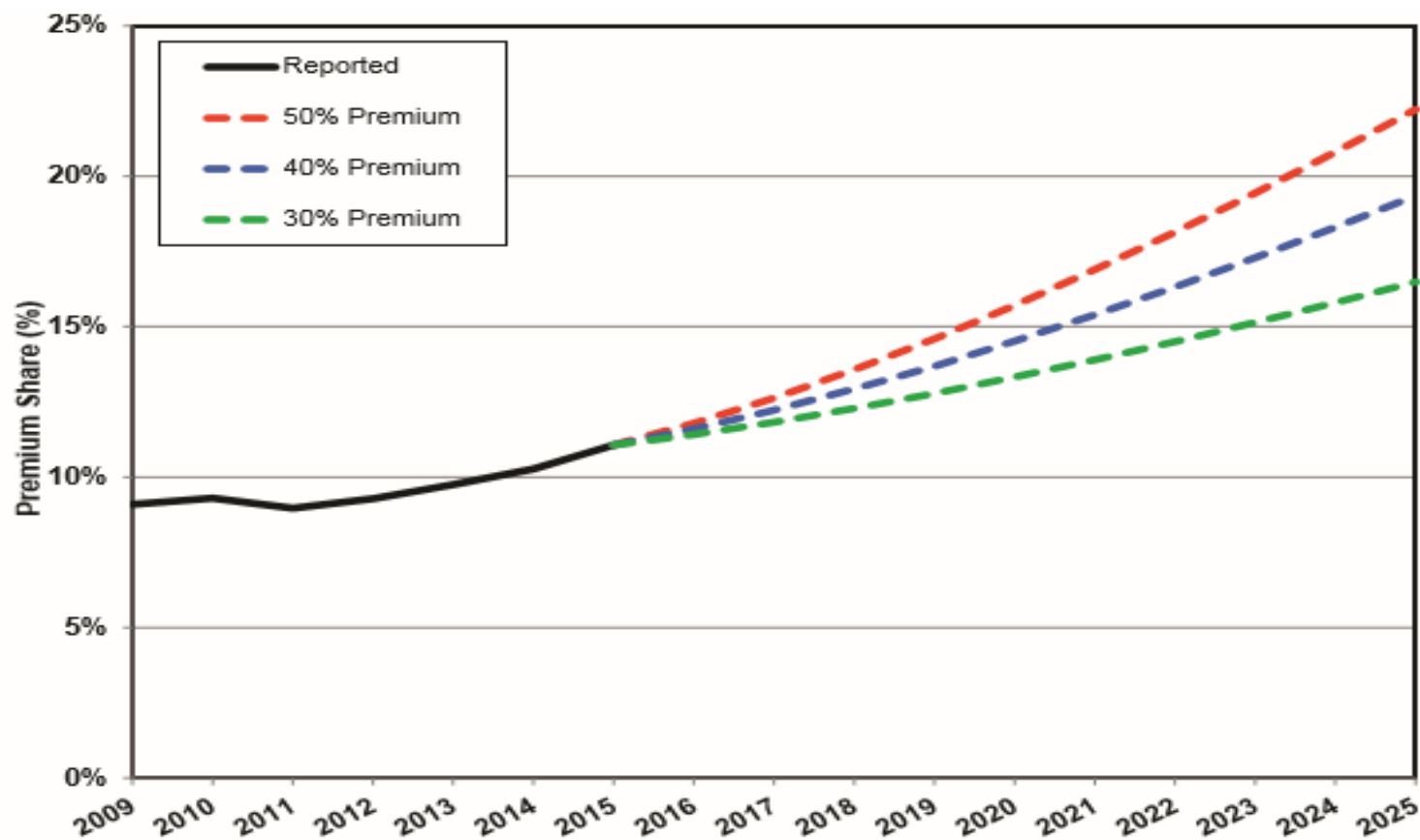
No one really knows when the “tipping point” comes for electric. Certainly not by 2023.

In the meantime, turbocharging is an option and a popular one at that.

# Turbocharged Engine Share Forecast



# Premium Market Share for Turbocharged Engines Fueling with Premium



# Some Final Conclusions

- We'll need more octane for the US gasoline pool if fossil fuel remains dominant. Irony: CAFÉ standards decrease overall fuel demand but increase octane needs.
- Consumers will need to be educated on measuring that octane.
- Consumer preferences are fickle. Gasoline prices are a hot button that won't cool in the next decade.
- Billions of dollars are involved, given the stakeholder interests. It's getting late early for OEMs if CAFÉ standards aren't altered.
- Ultimately it will need to be a “team effort”...Regulators, refiners, agricultural interests and automakers need to come together.

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# Thank You

Questions & Discussion

## Contact Information

Tom Kloza

732.730.2558

tkloza@opisnet.com

Twitter: @tomkloza

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### Oil Price Information Service

energycs@opisnet.com

www.opisnet.com

+1 301 284 2000 | 888 301 2645 (within the United States)



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