



The Hidden Taxes in Gasoline and Diesel Prices

Prepared for the OPIS LCFS & Carbon Markets Workshop

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President



Today's agenda



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1. Where is the LCFS program now?
2. What happens over the next three years?
3. After 2020



Transportation fuel prices are high in California



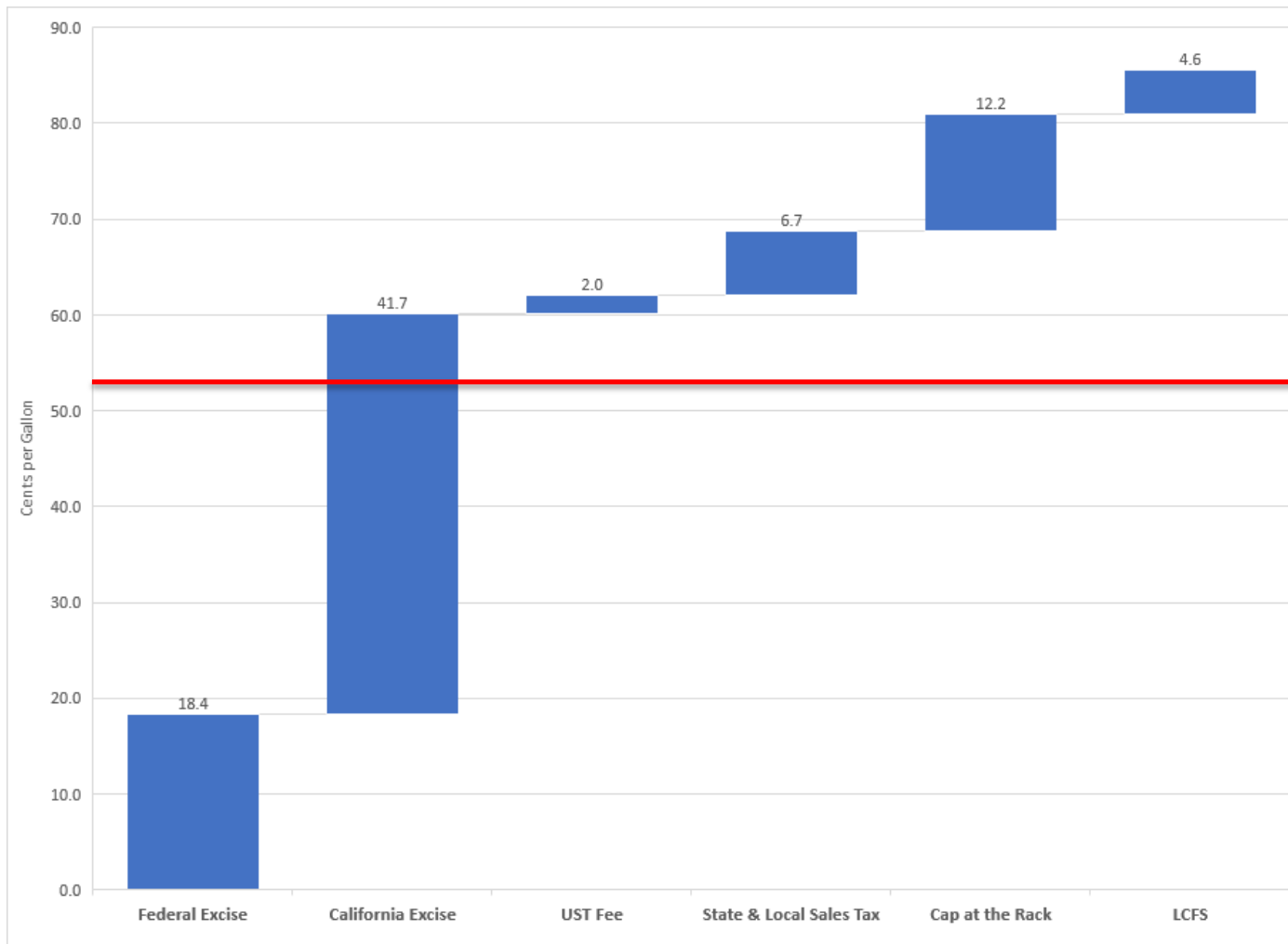
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December 1, 2017 – Chevron - 2400 Lincoln Blvd., Venice CA

So far, the LCFS costs have been minor, but that's about to change

California drivers pay a lot in gasoline taxes & fees



Source: API & CEC

The national average is about 51.7 cpg

Market participants are wondering how high credit prices will go



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Observers are concerned about the lack of credits going forward



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We want to see how the program will progress through 2020



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Image: Lukoil

The solution is to generate more credits and reduce deficits



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Image: California Air Resources Board

Where is the LCFS program now?



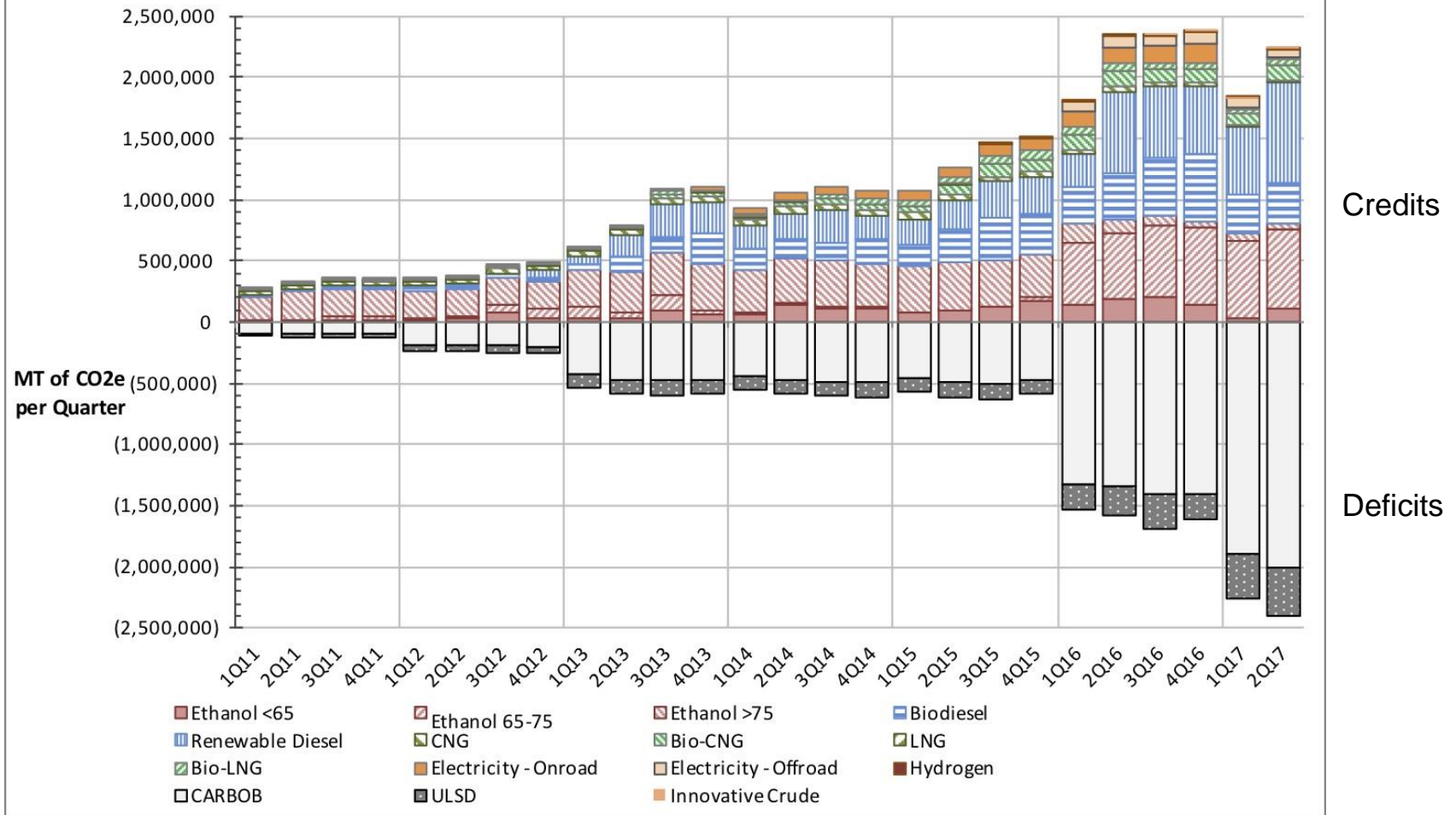
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Credits and deficits have changed over time

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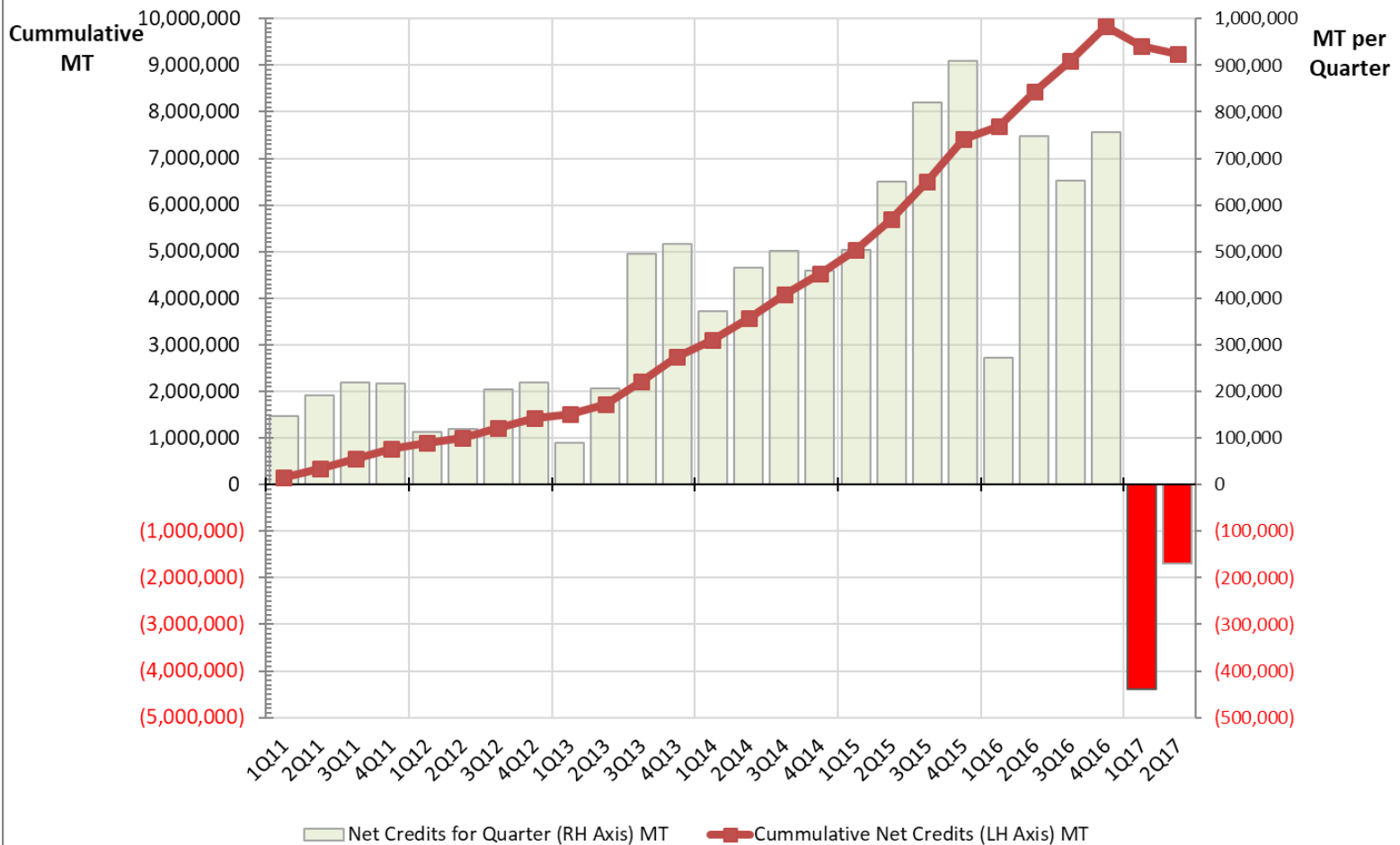
LCFS Net Credit/Deficit by Fuel and Quarter



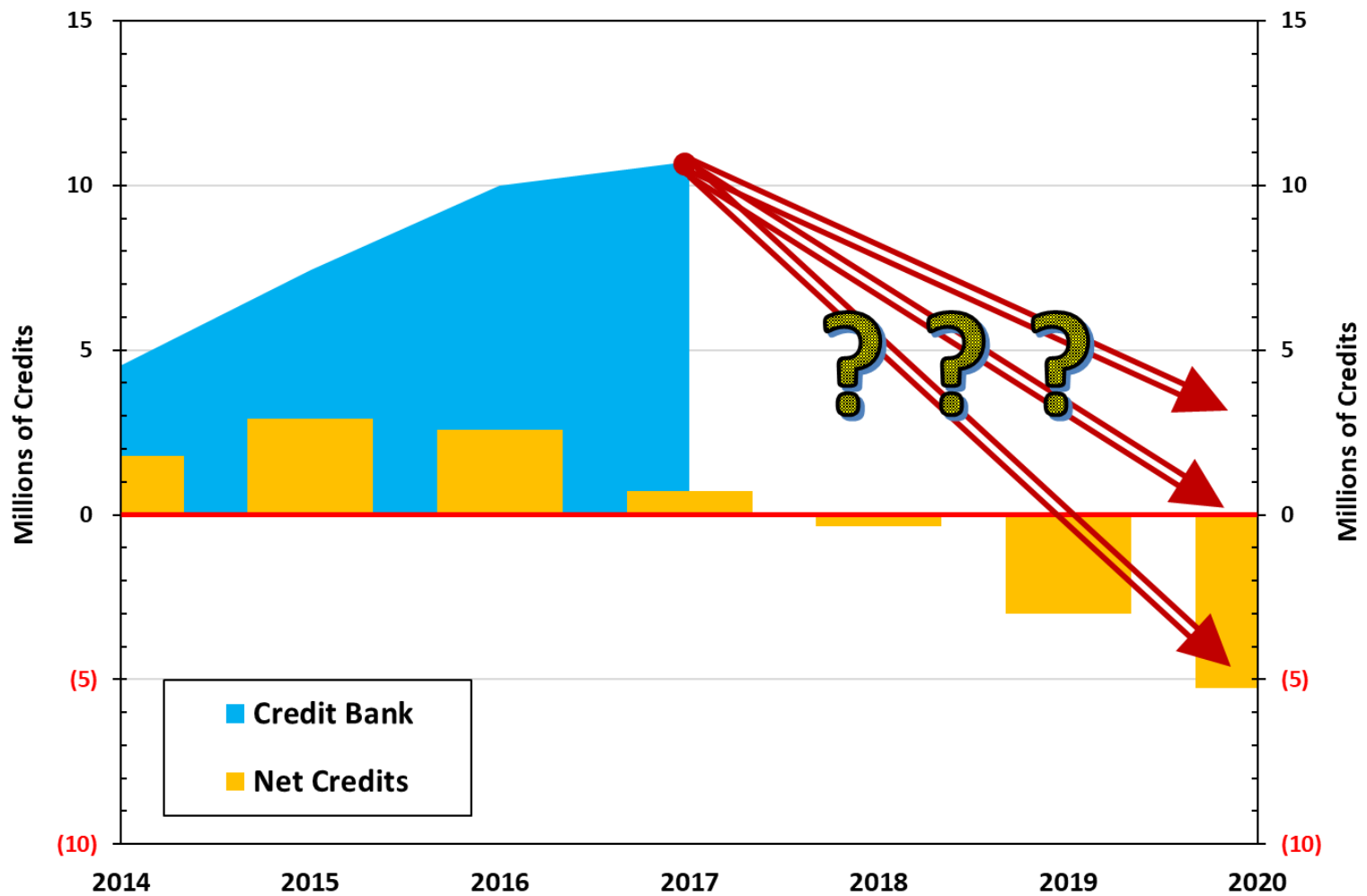
The difference between credits and deficits have been banked

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Net LCFS Credits by Quarter and Cumulative



There is uncertainty on where the Credit Bank balance will be at the end of 2020



LCFS costs are passed through to consumers



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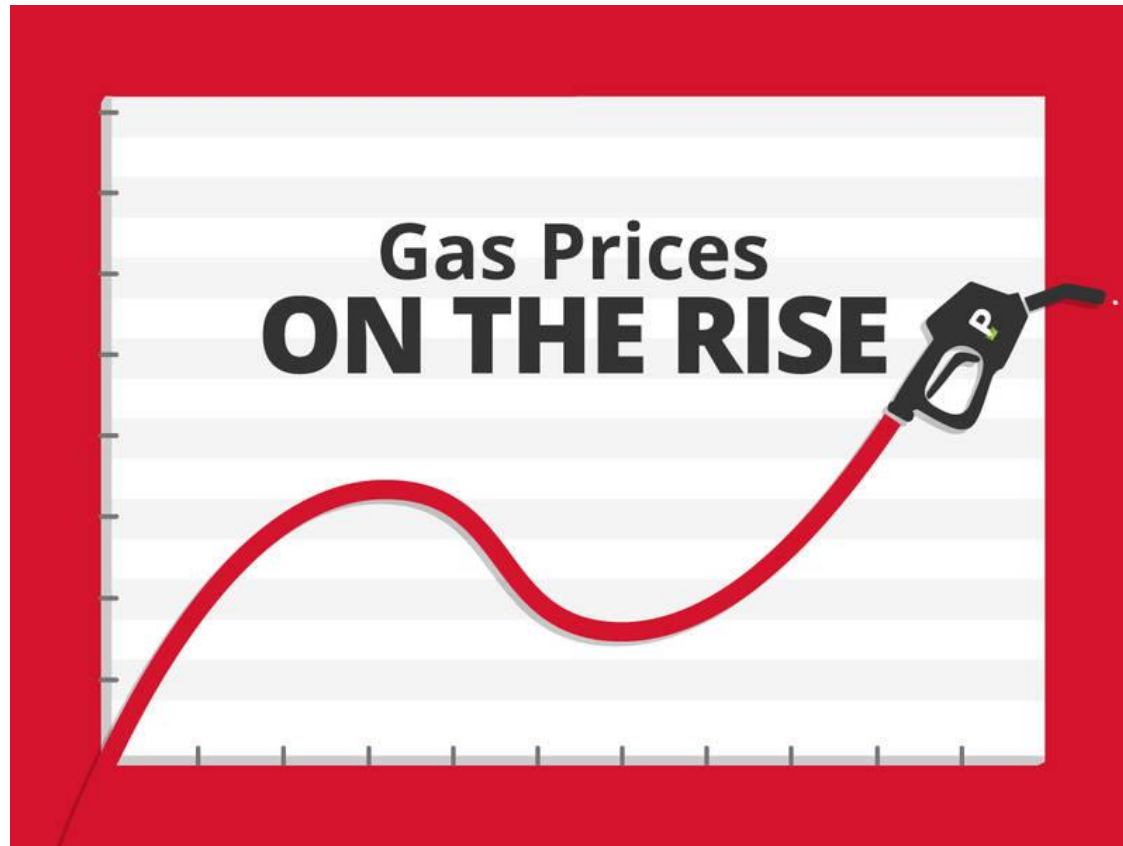
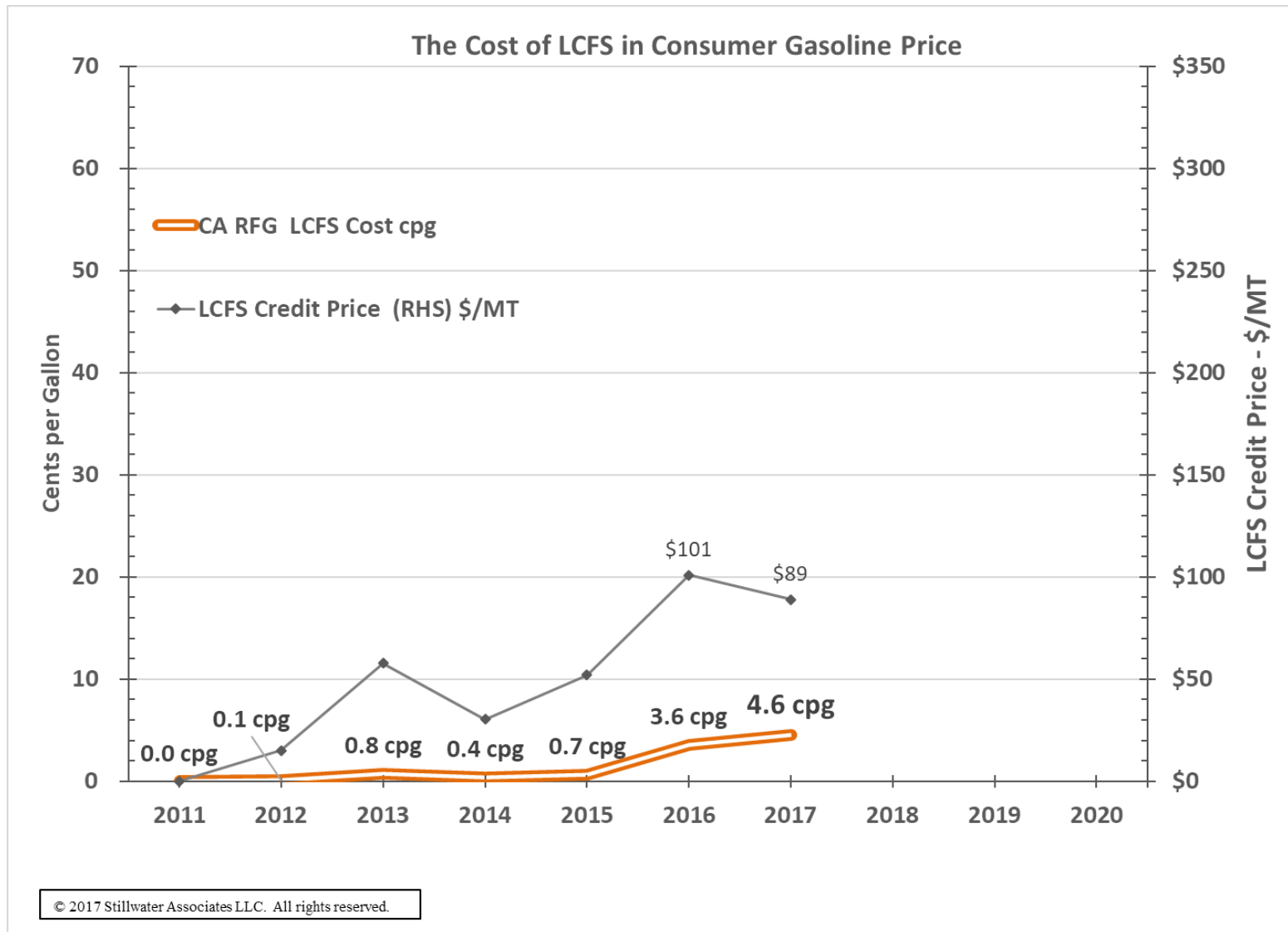


Image: San Clemente Patch

The revenue from LCFS credits flows to low CI fuel producers

The cost of the LCFS to consumers has been nominal so far



What happens over the next three years?



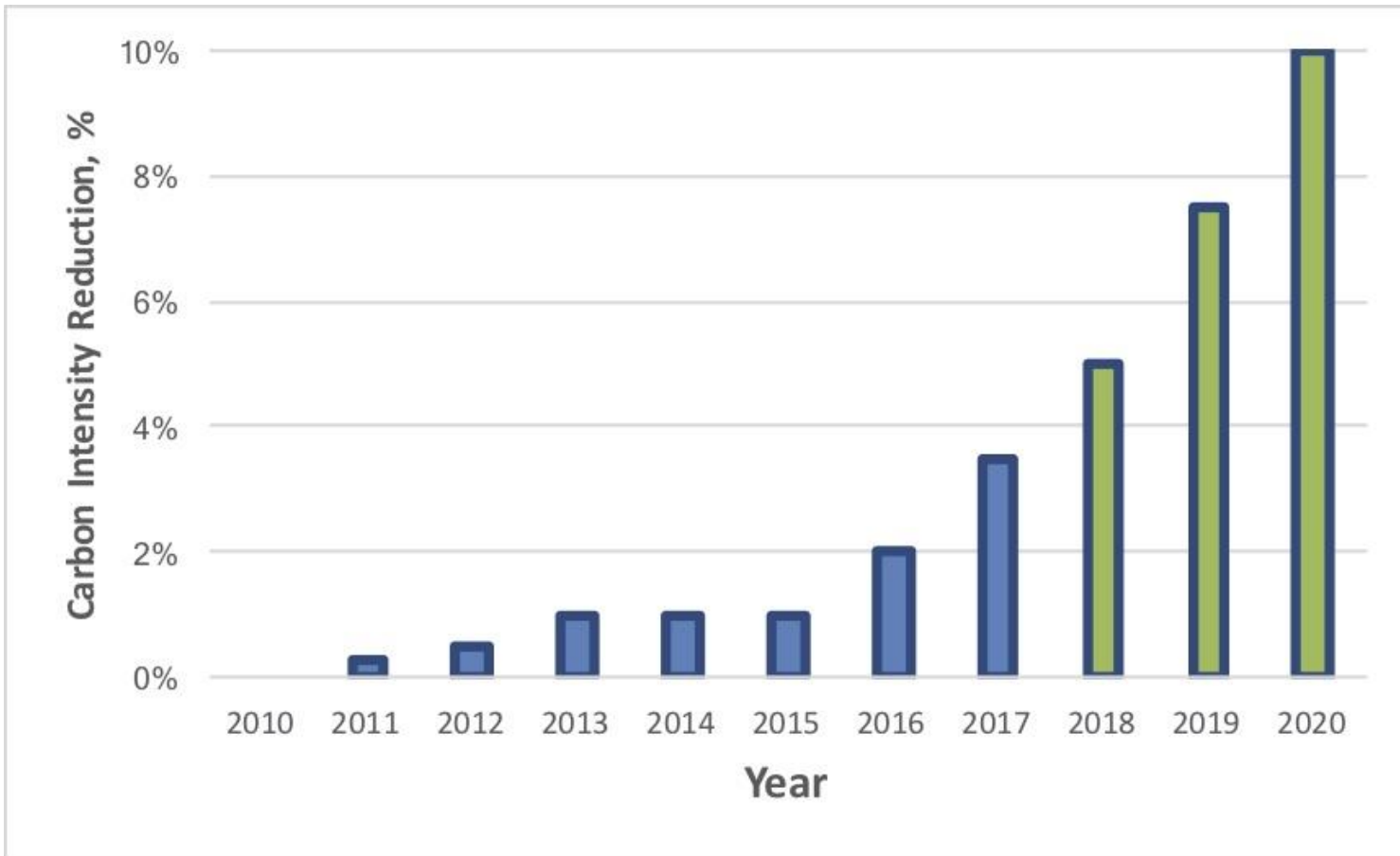
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Demand for credits will increase rapidly

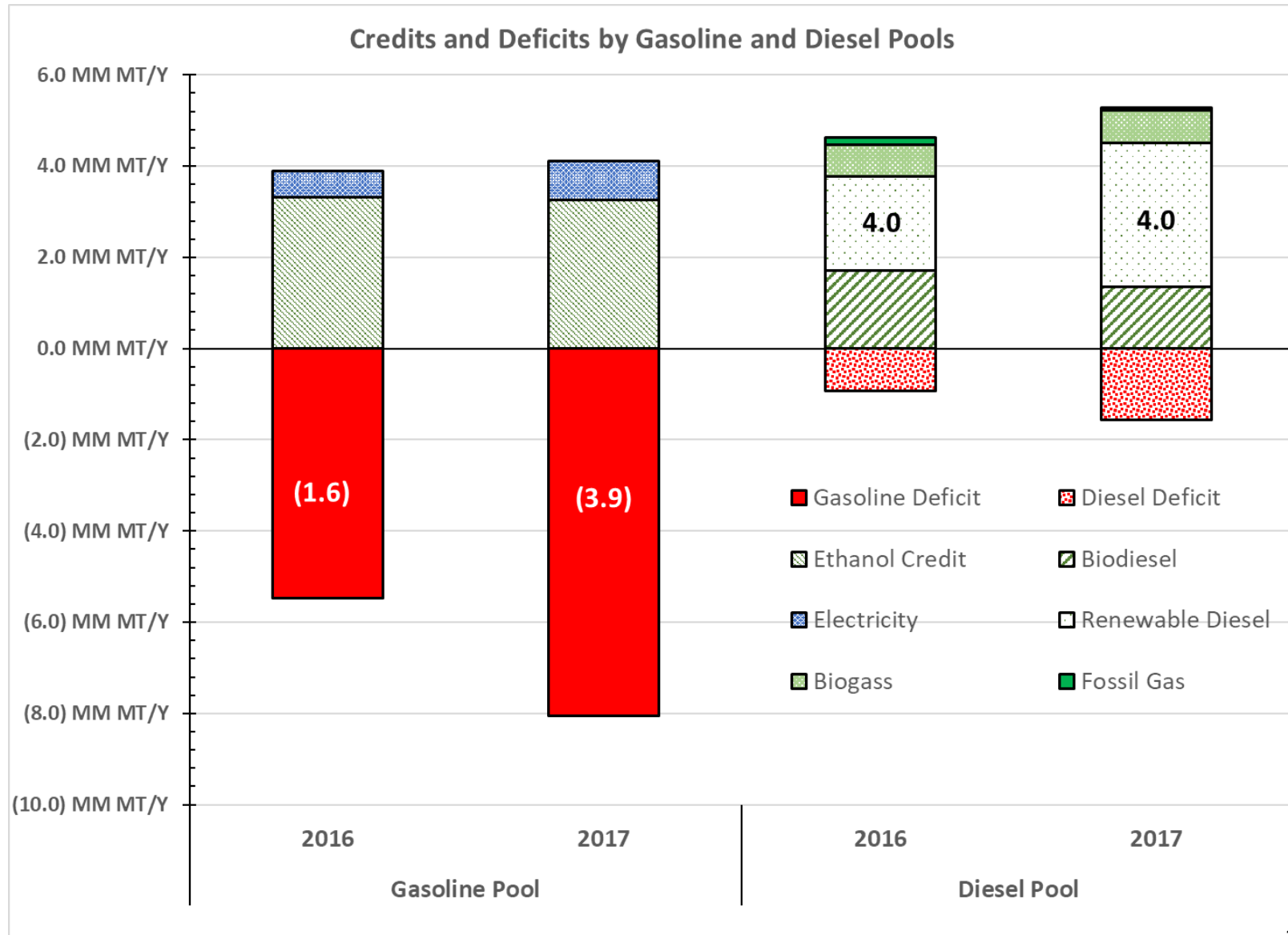


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However, the availability of credits is not evenly distributed across the product slate

Performance of the gasoline and diesel pools are very different



The diesel pool has the largest share of Carbon Intensity (CI) reduction



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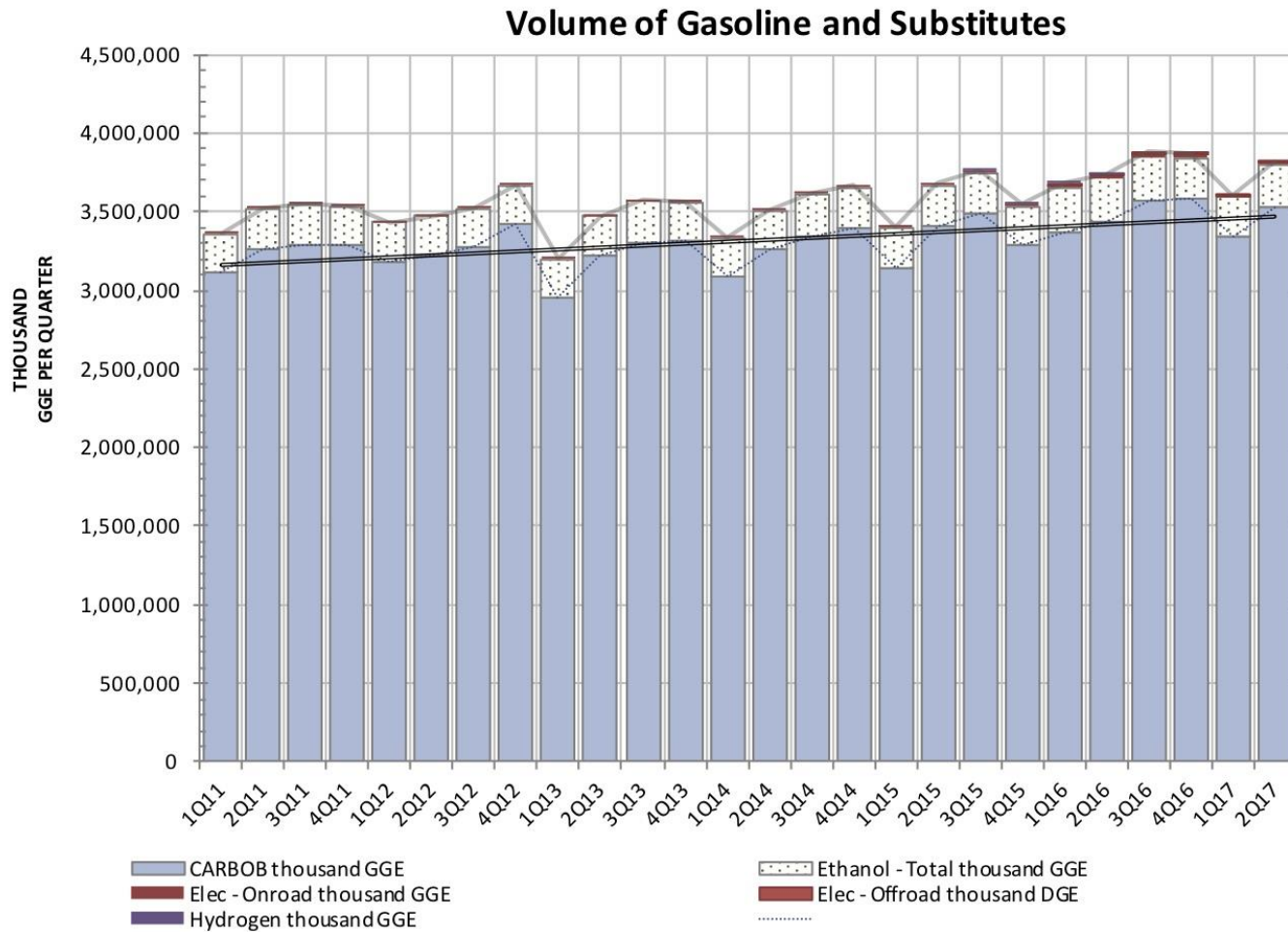
2016 Actual CI Reduction

Gasoline	1.4%
Diesel	10.4%
Total Aggregate	2.8%

Figuring out gasoline CI reduction will be the key

Gasoline demand growth hasn't peaked yet

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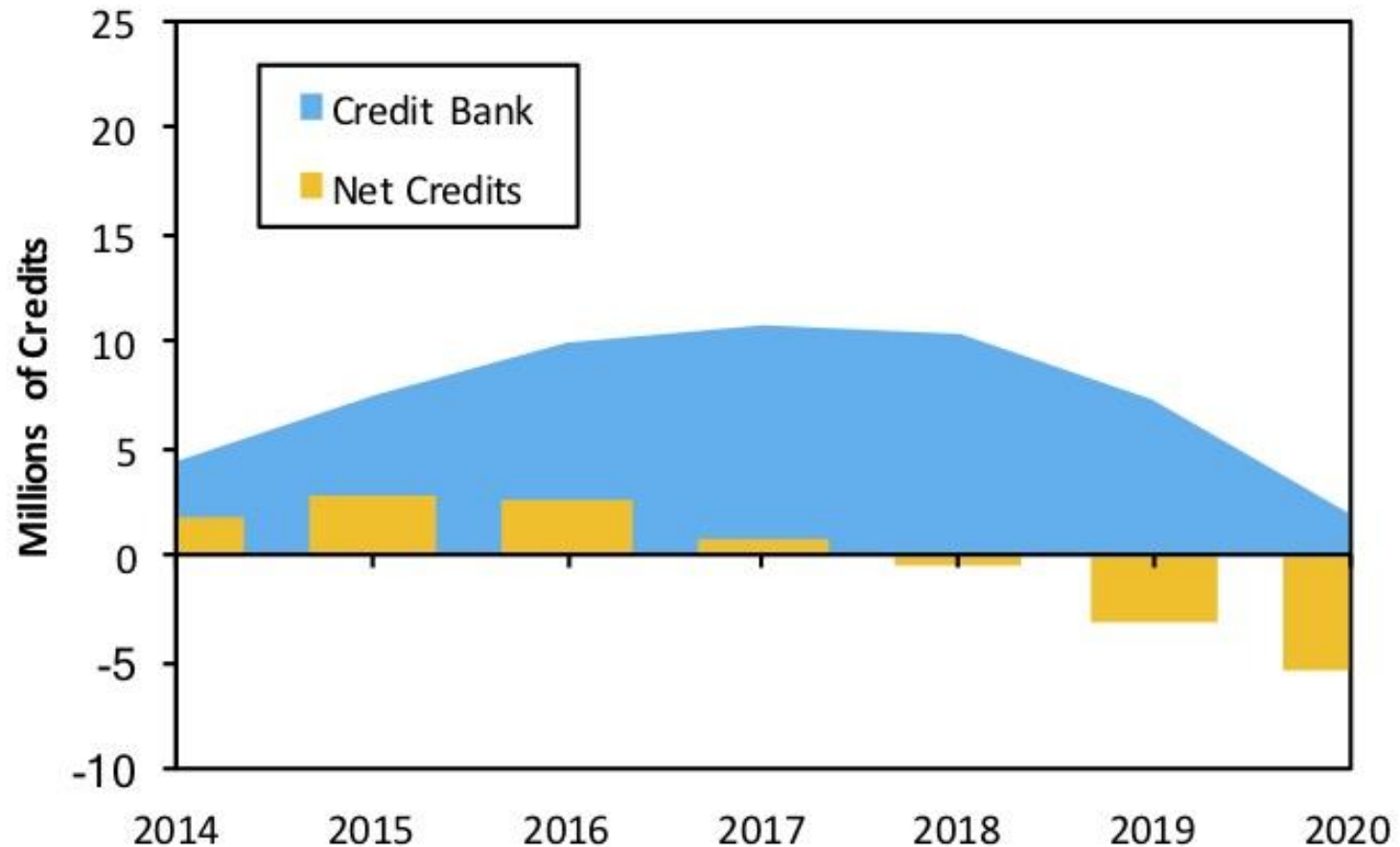


That makes it hard to forecast deficit creation

This illustrates a scenario that CARB has developed



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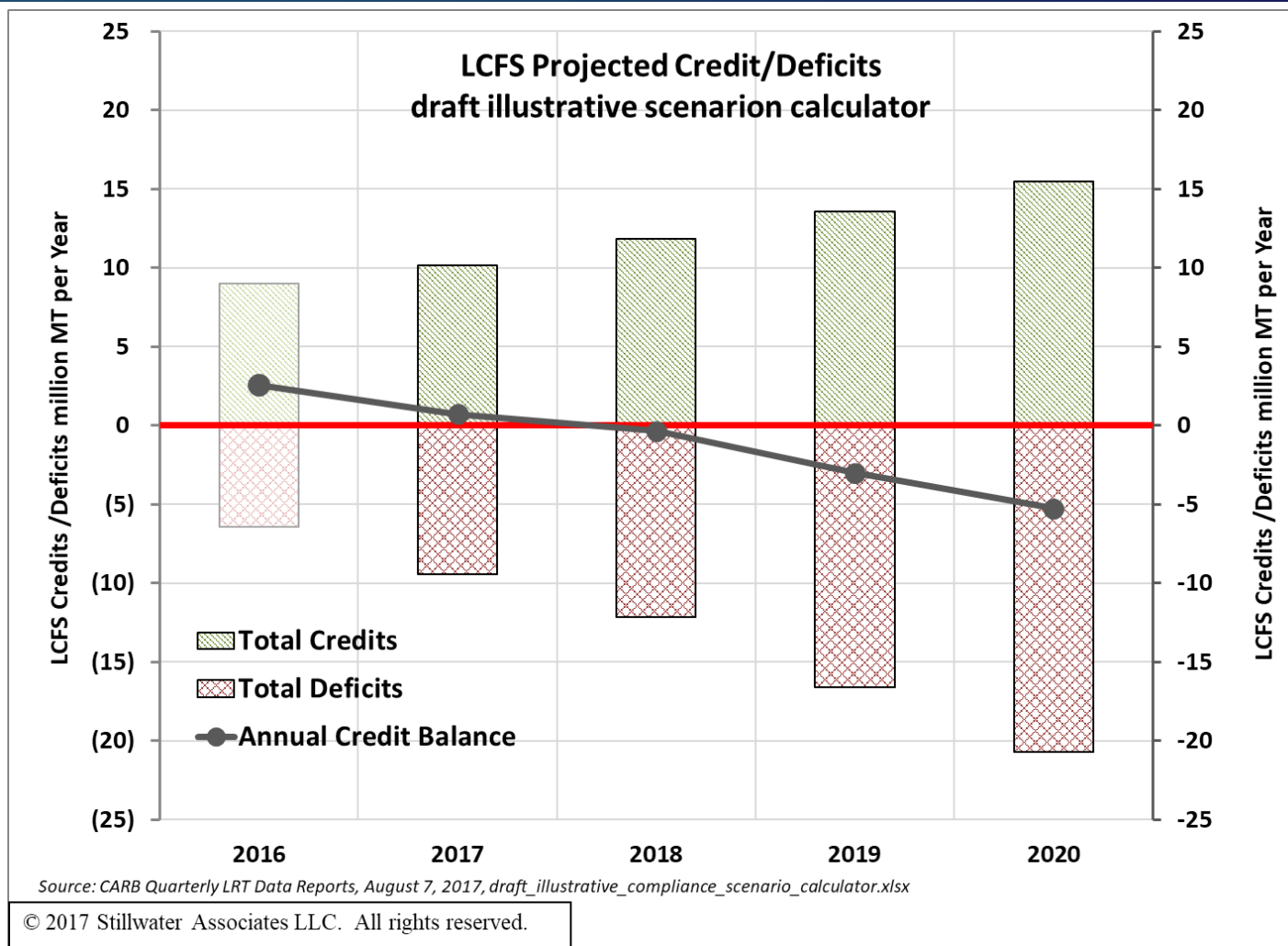


The credit balance remains positive at the end of the period

An earlier outlook for the credit balance goes negative



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The Hidden Tax in Gasoline and Diesel Prices December 7, 2017



A large increase in credit supply over the next 3 years seems unlikely

Production expansion and new pathways are needed to create more credits



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Production capacity and infrastructure must increase for:

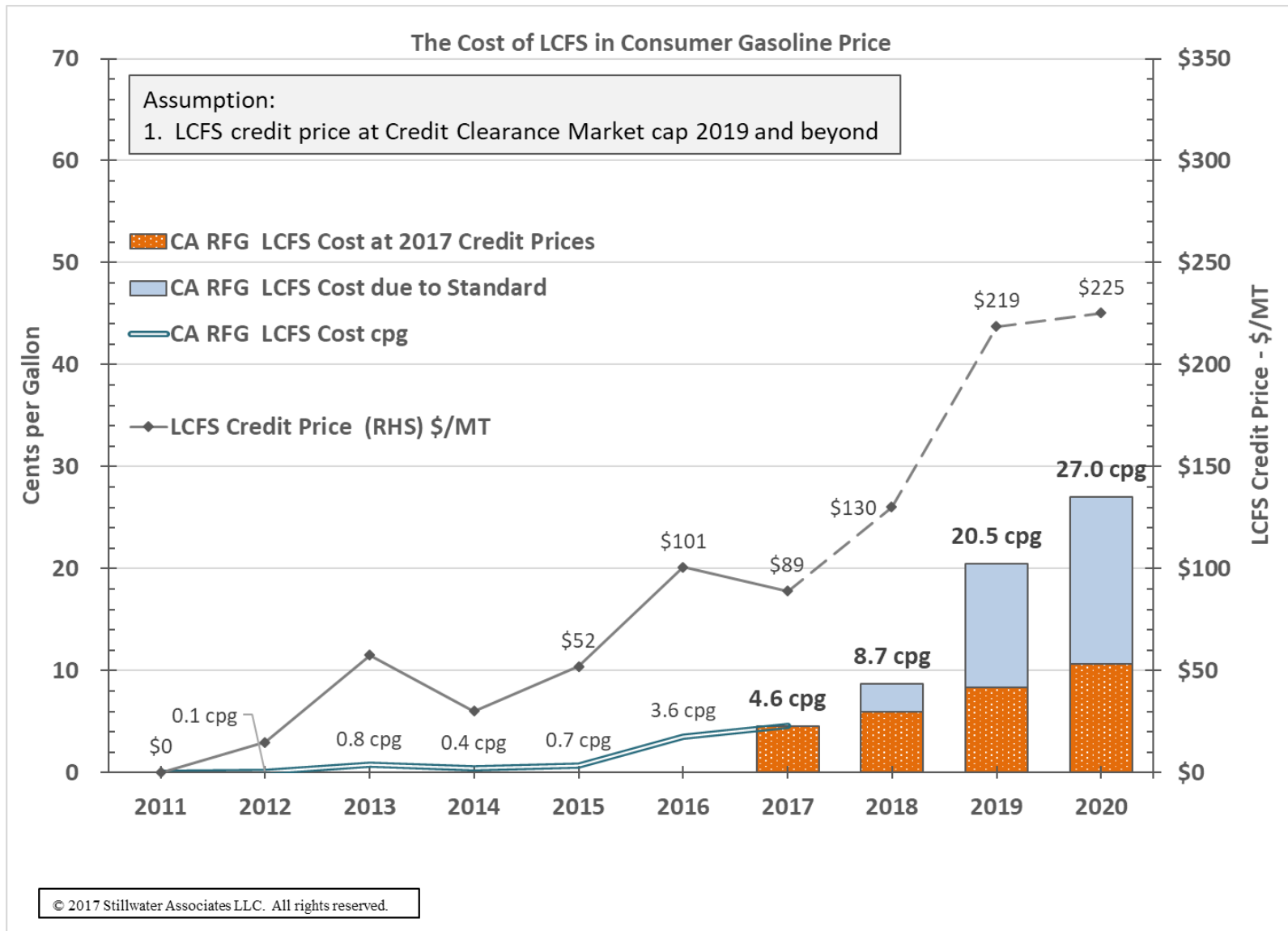
1. Electric Vehicles
2. Renewable Diesel
3. Renewable Gasoline
4. Renewable Jet fuel
5. Renewable Natural Gas
6. Hydrogen and Fuel Cell Vehicles
7. Heavy Duty Electric Vehicles

New credit generating opportunities are needed for:

1. Refinery co-processing
2. Capital investments for refineries to reduce CI through CARB's Refinery Investment Credit Pilot Program



We see consumer costs soon going up considerably



The program needs high prices to be successful



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High crude oil prices will be stymied by shale oil

High credit prices will spur investment and innovation, but that takes time



What happens between 2020 and 2030?



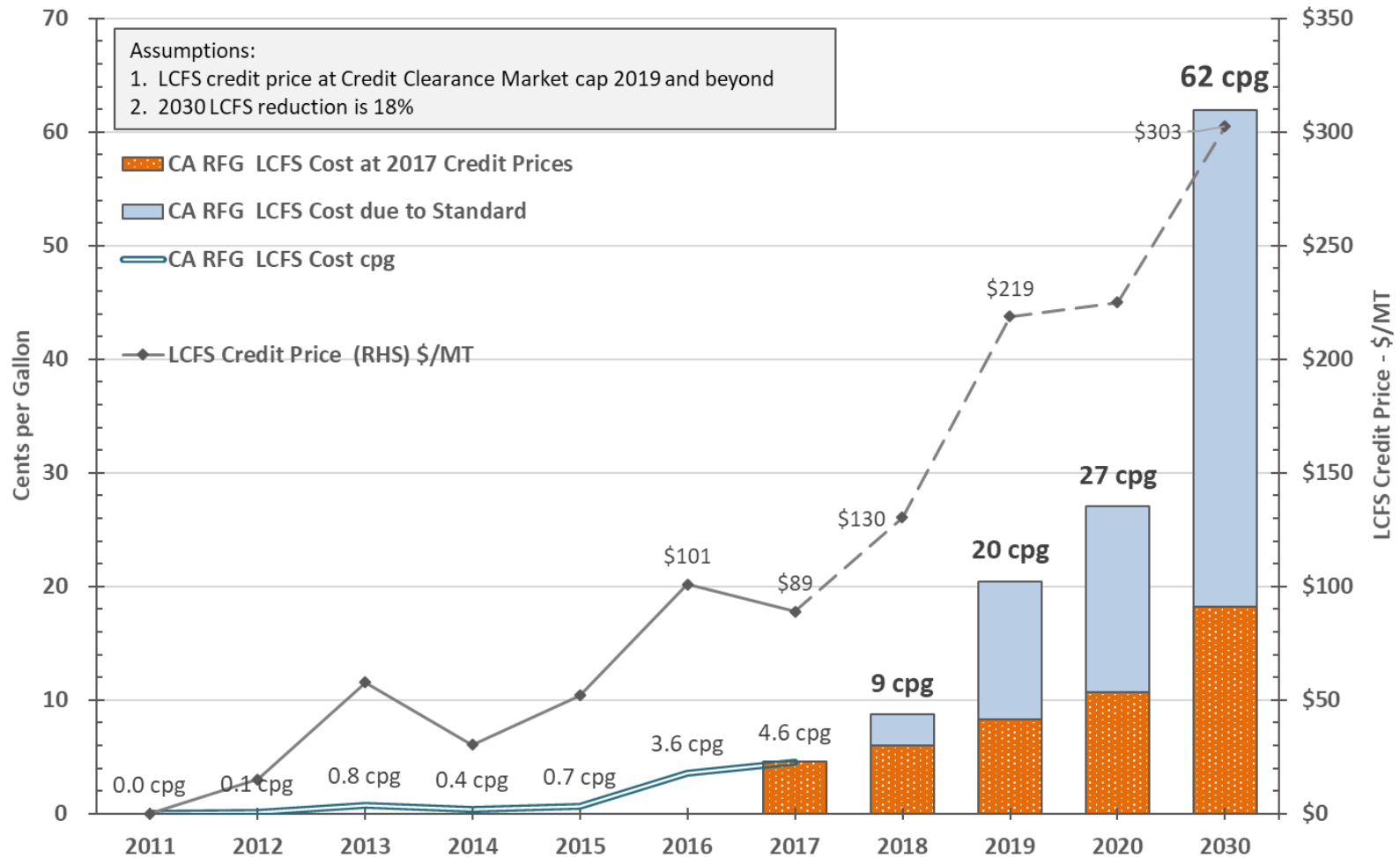
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1. The objective is to get GHG reduction to 18%
2. Credit prices must go up to drive low CI fuel supply increase
 - a. Creating more credits,
 - b. And petroleum demand decrease for fewer deficits



We expect a dramatic rise in credit prices by 2030

The Cost of LCFS in Consumer Gasoline Price



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High LCFS prices are required to get the refiners onboard



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1. Look to gasoline volume for the solution
2. \$500/ton is enough to get the refiners to figure out renewable gasoline
3. Refineries will start co-processing petroleum with renewables
4. Diesel pool can stay in liquids with 50% renewable or biodiesel



Alternatives will have to be competitive



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Electric Vehicles (EVs)



Source: Chicago Tribune

Heavy Duty Electric Vehicles (HDEVs)



Source: Electric Vehicle News

Hydrogen Fuel Cell Vehicles (HCVs)



Source: Gas2.org



Some suggestions for generating credit balance



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1. Treat any qualified biofuels like renewable natural gas to generate credits
2. Value the crude oil stream into the refineries based on CI
3. Manage the CI reduction to a price level like the EPA does with RINs
4. Figure out how to validate co-processing in the refinery





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...experience runs deep