



# Gulf Coast Emissions and California Carbon

October 2023

---

Mike Taylor, Director of Emissions Trading



**AIR & WASTE MANAGEMENT**  
ASSOCIATION  
GULF COAST CHAPTER



# Baton Rouge Emission Reduction Credits

---

# EMISSION REDUCTION CREDITS (ERCs)

*New Projects or expansions in EPA-classified Nonattainment or State Maintenance areas above a certain threshold generally require ERCs in order to receive an air permit.*

- 7 One-time purchase unless the facility expands operations
- 7 Perpetual authorization to emit
- 7 Created when a facility reduces its emissions permanently
- 7 Louisiana ERCs have a 10-year expiration date from shutdown
- 7 In Louisiana, ERCs must be attached to an APPROVED permit **prior** to expiration date of the ERCs.
- 7 Each ERC market has its own regulations, market dynamics, and pricing

# Baton Rouge Attainment Area



# BATON ROUGE AREA REQUIREMENT TO OFFSET

*For NOx and VOC emissions in Baton Rouge Nonattainment Area:*

	Facility Type	Potential to Emit (PTE)	Offset Ratio	Required to Offset
STATE	New facility	>= 50 tons	1 to 1	Only Emissions above 50 tons
STATE	Major modification	>= 40 tons	1 to 1	All, Down to Zero
<del>FEDERAL</del>	<del>New facility</del>	<del>&gt;=100 tons</del>	<del>1.1 to 1</del>	<del>All, Down to Zero</del>
<del>FEDERAL</del>	<del>Major modification</del>	<del>&gt;=40 tons</del>	<del>1.1 to 1</del>	<del>All Down to Zero</del>

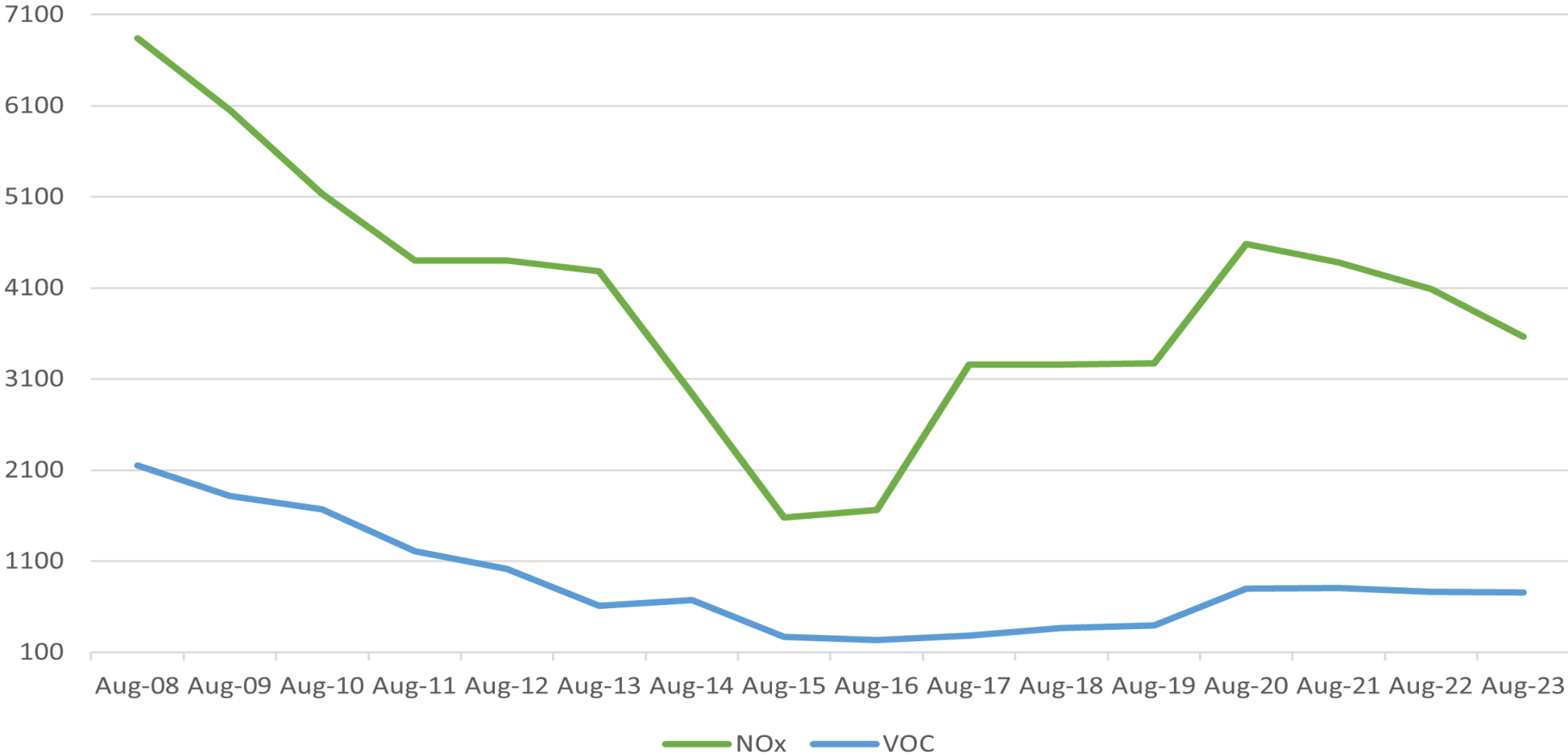
# LOUISIANA ERC SUPPLY 2008-2023

Date	NOx ERC Supply		VOC ERC Supply	
	NOx	Reduction Since 2008	VOC	Reduction Since 2008
Aug-08	6839	-	2149	-
Aug-09	6049	12%	1818	15%
Aug-10	5135	25%	1666	23%
Aug-11	4403	36%	1208	44%
Aug-12	4403	36%	1011	53%
Aug-13	4281	37%	610	72%
Aug-14	2939	57%	675	69%
Aug-15	1581	77%	272	87%
Aug-16	1660	76%	236	89%
Aug-17	3255	52%	285	86%
Aug-18	3257	52%	365	83%
Aug-19	3273	52%	395	82%
Aug-20	4583	33%	796	63%
Aug-21	4379	36%	804	63%
Aug-22	4086	40%	763	65%
Aug-23	3563	48%	753	65%

## Notes:

- 1.) Includes ERCs that have not all been verified by LDEQ
- 2.) Includes ERCs that are being held for projects

# LOUISIANA ERC SUPPLY 2008-2023

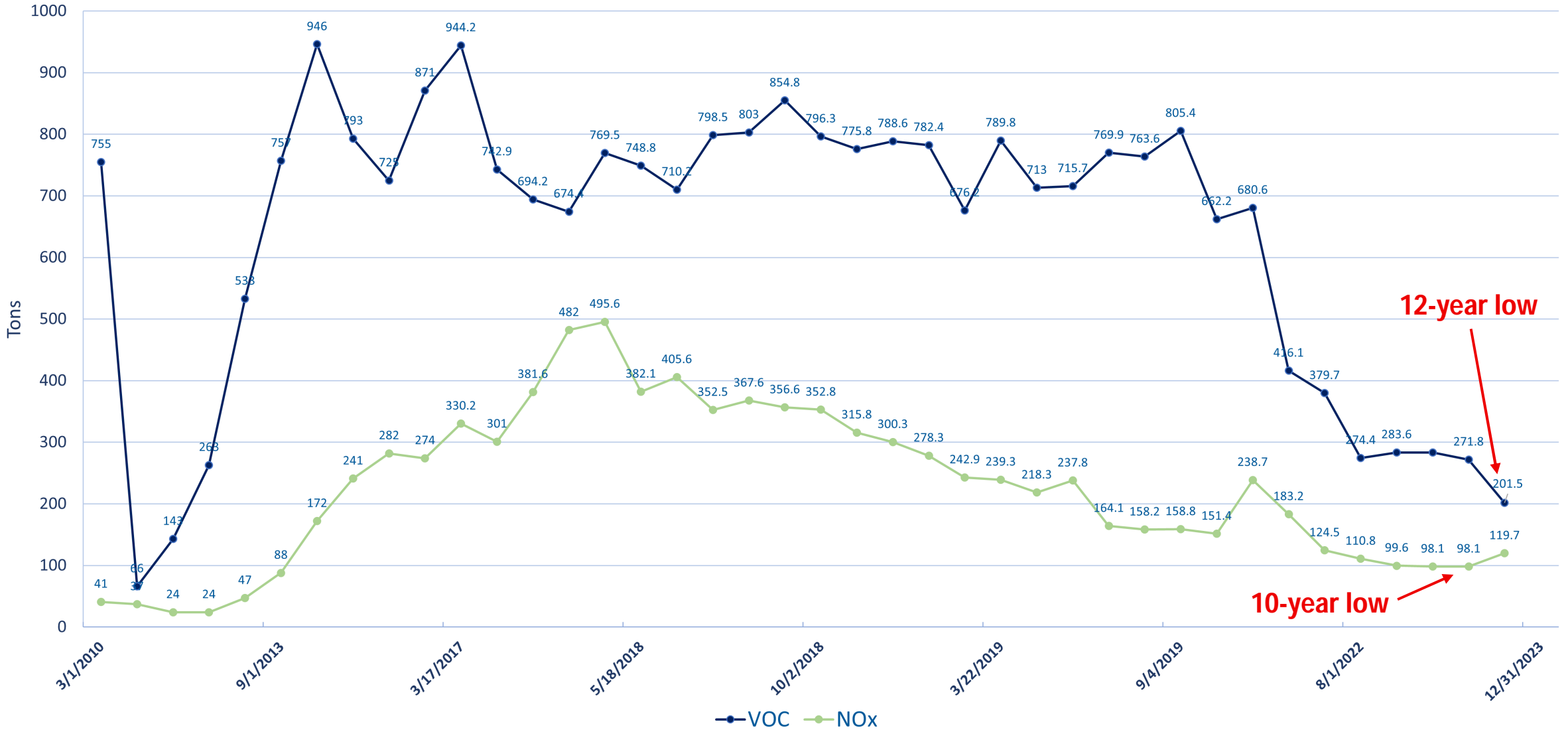


Houston-Galveston-  
Brazoria (HGB)  
Nonattainment Area

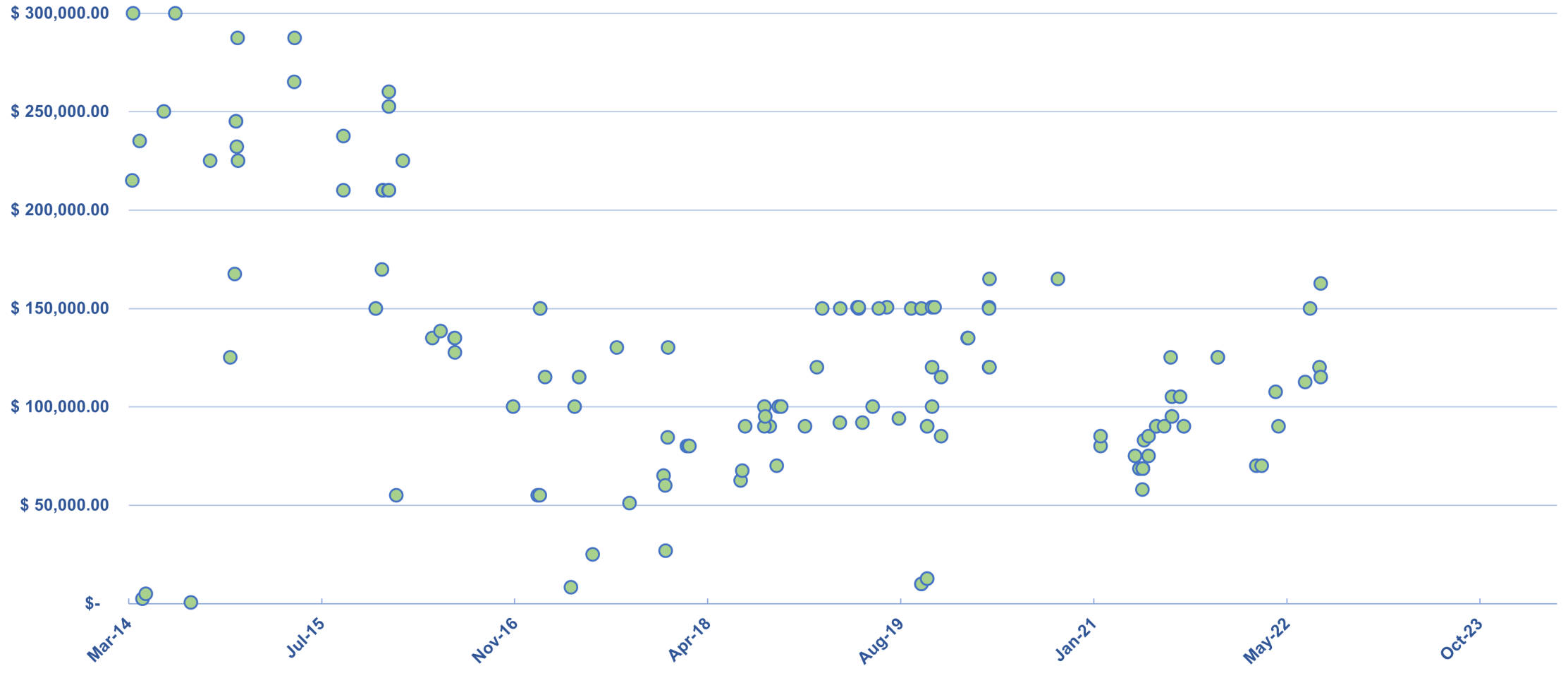




# HGB NOX & VOC ERC Registry



### HGB VOC ERC Pricing - 2014 to Present



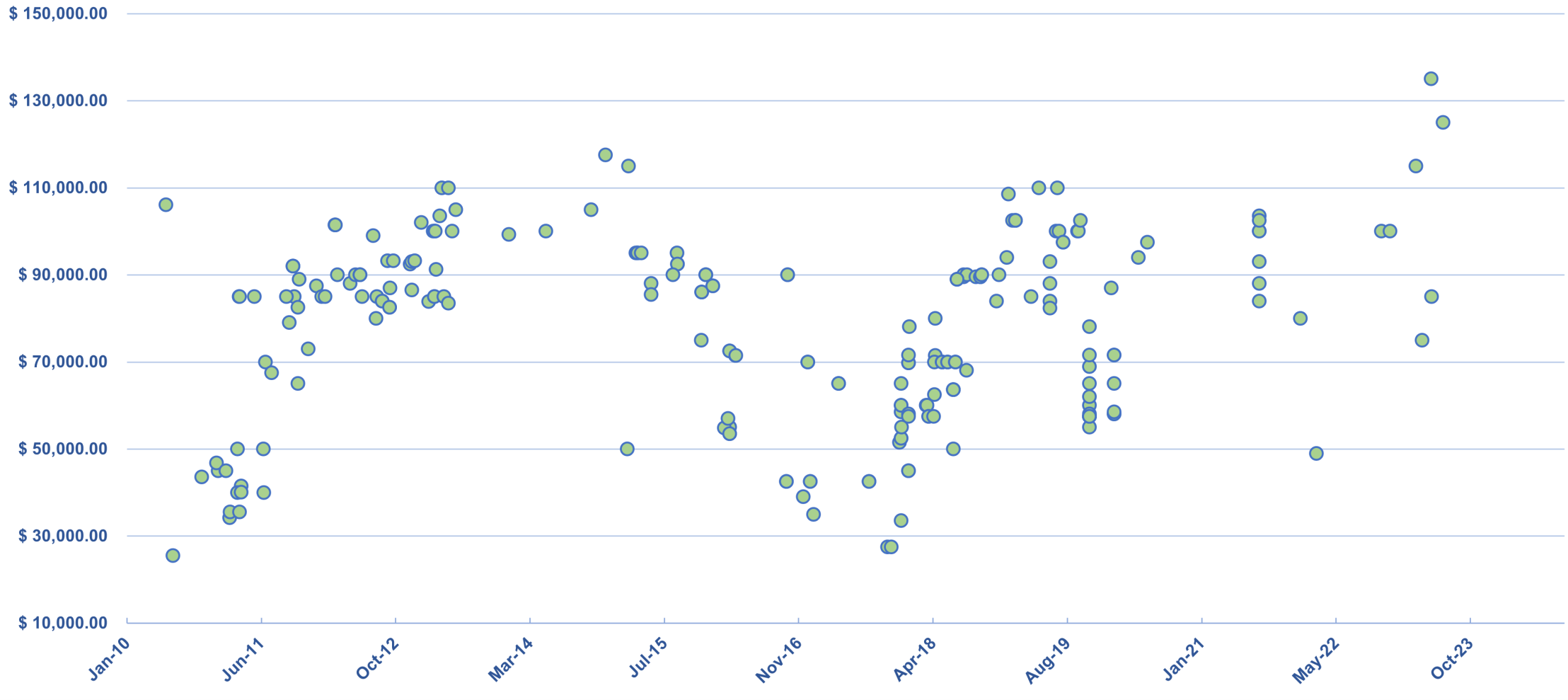
## HGB Mass Emissions Cap and Trade (MECT) NOx Program

- Program started in 2002
- HGB Nonattainment Area – 8 counties
- Any facility that has collective uncontrolled design capacity to emit 10 tons or more of NOx is in program
  
- ~80% Reduction in NOx Allowances from 1997-1999 Baseline Emissions
- Free allocations are handed out at start of the program
- New facilities do not receive allocations, but must procure allowances in market
  
- Annual Compliance: March 1<sup>st</sup>
- Last day for trading: January 30<sup>th</sup>
  
- Trading Instruments
  - Vintage (Last calendar year)
  - Current (This calendar year)
  - Stream/Perp (Current year and all years beyond)

## Recent HGB MECT Demand and Supply

Year	Supply	Demand	Excess	% of the Supply
2014	39,958	29,964	9,994	25.01%
2015	39,955	30,490	9,465	23.69%
2016	39,976	29,736	10,240	25.62%
2017	39,979	30,362	9,617	24.06%
2018	39,516	30,774	8,742	22.12%
2019	39,407	31,320	8,087	20.52%
2020	39,081	29,659	9,422	24.11%
2021	39,066	31,499	7,567	19.37%
2022	39,055	31,583	7,472	19.13%

### HGB MECT NOx Perp Pricing - 2010 to Present

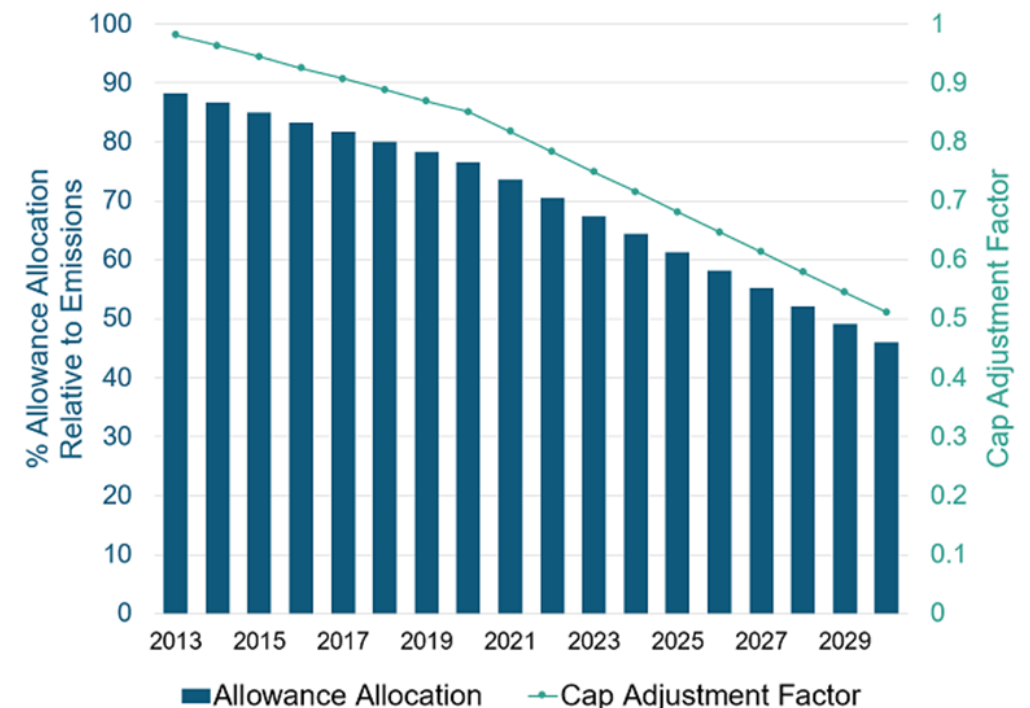


# California Carbon Cap-and-Trade



## CA Carbon Cap-and-Trade: Overview

- Regulated by California Air Resources Board (ARB)
- Applies to any entity located in California or Quebec emitting 25,000 tons of CO<sub>2</sub>e or more per year as well as fuel suppliers
- Many sectors, including the oil and gas sectors, get a free allocation every year
- The number of free allocations drops each year by design
  - Started at 98.1% of industry benchmark in 2013
  - Currently at 75.1% in 2023
  - Drops to 49.4% in 2031



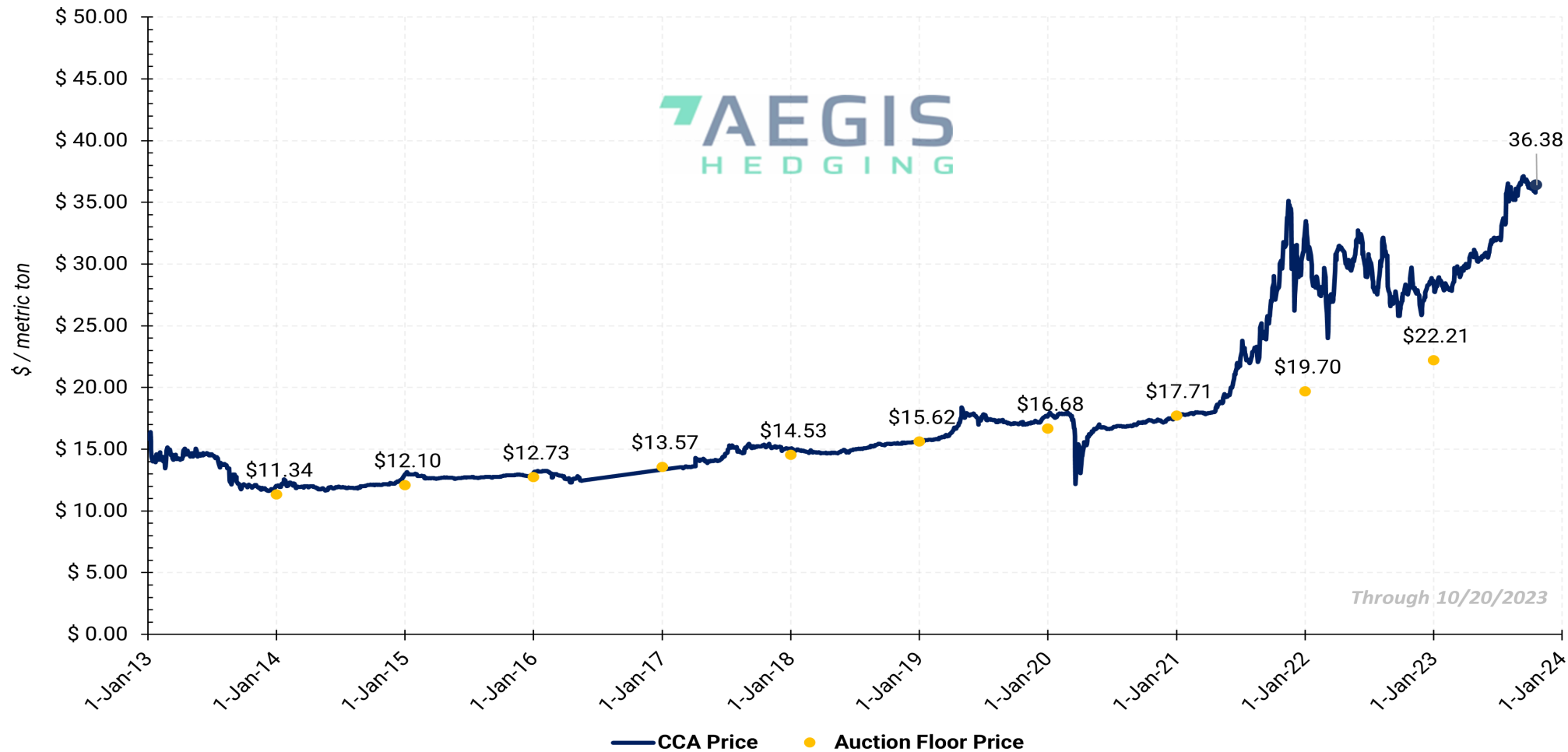
## CA Carbon Cap-and-Trade: Overview

- Current auction floor price for 2023 is \$22.21
  - Auction floor price started at \$10.00 in 2012
  - Increases by 5% + the positive rate of inflation measured by the Consumer Price Index (CPI) every year
- California Cap-and-Trade program is linked to Quebec's Cap-and-Trade program
  - Joint auctions hosted every quarter
  - 329 covered entities, 479 general (offsets and trading) accounts in the CITSS Program
- The bank of surplus allowances and offsets totaled ~320 million at end of 2022
- Emissions totaled ~348 million in 2021 (the last reported year)



# CA Carbon Cap-and-Trade: Overview

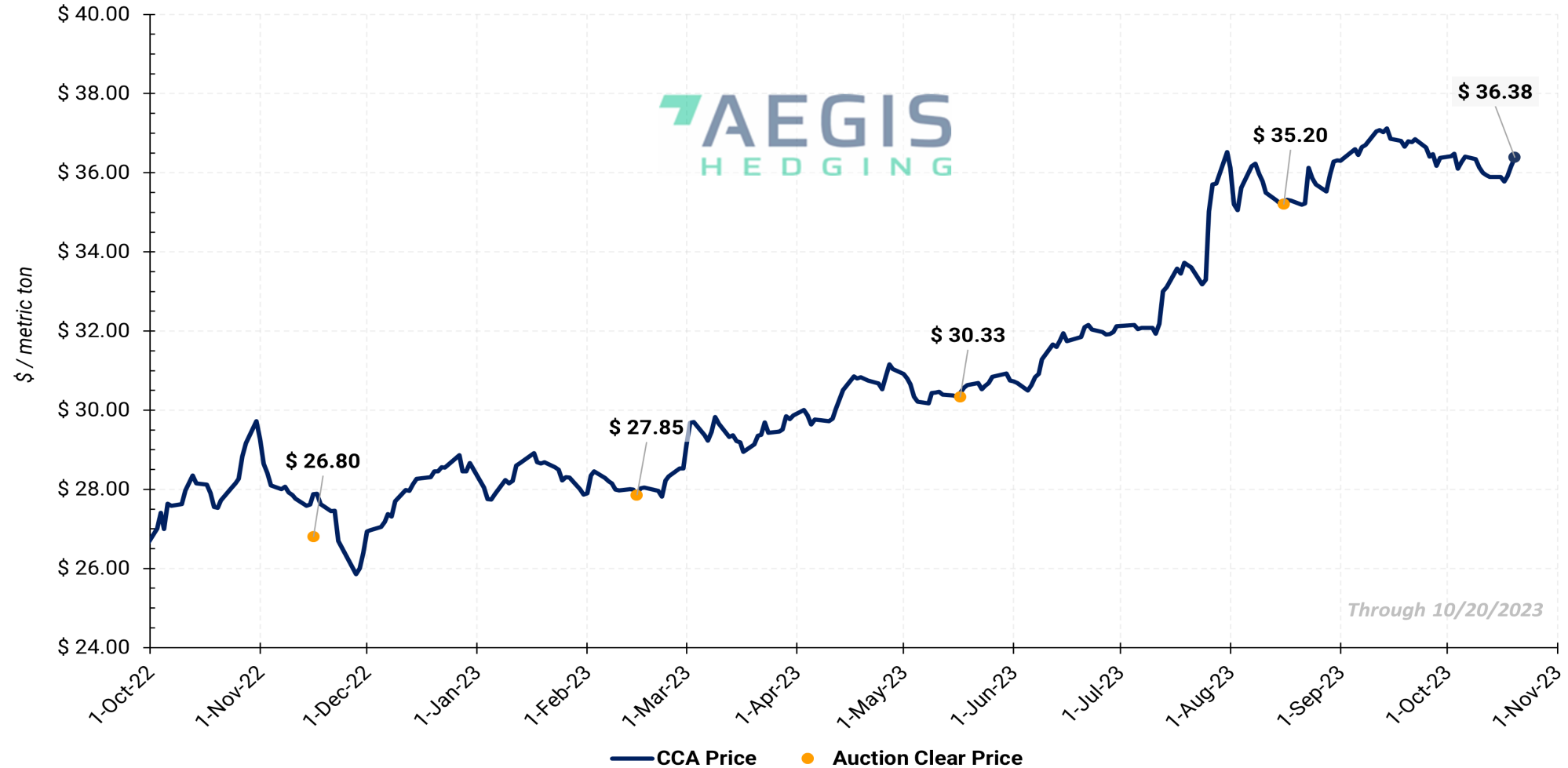
California Carbon Allowance (CCA) Prices  
January 2013 to Present



Through 10/20/2023

# CA Carbon Cap-and-Trade: Overview

California Carbon Allowance (CCA) Prices  
October 2022 to Present



## CA Carbon Cap-and-Trade: Market Factors

- Latest auction clear price: \$35.20 (Q3 '23)
- Auction clear price in Q3 '22: \$27.00
- Speculative interest growing and new accounts expanding
- General trading accounts grew from 444 in Q1 '22 to 479 in Q1 '23 (7.9%)
- ARB discussing increasing targets and addressing oversupply issues
- New proposed targets, allowance budget cuts
- Potential linkage with Washington's cap-and-trade program

# California Low Carbon Fuel Standard (LCFS)



## CA Low Carbon Fuel Standard (LCFS): Overview

- The Low Carbon Fuel Standard (LCFS) sets annual carbon intensity (CI) standards which reduce over time for gasoline, diesel, and the fuels that replace them.

### Carbon Intensity Benchmarks for Gasoline and Diesel Fuel and their Substitutes

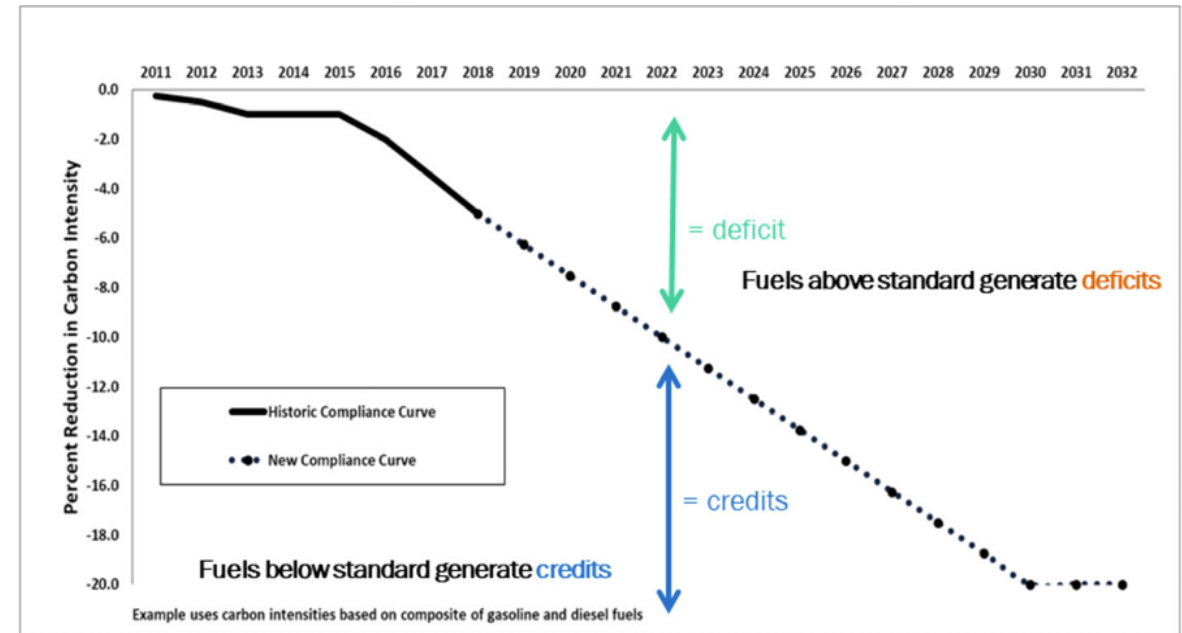
Year	Gasoline Average CI (gCO <sub>2</sub> e/MJ)	Diesel Average CI (gCO <sub>2</sub> e/MJ)
2019	93.23	94.17
2020	91.98	92.92
2021	90.74	91.66
2022	89.50	90.41
2023	88.25	89.15
2024	87.01	87.89
2025	85.77	86.64
2026	84.52	85.38
2027	83.28	84.13
2028	82.04	82.87
2029	80.80	81.62
2030 onwards	79.55	80.36

- The LCFS lets the market determine which mix of fuels will be used to reach the program targets.
- Goal: Reduce the transportation fuel pool's CI by at least 20% by 2030.
- CI is expressed in grams of carbon dioxide equivalent per megajoule of energy provided by the fuel.
- CI accounts for the GHG emissions associated with all the steps of producing, transporting, and consuming a fuel, known as a complete life cycle.

## CA LCFS: Overview

- California Air Resources Board (CARB) sets the CI levels for transportation fuels that importers and exporters of the fuels are required to meet.
- Fuels in the transportation pool with CI levels lower than the target generate *credits*.
- Fuels in the transportation pool with CI levels higher than the target generate *deficits*.
- A fuel importer or exporter must have enough credits to offset their deficits to meet the annual compliance standard for the program.

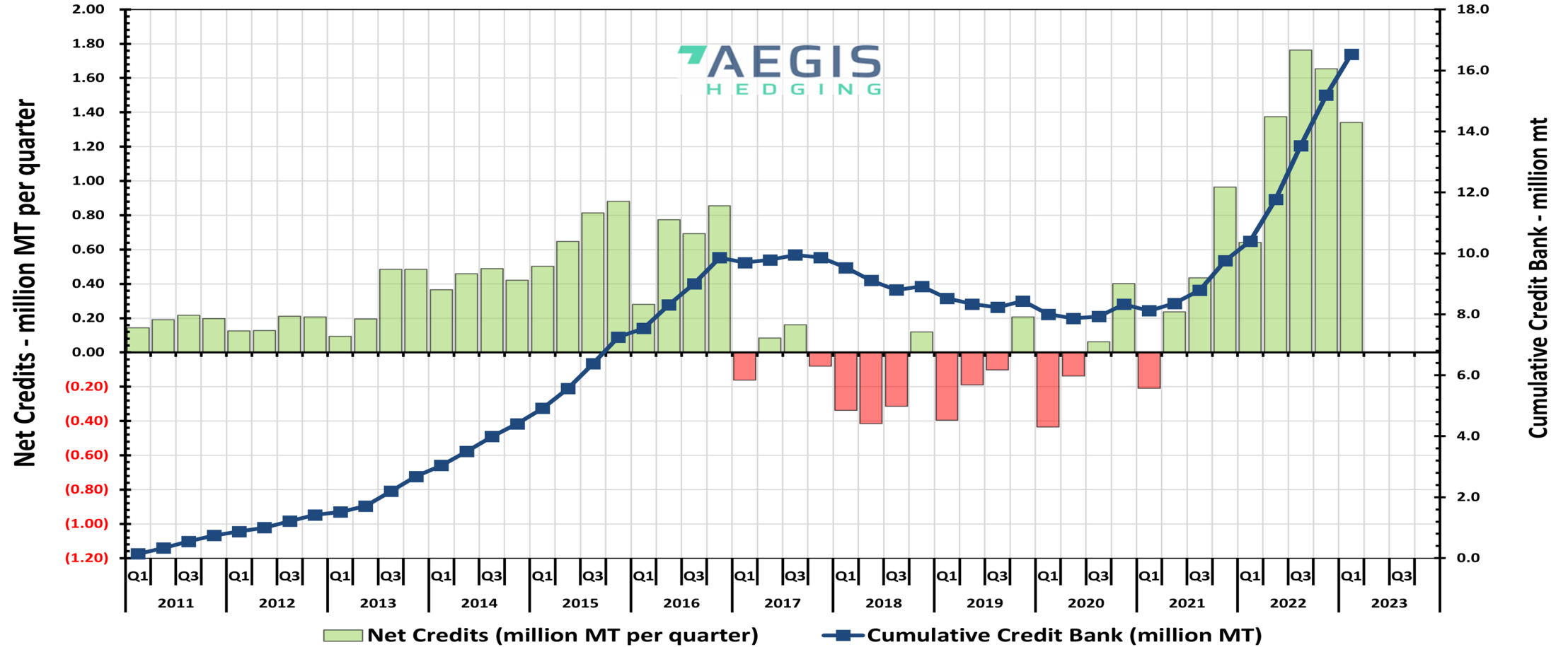
## Declining Carbon Intensity Curve



Program continues with a 20% CI target post 2030

# CA LCFS: Overview

## Net LCFS Credits & Cumulative Bank Quarterly



Source: California Air Resources Board (CARB)

## CA LCFS: Overview

- Credits can be supplied by generation from cleaner fuels, or by secondary acquisition
- There has been a significant increase in Renewable Natural Gas and Renewable Diesel Projects all across the country which has been historically profitable given the California Low Carbon Fuel Standard Credits as well EPA Renewable Fuel Standards Program (RINs)
- This fuel must be used in transportation sector in California to generate a LCFS credits so companies reach agreements with owners of fleet of Natural Gas Vehicles
- FEDEX Case Study
- Fleet of Natural Gas Vehicles in California.

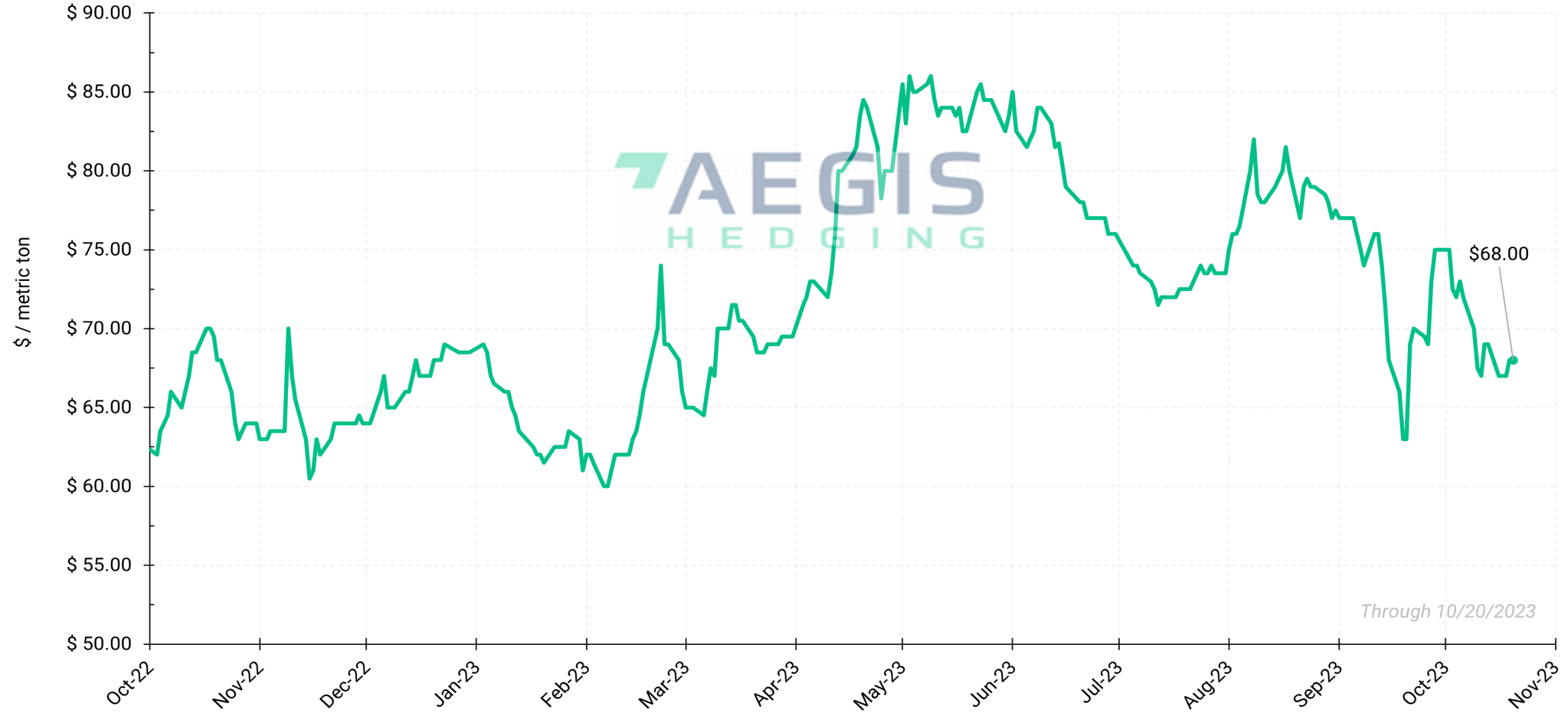


## Case Study FEDEX California

- FEDEX operates a large fleet renewable natural gas vehicles in California
- RNG developers for example from a dairy farm needs to find offtaker in California to accept RNG so they can earn CA LCFS credit
- Given the supply of RNG and the large value of LCFS and RINs, the developer or developer's intermediary has to give FEDEX RNG for FREE and PAY THEM A % LCFS credits
- Recently this percentage has ranged from 5% to 20% of the value to be paid operators of large fleets of renewable natural gas vehicles

# CA LCFS: Overview

California LCFS Daily Prices  
October 2022 to Present



## CA LCFS: Market Factors

- 2023 price cap is \$253.53/t
- Prices traded \$86 in May 2023, down from \$122 in May 2022 (30% Drop)
- Current pricing \$68 (Oct. 2023)
  
- LCFS credit bank increased **41%** over the past year
  - Increased from **11.8 million in Q2 '22** to **16.5 million in Q1 '23** (~1.5 million per quarter)
  
- CARB proposing program changes for 2024 to address surplus and pricing
  - Discussing new 30% CI reduction target vs. current 20% target
  - Considering auto-acceleration mechanism to adjust CI targets, increasing program stringency
  - Avoided methane crediting (dairy, landfill, swine projects) phase-out



MIKE TAYLOR

[mtaylor@aegis-hedging.com](mailto:mtaylor@aegis-hedging.com)



713-385-3321



1235 North Loop West, Suite 920

Houston, TX 77008

