

Update on HRVOC, NO<sub>x</sub>, and VOC ERCs  
and Allowances in Houston-Galveston-  
Brazoria and effects on the 2008 NAAQS  
Pending Re-Designation and 2015 NAAQS  
Standard

Mike Taylor

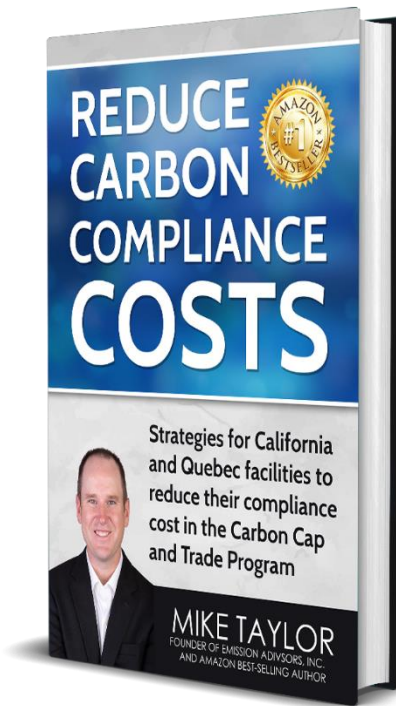
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PRIVATE AND CONFIDENTIAL

# Mike Taylor Bio



- *Founder and President of Emission Advisors, Inc.*
- *Eighteen years of experience in environmental trading, brokerage and consulting in emission reduction credit programs*
- *Transacted over a billion dollars of environmental credits*
- *Previously Emissions Trader with Louis Dreyfus Energy Services*
- *Managed Compliance for NRG's 20,000 MW Power Fleet*
- *Board Member of Gulf Coast Chapter of the Air & Waste Management Association and Environmental Market Associations*
- *Amazon Best Selling Author with the book "Reduce Carbon Compliance Costs: Strategies for California and Quebec facilities"*
- *Graduated Summa Cum Laude with Degree in Finance from LSU*

# Estimated 2017-2018 Design Values for Texas

Area	2017 Design Value	2018 Design Value
Houston-Galveston-Brazoria	81	78
Dallas-Fort Worth	79	76
San Antonio*	74	72
El Paso-Juarez**	72	73
Waco	69	68
Austin	69	68
Beaumont-Port Arthur	68	68
Corpus Christi-Victoria	66	64
Tyler-Longview-Marshall	65	65
Lower Rio Grande Valley	57	57
Laredo	53	53

\* Deemed nonattainment Sept 24<sup>th</sup>, 2018

\*\* Exception Event approved by EPA and TCEQ – deemed attainment April 30<sup>th</sup>, 2018 <sup>3</sup>

# HGB REQUIREMENT TO OFFSET

*For NOx and VOC Emission Reduction Credits in Houston-Galveston-Brazoria (HGB):*

Facility Type	Potential to Emit (PTE)	Offset Ratio	Status
New facility	≥ 25 tons	1.3 to 1	Previous – 1997-2016
Major modification	≥ 25 tons	1.3 to 1	Previous – 1997-2016
New facility	≥ 100 tons	1.15 to 1	Current - 2017 redesignation to Moderate
Major modification	≥ 40 tons	1.15 to 1	Current - 2017 redesignation to Moderate
New facility	≥ 50 tons	1.2 to 1	By January 20 <sup>th</sup> , 2019 redesignation to Serious
Major modification	≥ 25 tons	1.2 to 1	By January 20 <sup>th</sup> , 2019 redesignation to Serious

HGB and DFW has until July 20<sup>th</sup>, 2021 to comply with Serious

# EMISSION REDUCTION CREDITS (ERCs)

- **ERCs**

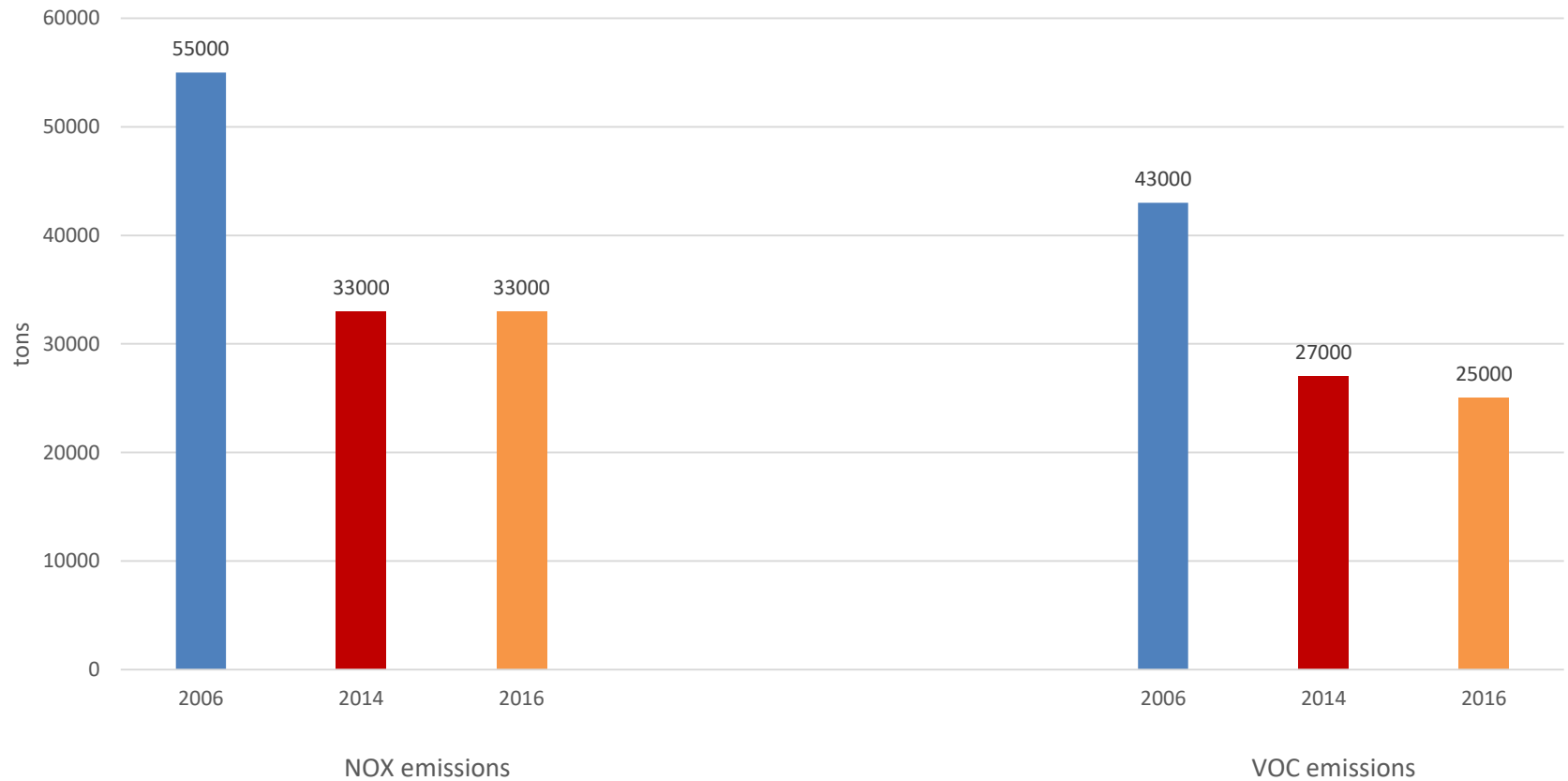
- ERCs are created upon shutdown, process change, or installed control technology
- One-time purchase/offset potential to emit
- Perpetual right to operate under air permit
- Expires after 5 years of reduction date if not applied to permit

# SIP CHANGE AFFECT ON HGB ERC PROGRAM – Jan 18<sup>th</sup>, 2019

SIP emissions year for credit generation projects will change as follows on January 18<sup>th</sup>, 2019:

HGB Emission Sources	Current SIP Emissions Year	New SIP Emissions Year
Electric generating units with emissions recorded in the Environmental Protection Agency's Air Markets Program Data for the SIP emissions year	2015	2018
All Other Point Sources	2014	2016
Area and Mobile Sources	2014	2017

# SIP Year HGB Stationary Source Emissions



# SIP CHANGE AFFECT HGB ERC PROGRAM

- Last time SIP Year Changed 2006 to 2014

	Applications pre 9/23/16	Applications post 9/23/16	Change
NOx	10	22	12
VOC	37	72	35
Total	47	94	100%

- Current Applications

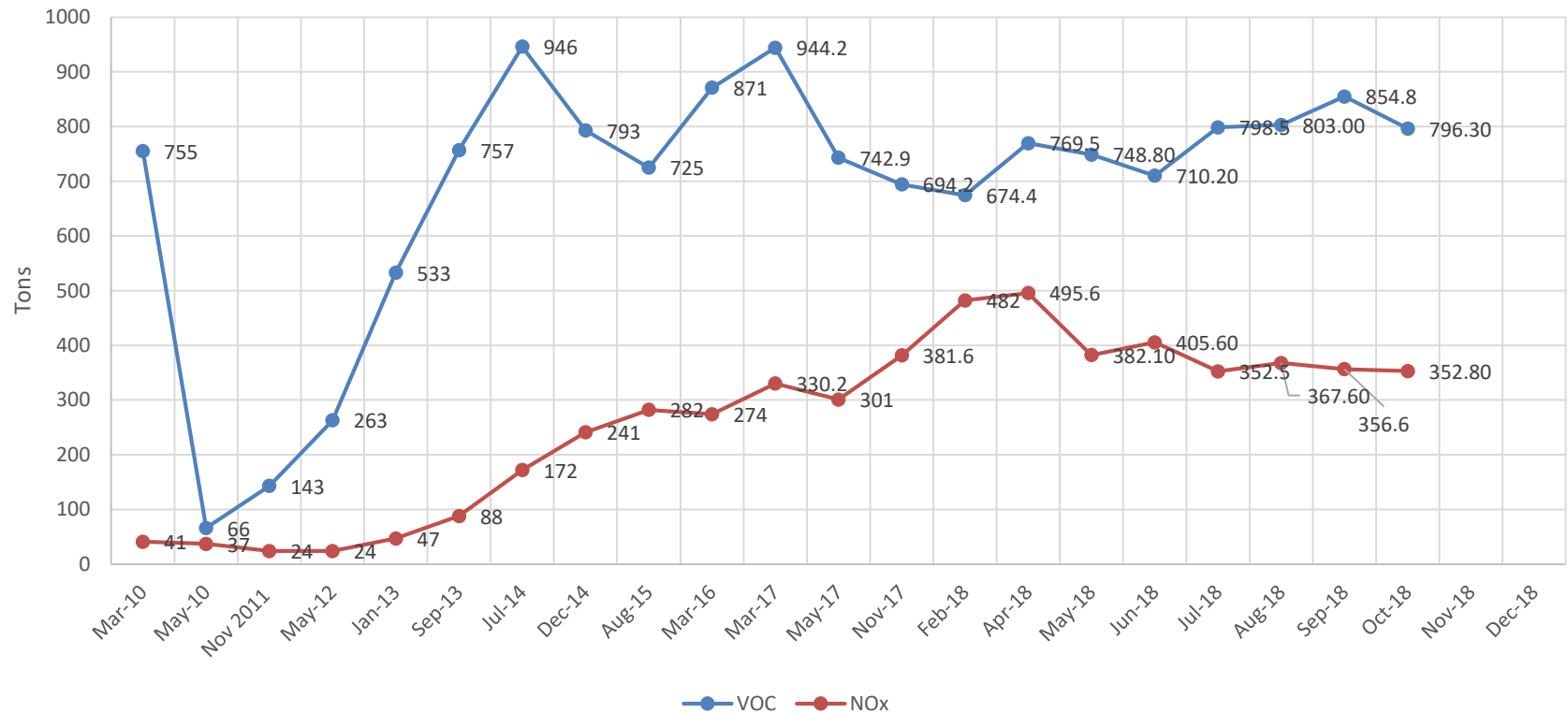
	~ Pending, Hold, Suspended Applications at TCEQ 10-30-18
NOx	8
VOC	16
Total	24



# HGB AREA AND MOBILE SOURCES

- TCEQ amended EBT rules effective Oct 12, 2017 so that ERCs could be generated by area and mobile sources
- As of 10-30-18 – HGB ERC Registry consists of Area tons:
  - 0.4 tons NOx
  - 15.6 tons VOC
- These emissions do not have to be in the SIP (major change)
- Area Sources:
  - Inelastic sources not eligible – gas stations, restaurants, etc.
  - 61% of VOC emissions in 2014
- Mobile Sources
  - on-road mobile sources that are part of industrial, commercial, non-profit, institutional or municipal fleet and operate 75% of the time in the non-attainment area are eligible to generate
  - No residential sources
  - 67% of NOx emissions from Mobile Sources
- Multiple sources can be aggregated to meet 0.1 ton ERC min issuance

# HGB NOX AND VOC REGISTRY



Source: Texas Commission on Environmental Quality

→ Interpollutant trading has been approved  
 - can use NOx to offset VOC in HGB with modeling and EPA and TCEQ approval

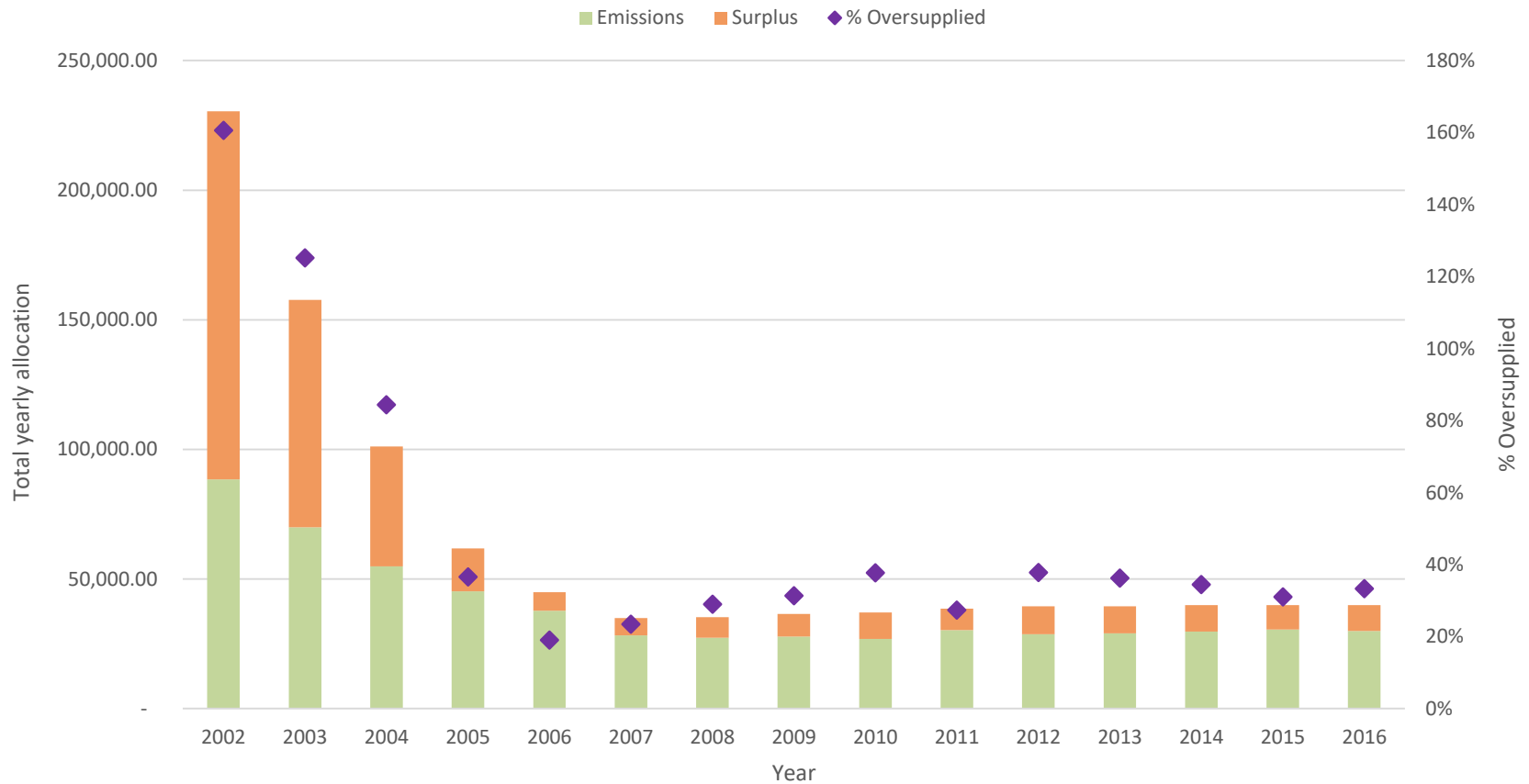
Pending NOx banking applications ~331 tons  
 Pending VOC banking applications ~293 tons

# HGB MECT NO<sub>x</sub> ALLOWANCES

- **NO<sub>x</sub> MECT Allowances**

- Any facility that has collective uncontrolled design capacity to emit 10 tons or more of NO<sub>x</sub>
- MECT NO<sub>x</sub> stream of allowances can be used in lieu of NO<sub>x</sub> ERCs with NSR Permit
- If under 50 tons for a new facility, offset ratio is 1 to 1
- If over 50 tons for a new facility, offset ratio is 1.2 to 1 by January 20<sup>th</sup>, 2019
- New facilities do not receive allocation, but must buy in the marketplace

# MECT NO<sub>x</sub> SUPPLY vs. DEMAND



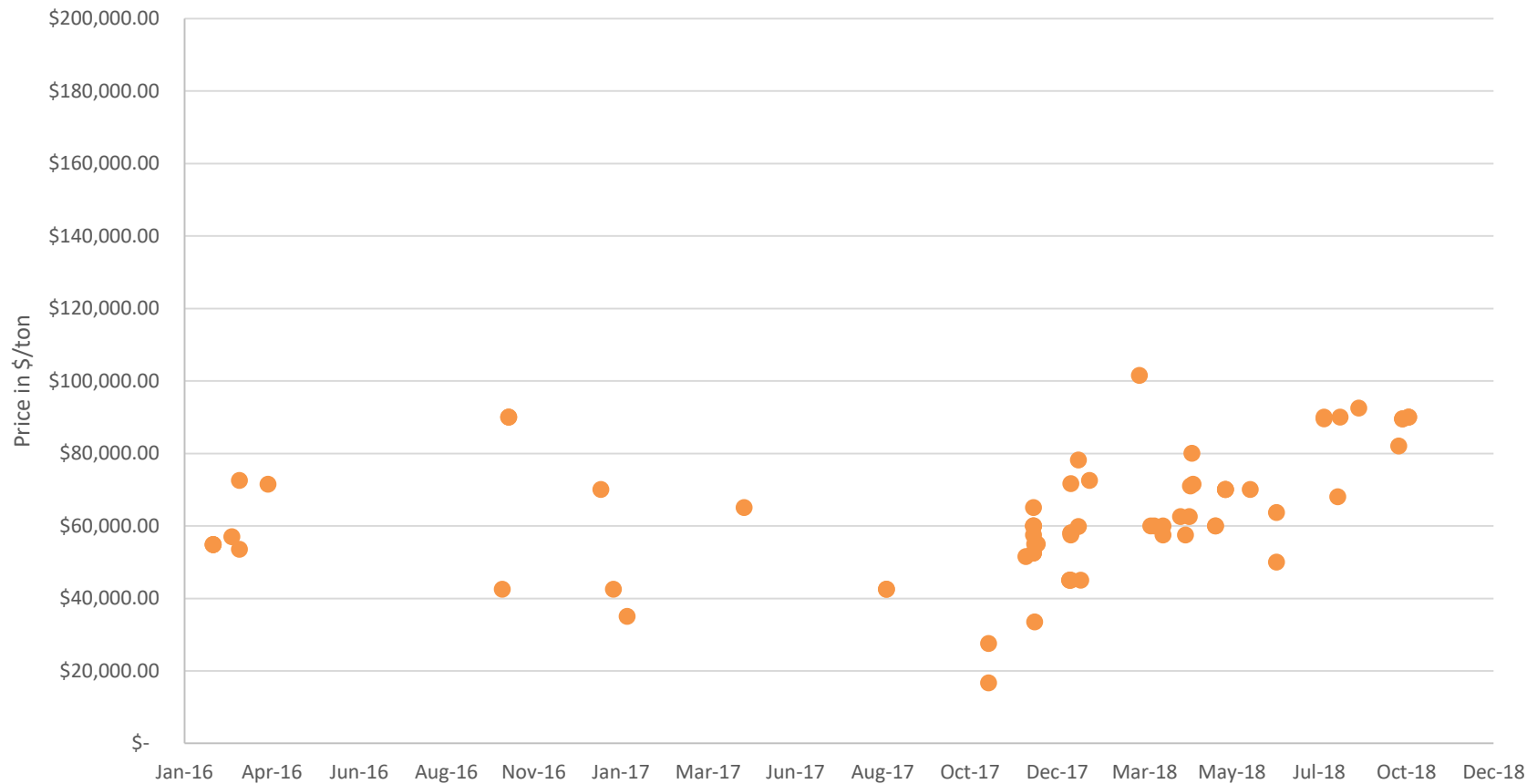
Year	Supply	Demand	Excess
2014	39,958	29,964	9,994
2015	39,955	30,490	9,465
2016	39,976	29,736	10,240

# Offsetting NOx New Facility

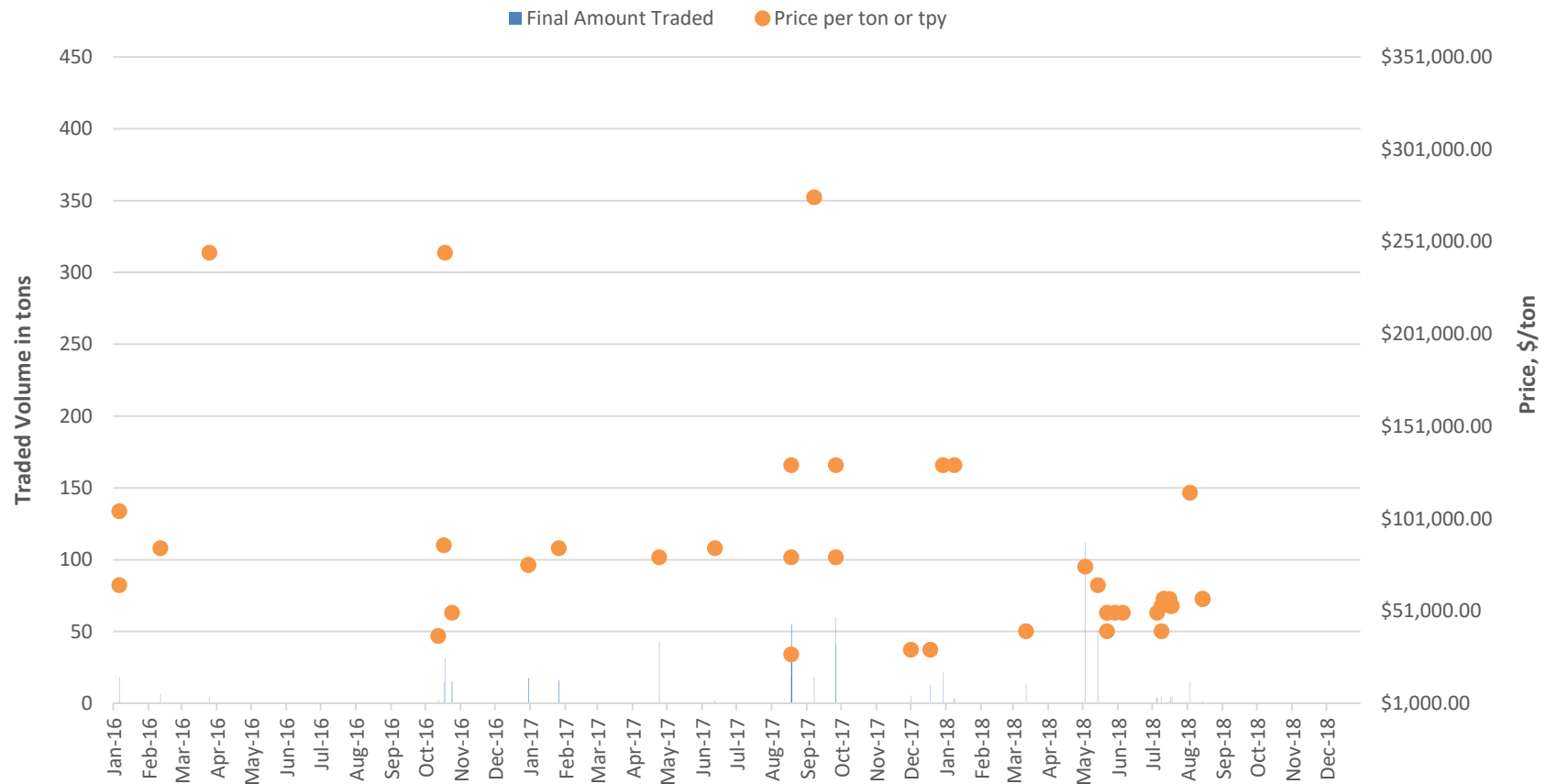
Program	Threshold	Offset Ratio
MECT only	10 tons – 49.9 tons	1 to 1
MECT and NSR	> 50 tons	1.2 to 1 (Serious)

- Best Options:
  - Buy MECT NOx Allowances for PTE portion (1 to 1)(not NOx ERCs) These allowances usable for New Source Review Permit and Annual Compliance in MECT Program.
  - If PTE Above 50 tons, the 0.2 portion can be offset with NOx ERC or MECT NOX allowances, whatever is cheaper.

# MECT NOx Stream Pricing and Volume Chart 2016-Present



# ERC NOx Pricing Chart 2016-Present

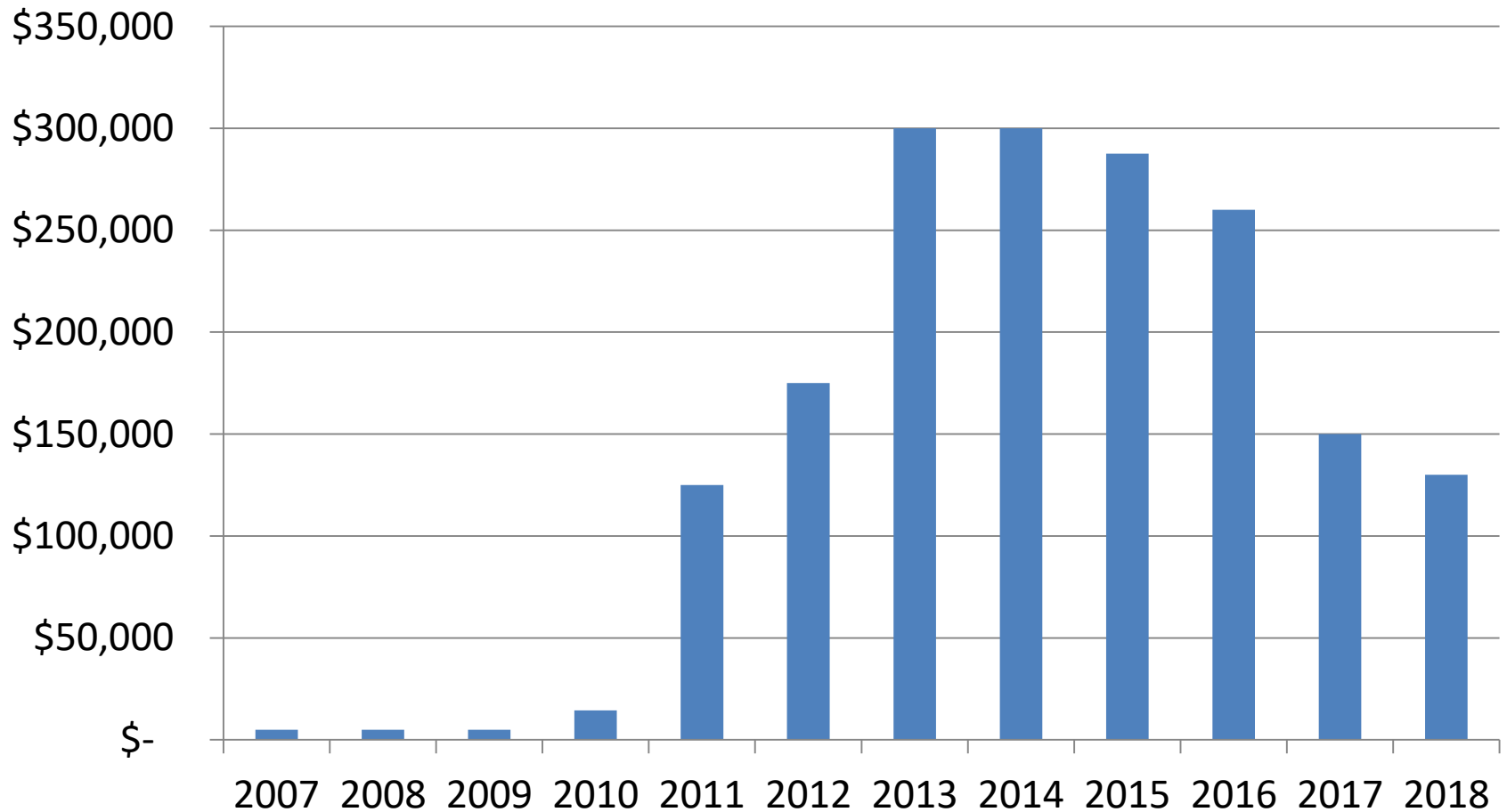


# OFFSETTING VOC IN HGB

- Provide HGB VOC ERCs
  - **Historical Route (Emission Advisors successfully did this in 2018)**
- Provide HGB NOx ERCs
  - **Modeling, EPA and TCEQ approval (Emission Advisors successfully did this in 2018)**
- Provide HGB VOC DERCs for every year of operation
  - **Limited due to Supply of VOC DERCs (Emission Advisors successfully did this in 2017)**
- Provide HGB NOx DERCs for every year of operation
  - **Modeling, EPA and TCEQ approval (Method has not been used since 2013/2014)**

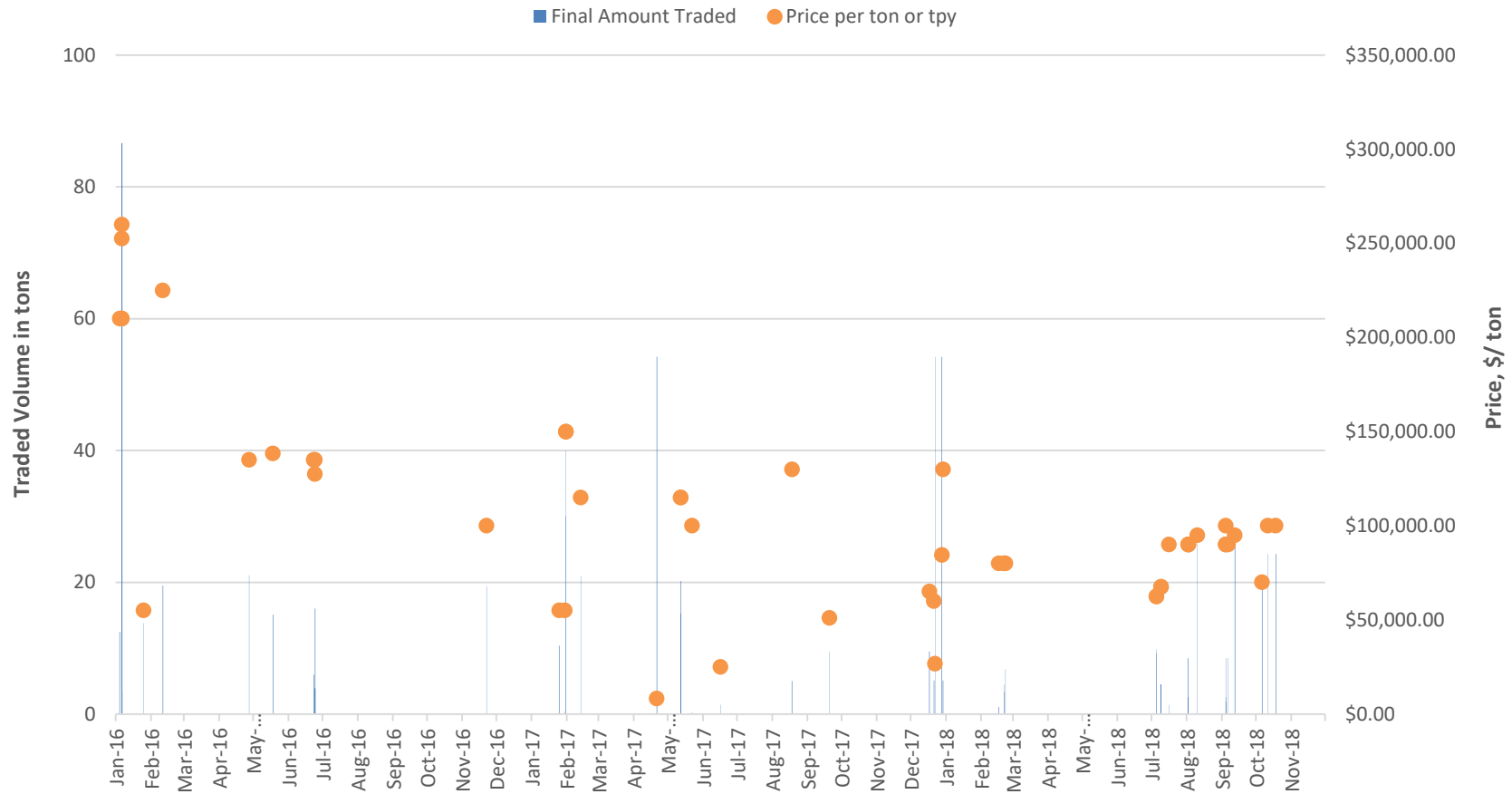


# Max Yearly Price For HGB VOC ERCs



# HGB ERC VOC Pricing Chart

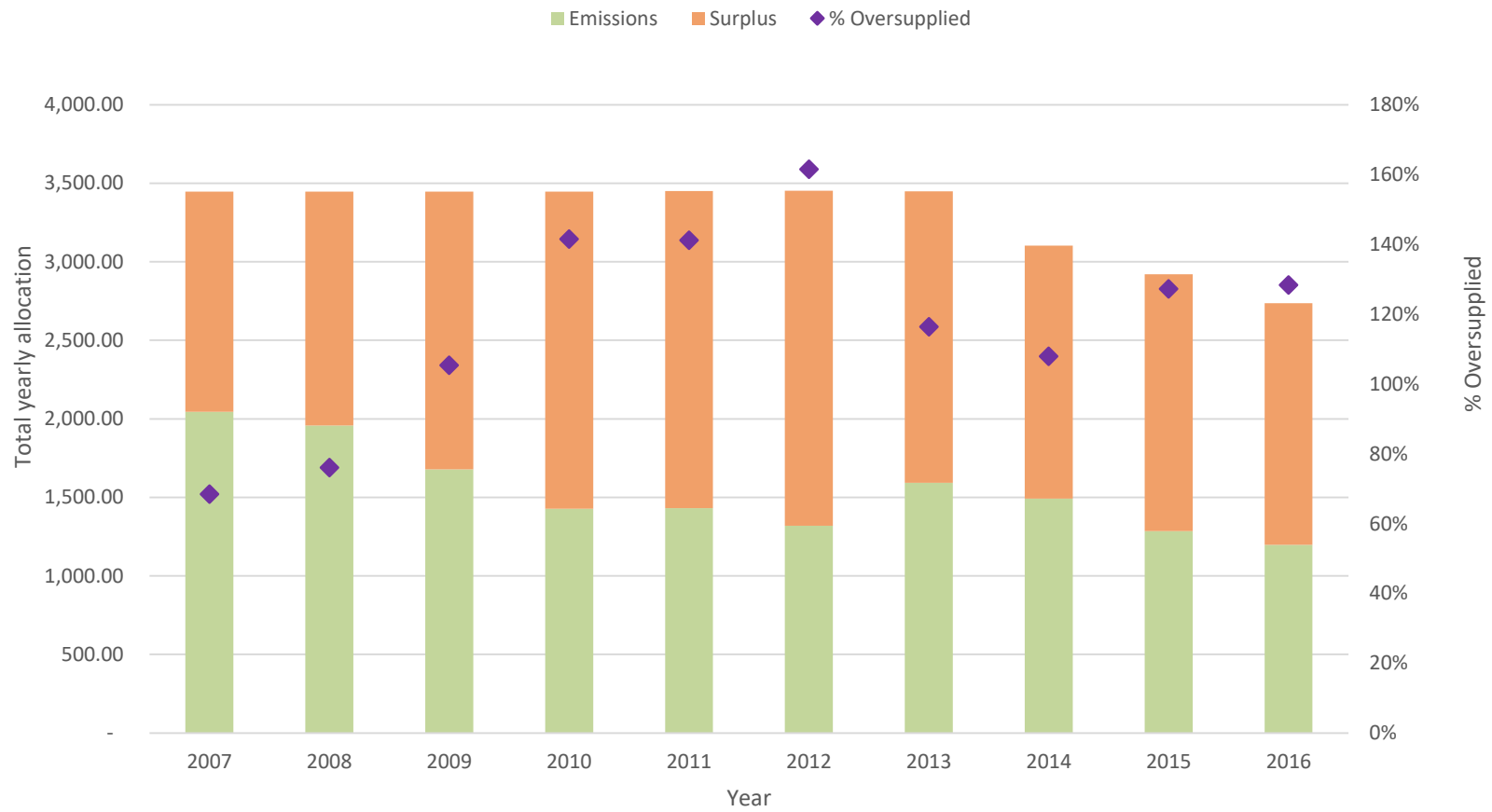
## 2016-Present



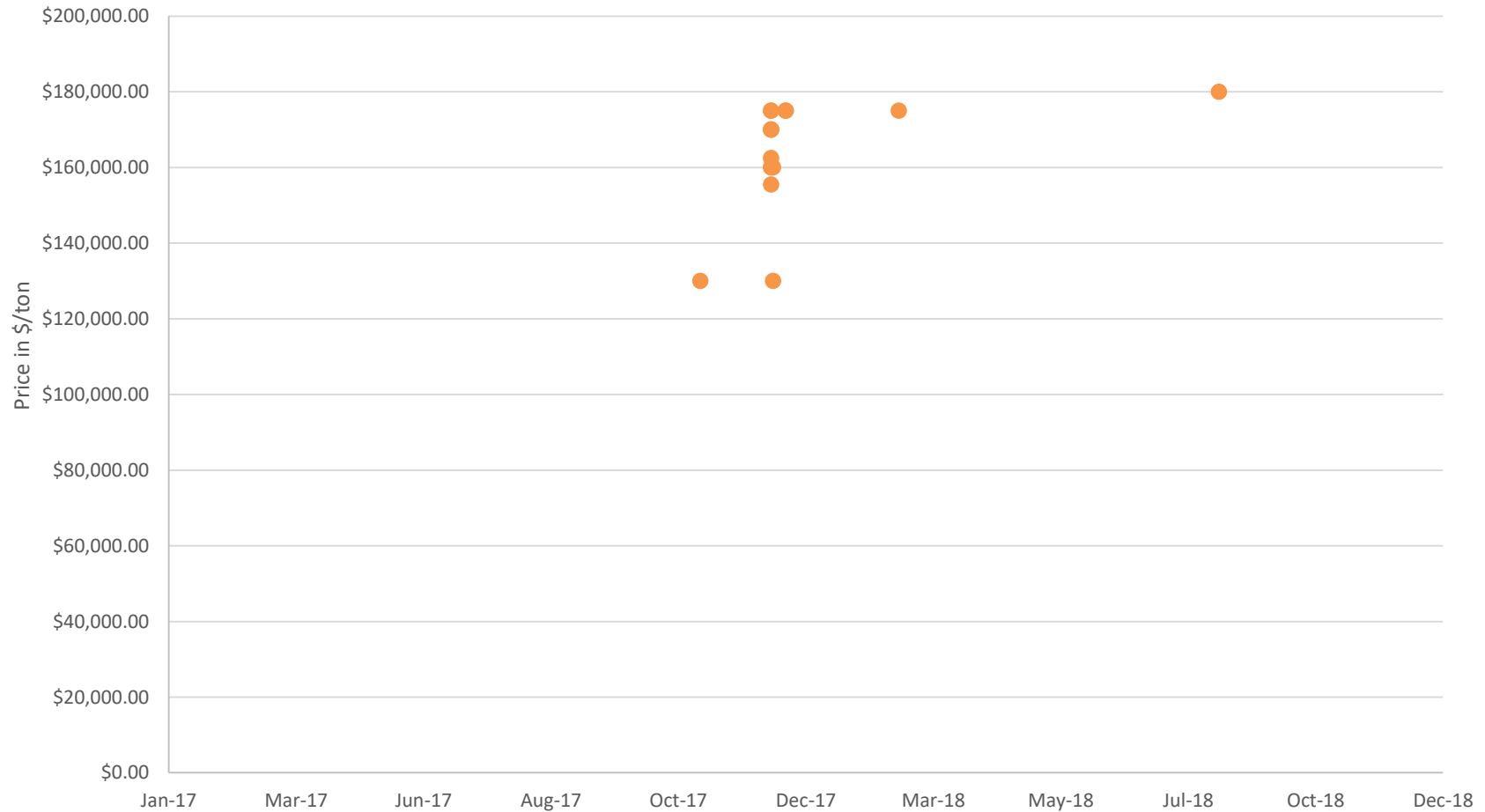
# 2008 vs 2015 NAAQS

- 2008 HGB NAAQS – 8 counties
  - Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller
- 2015 HGB NAAQS (April 30<sup>th</sup>, 2018) – 6 counties
  - Brazoria, Chambers, Fort Bend, Galveston, Harris, and Montgomery
    - Liberty and Waller were removed
- Effects of change?

# HECT HRVOC SUPPLY vs. DEMAND



# HECT HRVOC Stream Pricing and Volume Chart 2017-Present



# Summary

- Jan 18<sup>th</sup>, 2019 – Deadline for applications to use current SIP year for ERC banking applications
- Jan 20<sup>th</sup>, 2019 – Redesignation to Serious
- July 20<sup>th</sup>, 2021 – Date for HGB to achieve 75 PPB or may be bumped up to Severe
- Date ??? HGB achieves 2008 NAAQS – Effects on Program?

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