

Highly Reactive Volatile Organic Compound Emission Cap and Trade (HECT) Program Audit

October 2022

Introduction

The Texas Commission on Environmental Quality (TCEQ) must audit the Highly Reactive Volatile Organic Compound (HRVOC) Emission Cap and Trade (HECT) Program as required by 30 Texas Administrative Code (TAC) §101.403. This audit evaluates the impact of the program on the state's ozone attainment demonstration, the availability and cost of allowances, compliance by participants, and recommendations to remedy any identified issues.

Impact on State's Ozone Attainment Demonstration

In 2007, the TCEQ established a mandatory annual HRVOC cap, which was initially set at a level that was demonstrated to be necessary for the Houston-Galveston-Brazoria (HGB) area to attain the one-hour ozone standard. The HRVOC cap is enforced through the HECT Program under 30 TAC Chapter 101, Subchapter H, Division 6. The HECT Program applies to sites located within the HGB area with facilities subject to 30 TAC Chapter 115, Subchapter H, Divisions 1 or 2, including vent gas streams, flares, and cooling tower heat exchange systems. The HECT Program currently exempts sites that are not located in Harris County or do not have the potential to emit more than 10 tons per year (tpy) of HRVOC from all affected facilities. Once a site becomes subject to the program, it is always subject to the program.

To assist in attaining the 1997 eight-hour ozone standard, the 2007 HRVOC cap was reduced from 3,451.5 to 2,588.6 tons allowances, a 25% reduction. An initial 10% reduction of the cap was implemented beginning with the 2014 control period, and the cap was reduced in 5% increments at the start of each calendar-year control period (control period) for 2015 through 2017. A control period begins January 1 and ends December 31 of each year. For 2017 and all subsequent control periods, the HECT cap is 2,588.6 tons. The entire HECT program cap allocation is modeled in the attainment demonstration State Implementation Plan for the HGB area. For each control period, the total HRVOC emissions from the sites have been below the HECT program allocation, thereby contributing to the state's ozone attainment demonstration.

Availability and Cost of Allowances

The number of allowances allocated under the HECT cap is specified under 30 TAC §101.394. For 2007 through 2010, HECT allowances were allocated based on the level of activity for a site, expressed in terms of the amount of HRVOC produced or used by all the process units at the site. Analysis of the HRVOC emissions data reported under the HECT Program for 2007 and 2008 supported the assertion that the production-based allocation methodology resulted in an inequitable distribution of allowances. As a result, the TCEQ revised the allocation methodology.

Beginning in 2011, a site would be assigned to one of four industry sectors. Allowances were allocated based on the percentage of individual site emissions contributing to the total industry sector emissions and the fraction that each industry sector emissions make up toward the total HRVOC emissions in the county.

For 2017 and all subsequent control periods, the HECT cap is 2,588.6 tons. An additional 1.7 tons of HECT allowances have been allocated since 2011 because 22.5 tpy of VOC emission reduction credits (ERCs) were exchanged for these HECT allowances under a provision of the HECT rules that has since been repealed.

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An allowance is removed from circulation when a trade is submitted to transfer the allowance to the TCEQ retirement account. Once accepted, the allowance is transferred into this account and retired. As of the date of this audit, a total of 4.2 tpy of HECT allowance allocations have been voluntarily retired to the TCEQ to satisfy nonattainment new source review (NNSR) permit offsets for affected sites, while an additional 15.4 tpy have been retired to generate VOC emission reduction credits (ERC) or to satisfy enforcement action commitments. These allowances are not available to be used for compliance with the HECT Program.

At the beginning of each control period, allowances are deposited into compliance accounts or broker accounts. If additional allowances are needed for compliance, companies can purchase allowances from other participants or brokers willing to sell. All trades must be submitted to the TCEQ by January 30 following the control period. Companies can acquire current allowances allocated during that control period, vintage allowances allocated during the previous control period, or an annual allowance allocation (also referred to as an allowance stream) that will be deposited in the site's compliance account each year. If not used during the following control period, vintage allowances expire.

With the exception between sites under common ownership, owners or operators of sites must assign a price paid per ton of allowances for all trades. All information regarding the quantity and sales price of allowances is available to the public. The availability and cost of allowances are summarized in [Table 1](#).

Compliance by Participants

Sites subject to the program are required, per §101.400, to submit annual compliance reports by March 31 of the year following the control period. By March 1 following a control period, a site must have sufficient allowances in its compliance account to cover the total HRVOC emissions from all affected facilities at the site. A number of allowances equal to the HRVOC emissions is deducted from a site's compliance account; the most recently allocated allowances are deducted before deducting vintage allowances. If a site emits more HRVOC than the quantity of allowances held in its account, the allocation for the next control period is reduced by an amount equal to the emissions exceeding the compliance account plus an additional 10%. If the site's compliance account does not hold sufficient allowances to accommodate this reduction, the site must obtain sufficient allowances within 30 days after the TCEQ notifies the site of the deficiency.

HECT allowances can be used to satisfy the one-to-one portion of the NNSR offset requirements for facilities subject to the HECT program. These allowances are permanently set aside in the site's compliance account and cannot be traded. These allowances are deducted from the account in full for each control period before other current or vintage allowances needed for HECT program compliance.

The amount of HRVOC emissions reported must be based on the appropriate monitoring and testing protocols established in §115.725 and §115.764. Beginning in 2016, an additional 10% quantification penalty is assessed on emissions calculated using data that did not comply with the required monitoring and testing protocols. Sites with quantification penalties are reported to the TCEQ's Houston Regional Office. Sites must also report HRVOC emissions from emission events subject to §101.201 and scheduled maintenance, startup, or shutdown activities subject to §101.211; however, the maximum amount of these emissions reported from all affected facilities at a site cannot exceed 1,200 pounds of HRVOC per one-hour block period, which is the short-term limit in §115.722(c) and §115.761(c).

All HECT participants are currently in compliance with the HECT reporting and allowance deduction requirements in Chapter 101, Subchapter H, Division 6. Sites with deficits during the control period have complied with the penalty provisions included in the rule, and there are currently no sites with outstanding allowance surrender requirements. [Table 2](#) summarizes the reported emissions, deficits, quantification penalties, and allowances used simultaneously for both HECT compliance and NNSR permit offsets.

Recommendations

No changes are recommended at this time.

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Table 1. HECT Allowance Summary

Allocation Year	Allocation (tons)	ERCs Converted to HECT Allowances (tons)	Retired Allowances (tons)	Available Allowances (tons)	Number of Trades	Allowances Sold (tons)	Current Allowance Average Price (\$/ton)*	Vintage Allowance Average Price (\$/ton)*	Allowance Allocation (Stream) Average Price (\$/ton)*
2007	3,446.7	0.0	0.0	3,446.7	35	974.4	\$4,963	\$3,980	\$66,747
2008	3,446.7	0.0	0.0	3,446.7	19	562.0	\$2,500	\$4,717	NA
2009	3,446.7	0.0	0.0	3,446.7	19	299.8	\$2,300	\$3,572	NA
2010	3,446.7	0.0	0.2	3,446.5	7	80.8	NA	\$3,204	NA
2011	3,451.5	1.7	3.0	3,450.2	11	216.8	\$4,147	NA	NA
2012	3,451.5	1.7	0.0	3,453.2	22	439.5	\$5,000	\$1,732	NA
2013	3,451.5	1.7	5.4	3,447.8	15	321.6	\$1,964	NA	NA
2014	3,105.9	1.7	4.5	3,103.1	19	404.1	\$1,750	NA	\$130,209
2015	2,932.9	1.7	14.9	2,919.7	15	196.7	\$1,500	NA	NA
2016	2,761.2	1.7	27.2	2,735.7	6	146.6	NA	NA	NA
2017	2,588.6	1.7	30.6	2,559.7	28	584.4	NA	\$1,020	\$164,705
2018	2,588.6	1.7	44.4	2,545.9	25	539.8	\$1,173	\$788	\$178,182
2019	2,588.6	1.7	44.1	2,546.2	37	812.3	NA	\$686	\$184,076
2020	2,588.6	1.7	44.4	2,545.9	31	604.1	NA	\$459	\$185,080
2021	2,588.6	1.7	19.6	2,570.7	8	241.9	\$587	NA	NA

*Average price does not include trades for \$0

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Table 2. Summary of HECT Program Compliance

Year	Number of Sites Reporting	Previous Year Deficit and 10% Penalty (tons)	Total Emissions (tons)	Quantification Penalty (tons)	Vintage Allowances Used for Compliance (tons)	Allowances Also Used for NNSR Offsets (tons)	Remaining Cap (tons)	Percent of Cap Remaining
2007	49	NA	2,046.3	NA	NA	NA	1,400	41%
2008	50	12.9	1,957.9	NA	173.1	NA	1,649	48%
2009	49	0.7	1,678.8	NA	134.8	NA	1,902	55%
2010	49	13.1	1,427.3	NA	46.3	NA	2,052	60%
2011	49	32.8	1,431.2	NA	26.6	NA	2,013	58%
2012	48	1.7	1,320.9	NA	3.1	NA	2,134	62%
2013	48	0.0	1,594.8	NA	13.3	NA	1,866	54%
2014	48	0.0	1,494.3	NA	50.1	NA	1,659	53%
2015	48	0.0	1,286.6	NA	7.2	39.1	1,640	56%
2016	48	0.0	1,252.6	1.0	51.2	39.1	1,534	56%
2017	48	0.0	1,448.9	3.4	48.1	52.9	1,156	45%
2018	48	4.9	1,767.0	4.4	323.2	93.9	1,093	43%
2019	50	34.1	1,757.2	4.0	172.9	93.9	924	36%
2020	50	17.6	1,411.8	2.1	91.2	116.2	1,206	47%
2021	50	0.0	1,652.7	1.9	243.6	113.6	1,160	45%