



Texas Commission on Environmental Quality Emissions Banking and Trading Programs

Office of Air
Air Quality Division



Overview

- Introduction
- Voluntary Emission Reduction Credit Programs
 - Emission Credits (EC)
 - Discrete Emission Credits (DEC)
- Mandatory Cap and Trade Programs
 - Mass Emissions Cap and Trade (MECT)
 - HRVOC Emission Cap and Trade (HECT)
 - Emission Banking and Trading of Allowances (EBTA)
 - Clean Air Interstate Rule (CAIR)
- Recap



Introduction

MISSION STATEMENT

The Texas Commission on Environmental Quality administers and regulates emissions banking and trading programs that provide compliance flexibility for state and federal air quality requirements while creating a net reduction in total regional air emissions.

REGULATION

Title 30 Texas Administrative Code (TAC)
Chapter 101, Subchapter H



Introduction

- Command and Control
 - These are regulations that require applicable mobile sources or facilities (i.e., stationary sources) to reduce their emissions to a specific limit.
- Voluntary Emission Reduction Credit Programs
 - A company can voluntarily reduce emissions of certain pollutants below the lowest Command and Control emission limit to generate credits. Other companies can then use these credits to offset their emissions.
- Mandatory Cap and Trade Programs
 - These programs limit the emissions of certain pollutants from specific sites/facilities within a region to an enforceable cap.



Voluntary Emission Reduction Credit Programs

Emission Credits (EC)

- ECs are certified permanent emission reductions, in units of tons per year (tpy).
- ECs are generated from the reduction of criteria pollutants, excluding lead, or precursors of criteria pollutants in areas designated as nonattainment under the National Ambient Air Quality Standards (NAAQS).
- ECs can only be used in nonattainment areas.
- ECs have a five-year shelf life.



Voluntary Emission Reduction Credit Programs

EC Credibility

ECs must be:

- **P**ermanent,
- **E**nforceable,
- **R**ead,
- **Q**uantifiable, and
- **S**urplus.



Voluntary Emission Reduction Credit Programs

EC Generation

ECs from facilities may be generated by the following methods:

- Shutdowns
- Installation of pollution control equipment with higher-than-required efficiency
- Process changes resulting in decreased emissions
- Enforceable production curtailments
- Pollution prevention projects
- Fugitive monitor and repairing beyond applicable requirements



Voluntary Emission Reduction Credit Programs

EC Use

ECs can be used in the following ways:

- They can be used during a Nonattainment New Source Review (NNSR) netting permitting exercise. Only the generator can use ECs for netting.
 - Netting is a method of determining if a proposed emission increase will trigger nonattainment or prevention of significant deterioration review.
- To create a net air quality benefit, ECs can be used as offsets for NNSR permits.
- A company can also use ECs as an alternative compliance method for state air pollution control requirements.



Voluntary Emission Reduction Credit Programs

Discrete Emission Credits (DEC)

- DECs are certified temporary emission reductions, in units of tons.
- DECs are generated from the reduction of volatile organic compounds (VOC), nitrogen oxides (NO_x), carbon monoxide, sulfur dioxide (SO_2), and particulate matter with an aerodynamic diameter or 10 microns or less.
- DECs can be generated and used throughout Texas.
- DECs do not expire.



Voluntary Emission Reduction Credit Programs

DEC Credibility

DECs must be:

- Quantifiable,
- Surplus, and
- Real.



Voluntary Emission Reduction Credit Programs

DEC Generation

DECs from facilities may be generated by the following methods:

- Installation of pollution control equipment with higher-than-required efficiency
- Process changes resulting in decreased emissions beyond regulated emission requirements
- Pollution prevention projects



Voluntary Emission Reduction Credit Programs

DEC Use

DECs can be used in the following ways:

- To create a net air quality benefit, DECs can be used as offsets for NNSR permits.
- A company can also use DECs as an alternative compliance method for state air pollution control requirements.
- Temporarily exceeding a permit limit can be authorized with the use of DECs.



Mandatory Cap and Trade Programs

Cap and Trade Programs

- Provide an enforceable cap on the total emissions of certain pollutants from specified sites/facilities within a regulated area
- Provide direct economic incentives for emission reductions and regulation compliance flexibility
- Produce an open market for trading, establishing an industry-wide market price for emissions in dollars per ton
- Establish transparent market prices for emission reductions that provides industries with quantifiable factors for future business forecasting



Mandatory Cap and Trade Programs

Cap and Trade Allocations

- Applicable sites/facilities receive an allocation of allowances based on historical emissions, where one ton of emissions equals one allowance.
- Allowances can be used as necessary to “cover” emissions, banked for future use, or traded on the open market.
- Cap and Trade programs in Texas are designed to advance attainment of the ozone NAAQS.



Mandatory Cap and Trade Programs

Example

- Before cap
 - Site A emits 6 tpy.
 - Site B emits 6 tpy.
- Ten ton cap allocation is set.
 - Site A is allocated 5 tpy.
 - Site B is allocated 5 tpy.



Mandatory Cap and Trade Programs

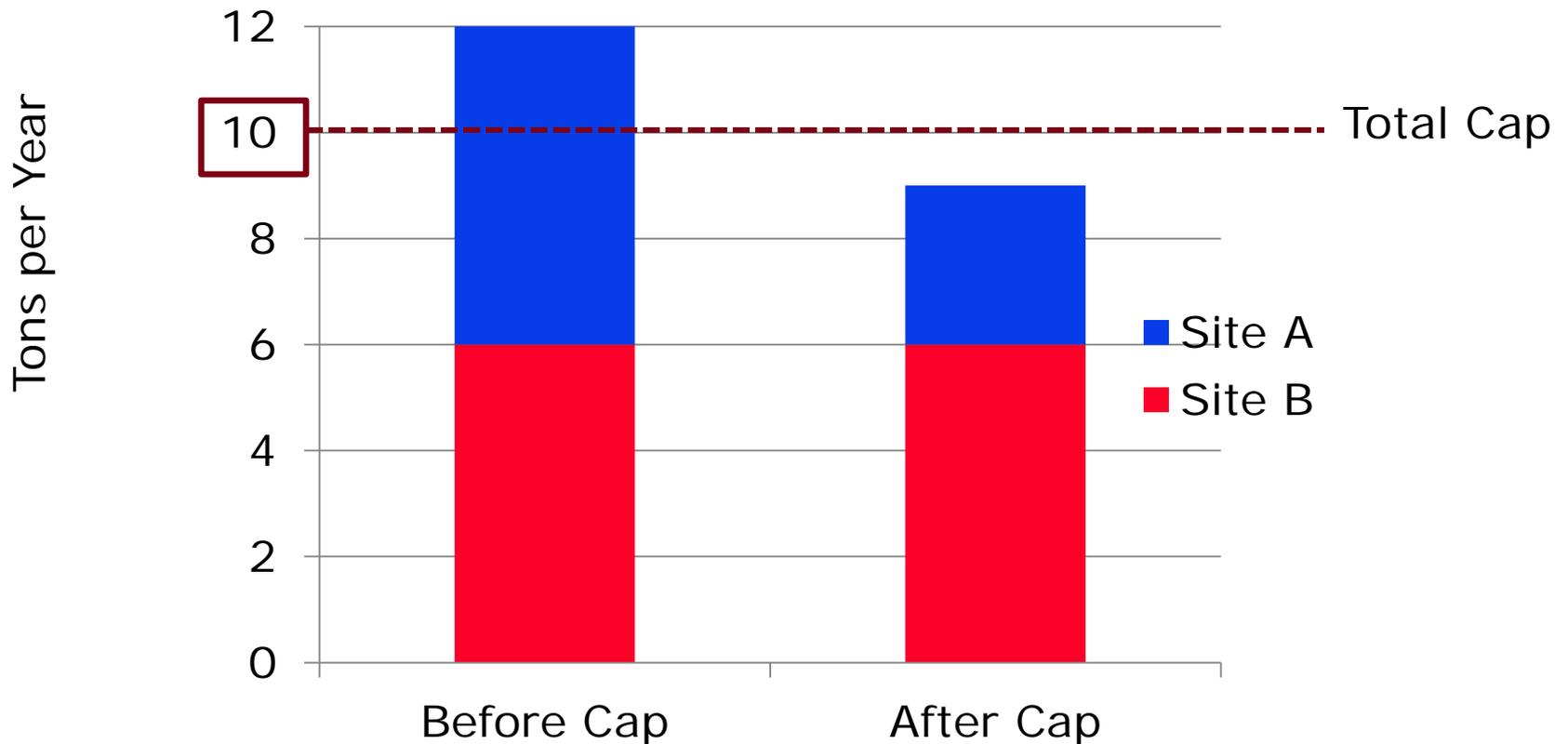
Example (Continued)

- After cap
 - Site A reduces emissions and now operates at 3 tpy.
 - Site A sells allowances to Site B, where Site B continues to operate at 6 tpy.
 - The total emissions from Site A and Site B are now at 9 tpy.



Mandatory Cap and Trade Programs

Example (Continued – Table Illustration)





Mandatory Cap and Trade Programs

Mass Emissions Cap and Trade (MECT)

- Market-based component of the state implementation plan (SIP) that provides certain facilities that emit NO_x compliance flexibility to the emission specifications in 30 TAC Chapter 117
- Establishes a mandatory cap for total NO_x emissions from affected facilities in the Houston-Galveston-Brazoria (HGB) ozone nonattainment area
- Product of the emission specifications of Chapter 117 and the historical levels of activity from applicable facilities



Mandatory Cap and Trade Programs

MECT Program Details

- Started on January 1, 2002
- Calendar-year control period from January through December
- Requires annual emissions reporting
- Requires site to obtain allowances to operate
 - Allocate allowances to existing facilities
 - No allocation to new facilities



Mandatory Cap and Trade Programs

MECT Program Applicability

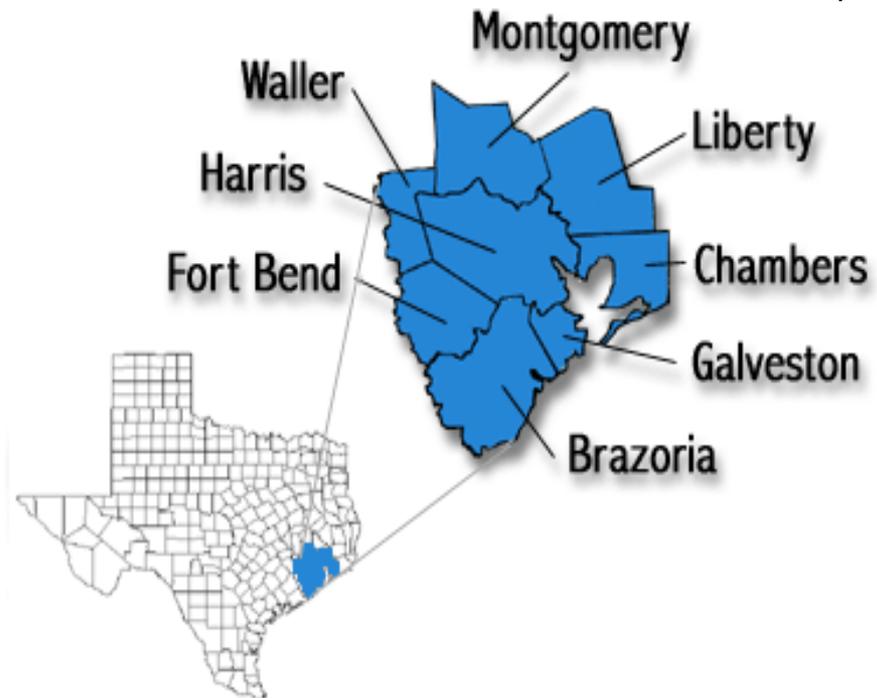
- HGB eight-county area
- NO_x emitting facilities
- Major source sites (≥ 25 tpy)
- Minor source sites with an uncontrolled design capacity to emit a total of 10 tpy or more of NO_x



Mandatory Cap and Trade Programs

MECT – Eight-County Area

- Brazoria
- Chambers
- Fort Bend
- Galveston
- Harris
- Liberty
- Montgomery
- Waller



¹<http://www.tceq.state.tx.us/air/sip/hgb.html>



Mandatory Cap and Trade Programs

NO_x-Emitting Facilities, Major Source Sites

- Industrial, commercial, or institutional boilers
- Industrial, commercial, or institutional process heaters
- Stationary internal combustion engines
- Fluid catalytic cracking units
- Boilers and industrial furnaces (BIF)¹
- Stationary gas turbines
- Duct burners used in turbine exhaust ducts
- Pulping liquor recovery furnaces
- Lime kilns
- Lightweight aggregate kilns
- Heat treating furnaces
- Reheat furnaces
- Magnesium chloride fluidized bed dryers
- Incinerators

¹Must have been regulated as existing facilities in 40 Code of Federal Regulations Part 266, Subpart H (as was in effect on June 9, 1993)



Mandatory Cap and Trade Programs

NO_x-Emitting Facilities, Minor Source Sites

- Boilers
- Process heaters
- Stationary, reciprocating internal combustion engines
- Stationary gas turbines, including duct burners

NO_x-Emitting Facilities, Utility Electric Generation Major Source Sites¹

- Utility boilers
- Auxiliary steam boilers
- Stationary gas turbines
- Duct burners in turbine exhaust ducts

¹Facilities must be used in an electric power generating system and owned/operated by certain specified authorities listed in TAC §117.1200(a)(1) and (2).



Mandatory Cap and Trade Programs

MECT Allowances

Allowances are established through historic levels of activity.

- Actual allowances are an established baseline and can be banked or traded.
- Allowable allowances are facility-specific, have no established baseline, and cannot be banked or traded.
- Flexible allowances are permit-specific, have no established baseline, and cannot be banked or traded.
- “Vintage Allowances” are allowances banked from the previous control period. If not used, these banked allowances expire.



Mandatory Cap and Trade Programs

Example of Banking Account

Balance/Year	2010	
Penalty from last year	0	
Starting Allowance	1841.2	← <i>Current Allowances</i>
Future Trade In	0	
Future Trade Out	0	
Stream Trade In	462.7	
Stream Trade Out	0	
Current Trade In	0	
Current Trade Out	-295	←
Vintage From Last Year	87.9	← <i>Vintage Allowances</i>
Vintage Trade In	148.4	
Vintage Trade Out	0	
Vintage Used	0	
VINTAGE BALANCE	236.3	←
DERC Intent	0	
DERC Use	0	
ERC Use	0	
Actual Emissions	-1835.3	
BALANCE	173.6	



Mandatory Cap and Trade Programs

MECT Step-Down Schedule

- Step-down reduction in the cap began in 2003 through 2007
- Final step-down reduction in the cap occurred in 2008

MECT Penalty

- 10% penalty for compliance accounts with insufficient allowances to cover their emissions

MECT Benefit

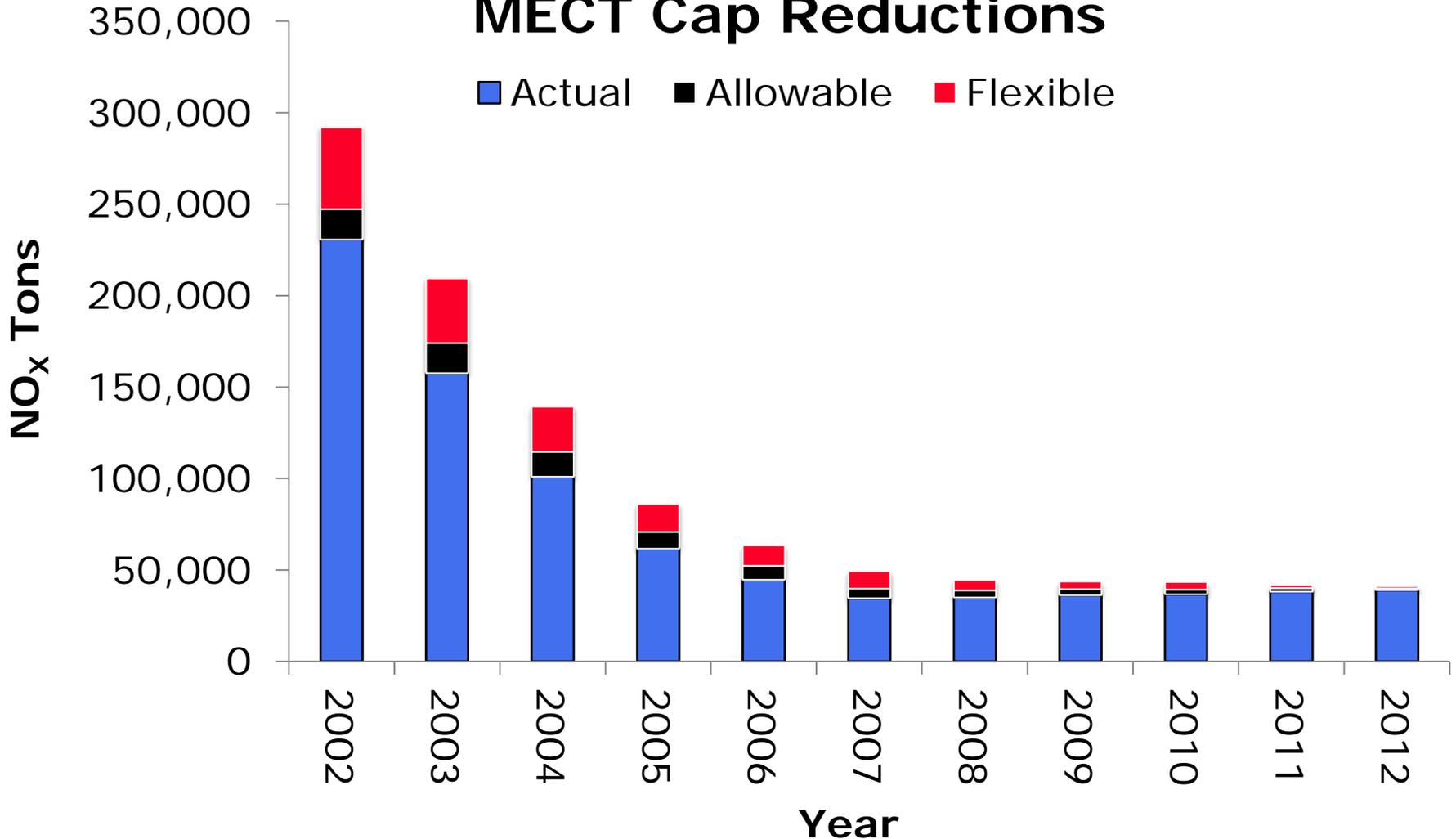
- Overall benefit is an 80% reduction in total NO_x in the HGB ozone nonattainment area



Mandatory Cap and Trade Programs

MECT Cap Reductions

Actual Allowable Flexible



¹Based on Portfolio Totals, as of September 26, 2011



Mandatory Cap and Trade Programs

MECT Allowance Substitutions

- DECs can be used in lieu of allowances.
- ECs from facilities generated prior to December 1, 2000 can be converted into a stream of allowances.



Mandatory Cap and Trade Programs

Highly-Reactive Volatile Organic Compound (HRVOC) Emissions Cap and Trade (HECT)

- HRVOCs include:
 - Ethylene
 - Propylene
 - 1,3 – butadiene
 - All isomers of butene
- Program applicable to Harris County
- Covers HRVOC emissions from vents, flares, and cooling towers (30 TAC Chapter 115, Subchapter H, Divisions 1 & 2)



Mandatory Cap and Trade Programs

HECT Program Details

- Started on January 1, 2007
- Calendar-year control period from January through December
- Requires annual emissions reporting
- Requires allowances to operate
 - Allocate allowances to existing sites
 - No allocation to new sites



Mandatory Cap and Trade Programs

HECT Allowances

- Starting in 2011, each site's allowance allocation is based on baseline uncontrolled HRVOC emissions.
- Allowance allocation is also based on a ratio of each site's actual HRVOC emissions versus other sites in their industry sector.



Mandatory Cap and Trade Programs

Emissions Banking and Trading of Allowances (EBTA)

- Affects electric generating facilities (EGF) that existed when the Texas Clean Air Act was created in 1971
- Reduces NO_x emissions by 50% and SO₂ emissions by 25% compared to the 1997 emissions from affected EGFs



Mandatory Cap and Trade Programs

EBTA Regions

There are three regions in the EBTA program:

- East - includes all counties traversed by or east of Interstate Highway 35 north of San Antonio or traversed by or east of Interstate Highway 37 south of San Antonio, including Bosque, Coryell, Hood, Parker, Somervell, and Wise Counties
- West - includes all counties not contained in the East Region or the El Paso Region
- El Paso - includes El Paso County



Mandatory Cap and Trade Programs

Clean Air Interstate Rule (CAIR)

- Federal program administered by the United States EPA
- Annual NO_x and SO₂ allowances
- State-mandated NO_x allocation methodology
- Applies only to electric generating units
- Includes 27 eastern states, Texas, and the District of Columbia
- Will be replaced in the future



RECAP

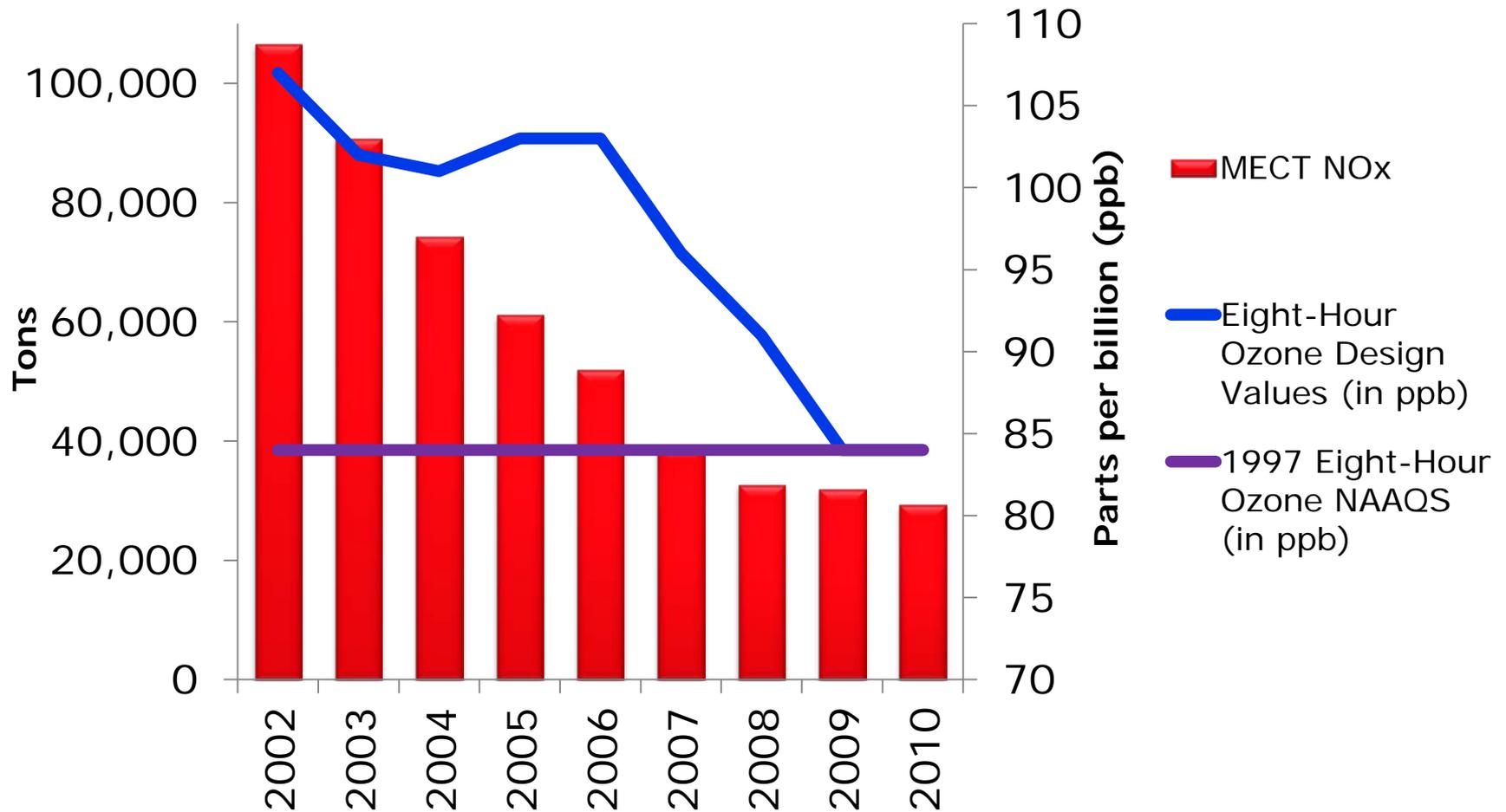
- Voluntary Emission Reduction Credits Programs
 - ECs – Stream of credit in tpy for nonattainment areas
 - DECAs – Discrete, credit in tons
- Mandatory Cap and Trade Programs
 - MECT – NO_x Cap and Trade
 - HECT – HRVOC Cap and Trade
 - The EBTA program is applicable to older EGFs.
 - The CAIR is a regional federally mandated interstate cap and trade program in which Texas participates.

Mandatory cap and trade programs have been successful in lowering ozone levels in the HGB ozone nonattainment area.



RECAP

Overall Reduction Trends in the HGB area





Contact Information

- Emissions Banking and Trading Web page:
<http://www.tceq.texas.gov/airquality/banking/banking.html>
- Air Quality Division - (512) 239-4900