

# EPA Should Allow the Current Standard to be Fully Implemented

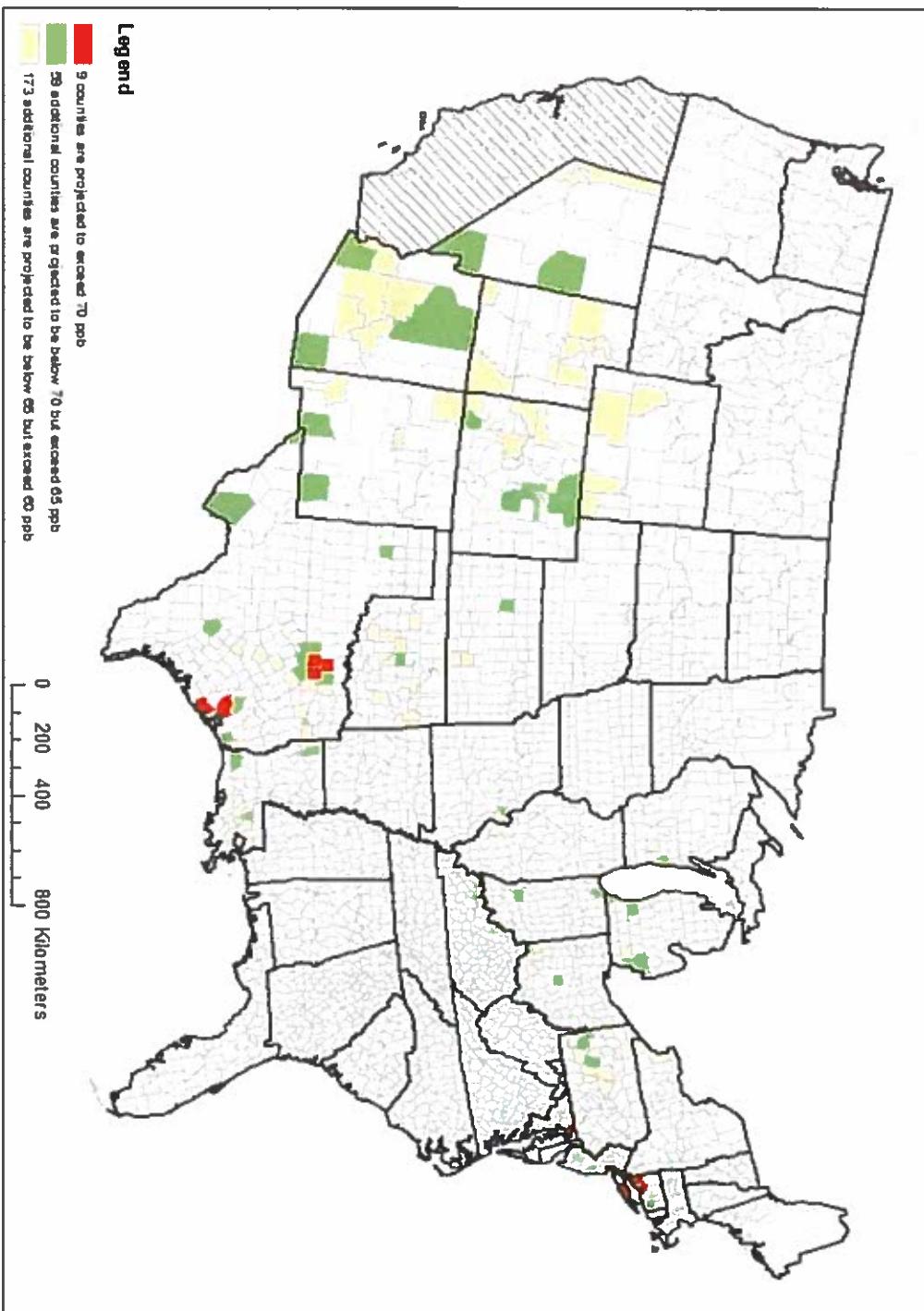
- There is no need to lower the current standard
  - By 2025 the U.S. will reach a 70ppb standard due to existing regulations
- There is a direct and significant impact to a refinery system
  - Adjustment of operations and import/export strategy
  - Production cost increases
  - Gasoline production decreases
- Permitting for new construction projects will be a challenge
- The Executive Branch needs to promulgate regulations holistically, rather than in individual silos
  - Perfect example: Renewable Fuels Standard (RFS)
- Legal and operational experts will cover the specifics

## Key Takeaways

- EPA Should Allow Current Standard to be Fully Implemented
- Current Standard of 75ppb – is supported by the science
- Lowering NAAQS – fails to avoid “duplicative” regulation EO 12866
- Concurrent NAAQS implementation – fails to “minimize regulatory cost and burden” EO 13563
- RFS and Lowering NAAQS – fails to avoid “regulations that are inconsistent, incompatible” EO 12866
- Lowering NAAQS to background – fails to ensure NAAQS are “achievable” CAA

# Existing Rules Work – 70 ppb by 2025

- Lowering NAAQS is “duplicative” with existing regulation



# Concurrent NAAQS Implementation fails to “minimize regulatory cost and burden”

- 2008 NAAQS Timeline

- March 27, 2008 – NAAQS Final Rule
- July 20, 2012 – EPA area designation
- March 6, 2015 – EPA Implementation rule finalized (proposed 2012)**
- July 2016 – SIP due (serious & higher)

- 2015 – Marginal attainment

- 2018 – Moderate attainment

- 2021 – Serious attainment

- 2025 .070 ppm**

- 2027 – Severe attainment

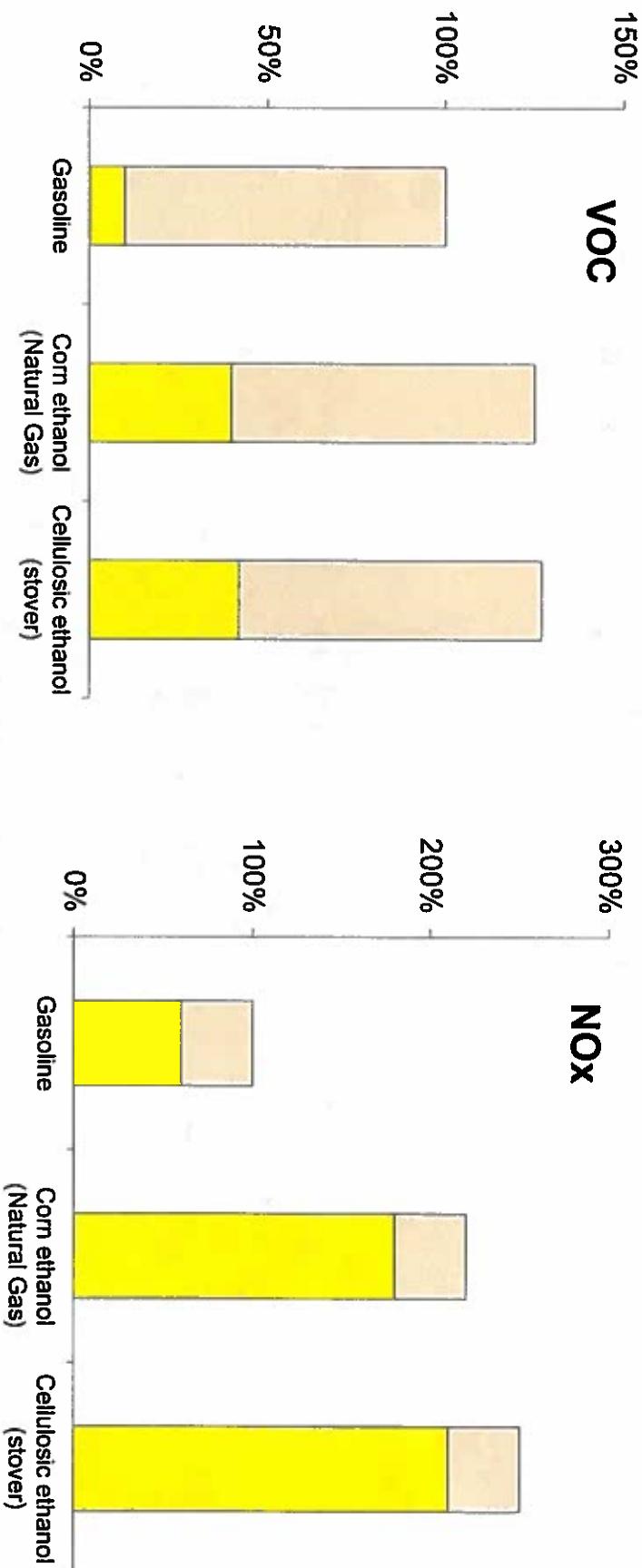
- 2032 – Extreme attainment

- Anticipated 2015 NAAQS Timeline

- October 1, 2015 - NAAQS Final Rule
- October 2016 – Propose EPA Implementation Rule
- December 2017-EPA area designation
- October 2018–State Infrastructure SIP
- December 2020 – Nonattainment SIP**
- 2020 – Marginal attainment
- 2023 – Moderate attainment
- 2026 – Serious attainment
- 2032 – Severe attainment
- 2037 – Extreme attainment

# RFS and Lowering NAAQS

## RFS exacerbates ozone precursors



Life-cycle emissions of volatile organic compounds (VOCs) and Nitrous Oxides (NOx) from gasoline, dry-mill corn-grain ethanol produced using natural gas at a biorefinery, and cellulosic ethanol from corn stover. For each pollutant, values are scaled to life-cycle emissions of gasoline at 100%.

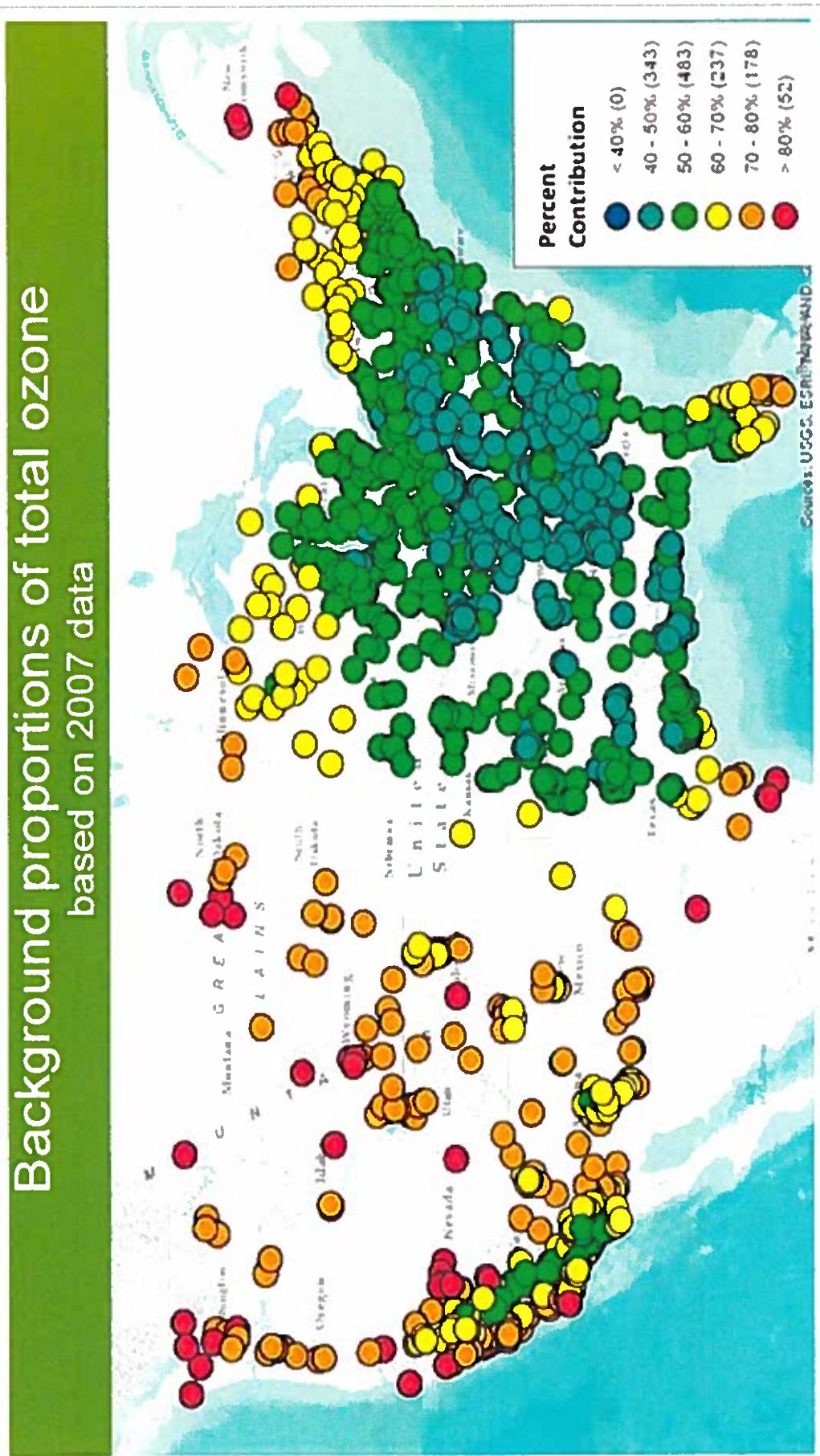
Production

Use

Source: "Renewable Fuel Standard: Potential Economic and Environmental Effects of U.S. Biofuel Policy", National Academy of Sciences, October 2011

# Lowering NAAQS to background – fails to ensure NAAQS are “achievable”

Background proportions of total ozone  
based on 2007 data



Source: EPA

# Refineries

- Ozone Non-Attainment Hurdles to Expansion

- **Harris-Brazoria-Galveston Bay Counties**

- Perpetuity oxide of nitrogen ( $\text{NO}_x$ ) emission credits are currently trading around \$100,000 per ton
- Perpetuity volatile organic compound (VOC) emission credits are currently trading around \$150,000 per ton
- One facility allowed to reduce  $\text{NO}_x$  emissions in the Dallas-Area due to the lack of VOC emission credits in Houston area
- In some cases, facilities are moving operations to ozone attainment areas outside of the Houston area and selling their emission credits

- **Refineries**

- Forecasted to spend billions in expansion projects and regulatory-mandated projects like Tier III gasoline in the 2016 to 2020 time frame
- Projected net emission increases of ~400 tons per year of oxide of nitrogen emissions and ~200 tons per year of volatile organic compound emissions
  - Sufficient emission off-sets are unavailable (~ \$72 million at current market value)
  - Investing millions in pollution control equipment in part to generate emission reductions
  - Plan to shutdown four existing process units and two boilers in order to generate remaining portion of the emission reductions

# 2015 Ozone National Ambient Air Quality Standard

- Non-Attainment Compliance and Permitting Requirements

Permit Activity	Attainment Designation	Non-Attainment Designation			
		Marginal	Moderate	Serious	Severe
Compliance Demonstration	N/A	2020 (3 years)	2023 (6 years)	2026 (9 years)	2032 (15-17 years)
Major Source <sup>(1)</sup> (ton per year)	100	100	100	50	25
Significant Threshold <sup>(1)</sup> (tons per year)	40	40	40	25	25
Emission Off-Set Ratio <sup>(1)</sup>	N/A	1.1	1.15	1.2	1.3
Control Requirements	Best Available Control Technology	Lowest Achievable Control Technology (LAER) <b>(No consideration to costs)</b>			

1. Applicable to both oxide of nitrogen (NOx) and volatile organic compound (VOC) emissions

# Major Source Permitting Example

- Ozone Attainment verses Marginal Non-Attainment Area

Permit Activity	Ozone Attainment		Marginal Ozone Non-Attainment	
	Pollutant Emissions (tpy)	Permitted Emissions (tpy)	Pollutant Emissions (tpy)	Permitted Emissions (tpy)
1 2016 Expansion Project	Oxides of Nitrogen	138	Oxides of Nitrogen	59
		Best Available Control Technology [BACT]		Lowest Achievable Emission Rate (LWER) -40 million higher tons than BACT
2 Past 5 Years of Emission Increases and Decreases	Oxides of Nitrogen	105	Oxides of Nitrogen	105
3 Project Net Emission Increase (Line Items 1 & 2)	Oxides of Nitrogen	243	Oxides of Nitrogen	164
4 Significant Net Emission Increase	Oxides of Nitrogen	Yes (> 40 tpy)	Oxides of Nitrogen	Yes (> 40 tpy)
5 Emission Off-Sets	Oxides of Nitrogen	Not Applicable	Oxides of Nitrogen	65
				* 1:1 Emission off-set ratio for marginal non-attainment areas • No established emission trading/credit program in the area • Other Facilities reluctant to give up emission reductions due to anticipated growth
6 Final Permit	Prevention of Significant Deterioration (PSD) permit issued with project emission increase of 138 tons per year			
	Off-sets do not appear viable so 2016 expansion project would need to be reduced in scope to maintain emission increase reflected in Line Item 1 to less than 40 ton per year significance level assuming project is still viable			

# Refining

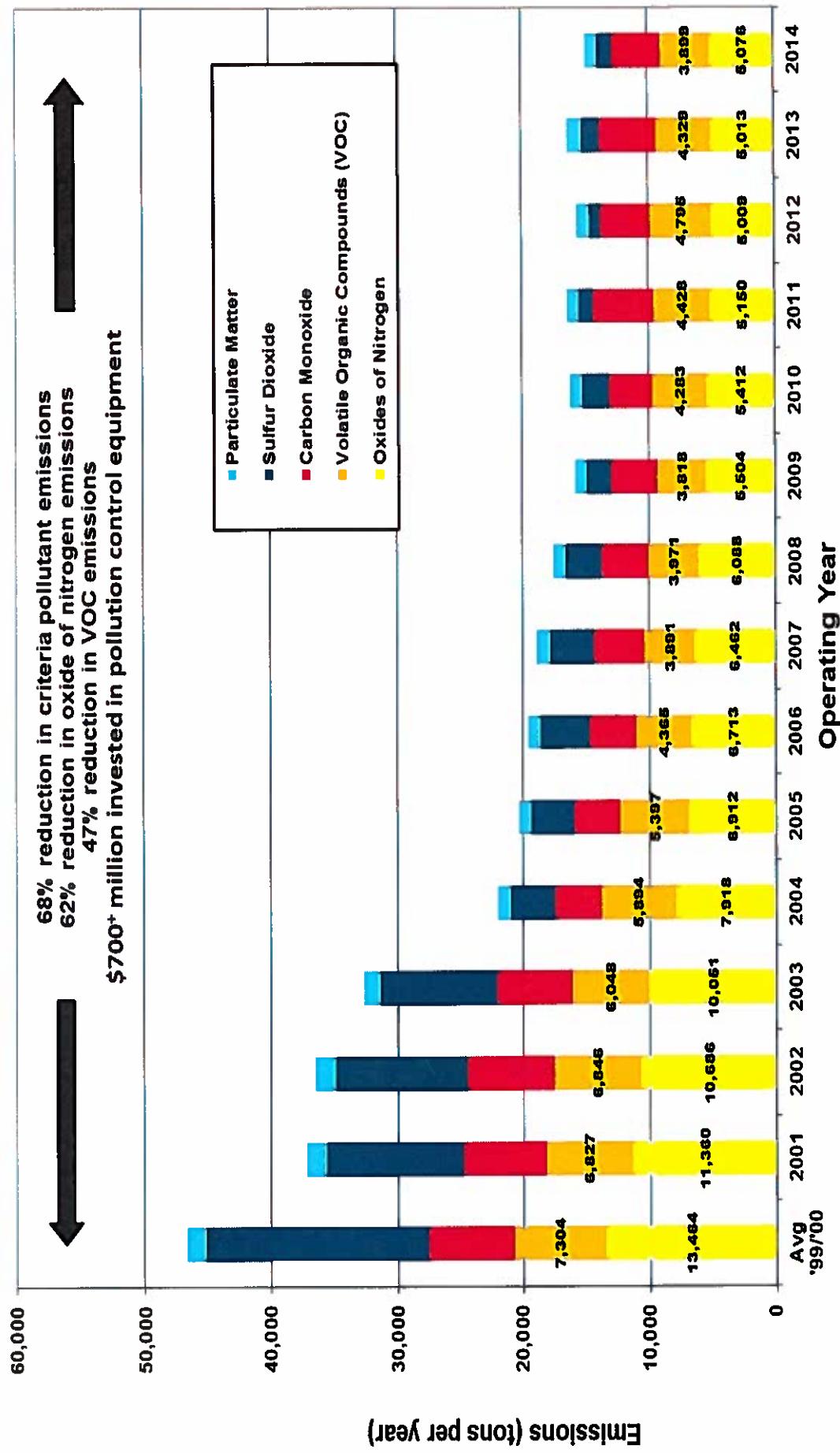
- Potential Impacts of Lower RVP Gasoline during Ozone Season

Parameter	2008 Ozone NAAQS (Base Case)	2015 Ozone NAAQS (1 psia reduction in RVP)	Delta Change
Gasoline Production - BPD	-	-	- 42,000
Reid Vapor Pressure - PSIA	8.2	7.2	- 1.0
Duration of Ozone Season	April - October	March - October	+1 month (most regions)
Cost of Compliance	-	-	+ 152 million/year
Refinery Exports			
Butanes - BPD	-	-	+4,500
Pentanes - BPD	-	-	+7,400
Refinery Imports			
Natural Gasoline & Utica Condensate - BPD	-	-	- 30,100

# **Support Slides**

# Refining

- Emissions from Six Refineries



# 2015 Ozone National Ambient Air Quality Standard

- Projected Non-Attainment Areas at 65 ppb

Source of Map: Chamber of Commerce

