Prevention of Significant Deterioration (PSD)/ Nonattainment (NA) Review/Netting

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Environmental Trade Fair 2024

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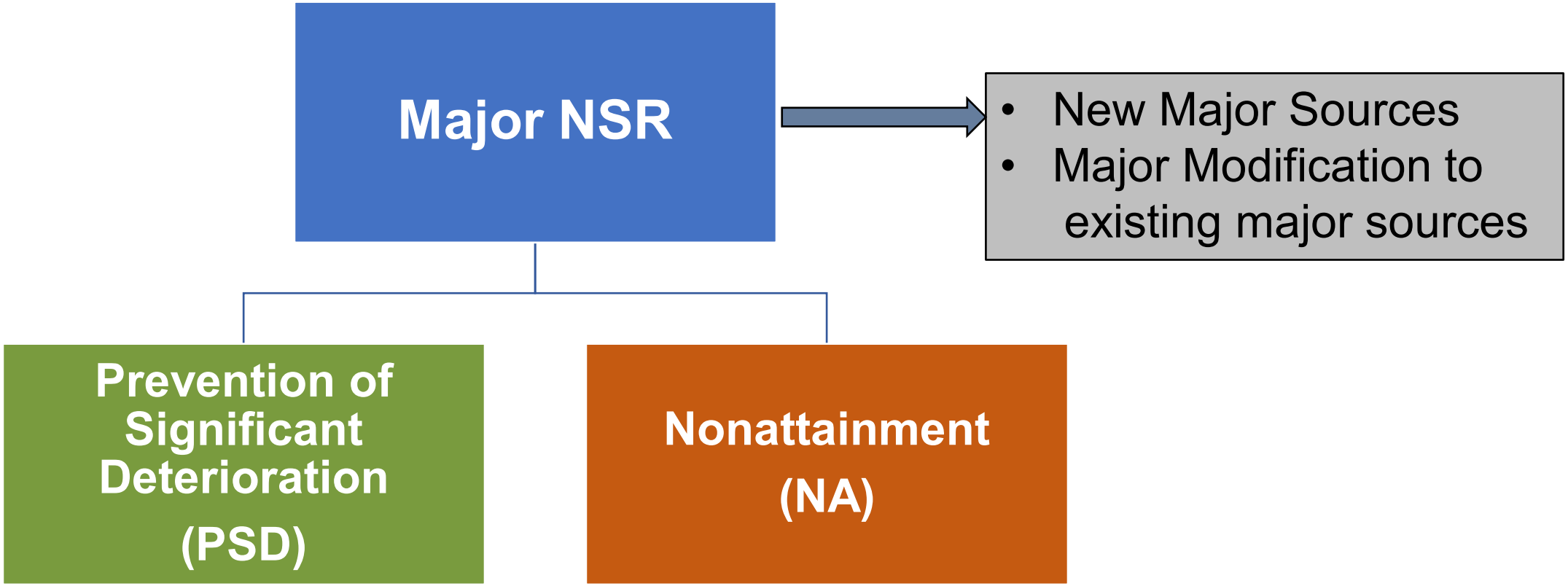
Major NSR : PSD / NA

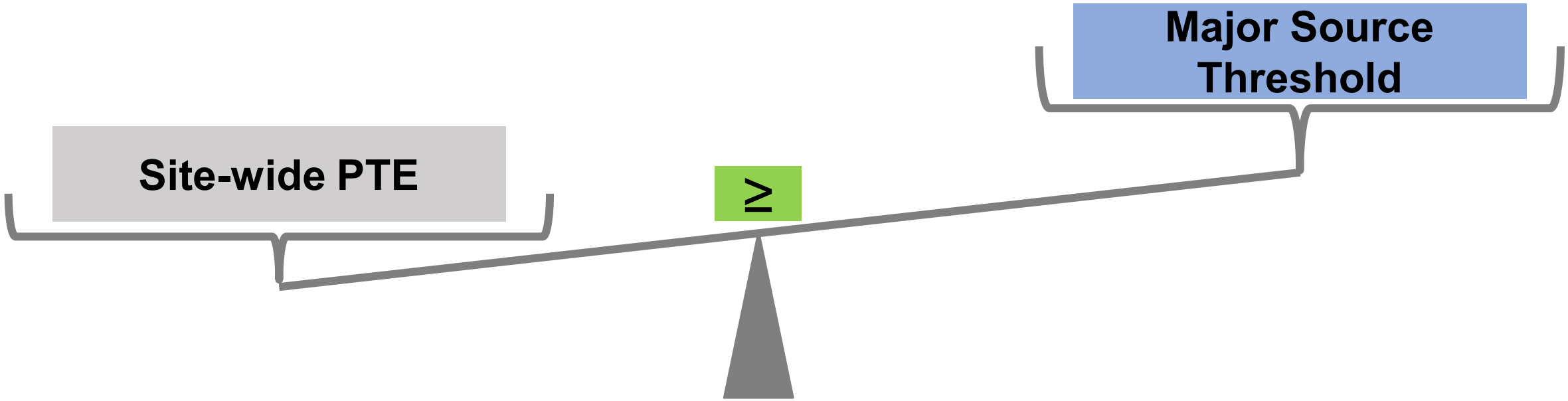


Major NSR Programs

Major NSR	Pollutant	Area Designation	Major Source / Modification Threshold
PSD	Regulated pollutants: Criteria & Non-Criteria	Attainment / Unclassifiable	Named sources Unnamed sources
NA	Criteria Pollutants	Nonattainment	NA classification for area

Major Source

Any stationary source that emits, or has the potential to emit (PTE), emissions of air contaminants that are greater than or equal to the Major Source threshold.



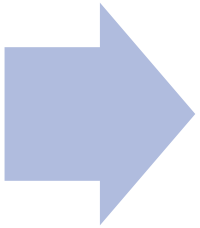
Refer to 30 TAC §116.12(19), 40 CFR §52.21(b)(1)(i), 40 CFR §51.166(b)(1)(i), & 40 CFR 51.165(a)(1)(iv)(A)

Major Modification

Physical Change (or)

Change in method of operation

…at an existing major source



Significant Emissions Increase (Project)

Significant Net Emissions Increase (Project + Contemporaneous)

Definition in 30 TAC §116.12(20)
Exceptions in 30 TAC §116.12(20)(B)

Affected Source

- Increases in actual emissions which are caused by a change or modification elsewhere. Included in project increase and netting.
- No allowable emission increases.
- Affected Sources do not require a BACT / LAER analysis.
- Emissions are not used to determine offsets required.

PSD: Major Source Thresholds

Source Category*	Regulated Pollutant	Major Source (TPY)
Named	All	100
Un-Named	All	250

*40 CFR §52.21(b)(l)(i) Named and unnamed sources.

PSD: Major Modification Thresholds

Regulated Pollutant	Major Modification (TPY)
CO	100
VOC / NO_x / SO_2	40
PM / PM_{10} / $PM_{2.5}$	25 / 15 / 10 respectively.
Pb	0.6
TRS (includes H_2S)	10
H_2SO_4	7
Fluoride (excludes HF)	3

***GHGs only trigger PSD review if at least one other federally regulated pollutant triggers PSD review.**

NNSR: Ozone Thresholds

Classification	Major Source (TPY)	Major Modification (TPY)	Netting Threshold (TPY)	Texas Area
Extreme	10	10	--	N/A
Severe	25	25	5	**HGB / DFW**
Serious	50	25	5	N/A
Moderate	100	40	40	**Bexar**
Marginal	100	40	40	N/A

Ozone regulated through precursors (VOC & NOx).

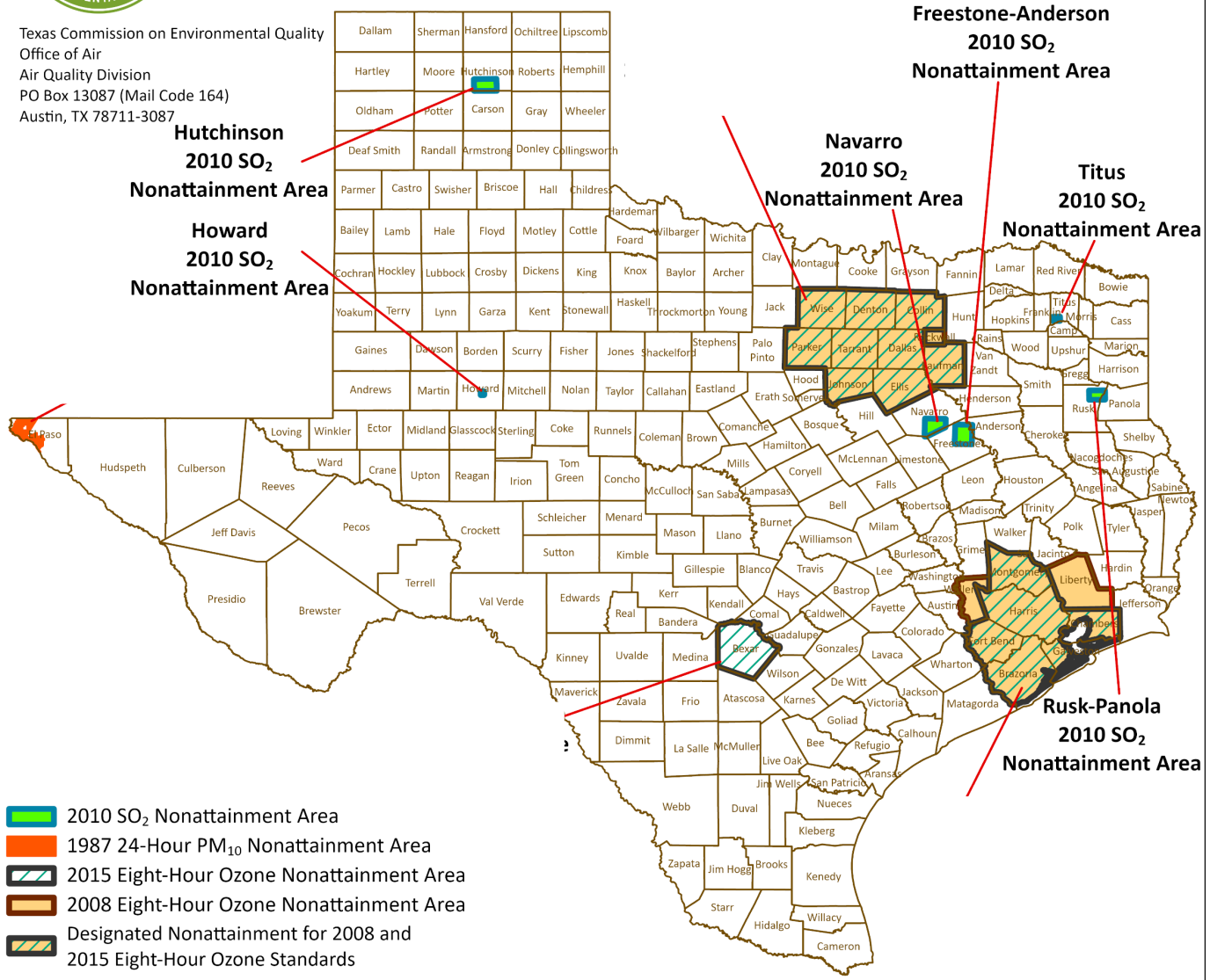
NNSR Thresholds For Other Pollutants

Pollutant	Classification	Major Source (TPY)	Major Modification (TPY)	Netting Threshold (TPY)	Texas Area
PM_{10}	Moderate	100	15	15	City of El Paso
Pb	Nonattainment	100	0.6	0.6	*
SO_2	Nonattainment	100	40	40	Portions of Titus, Panola, Rusk, Anderson, Freestone, Howard, Hutchinson, & Navarro

*On September 27, 2017, Collin County was redesignated to attainment for the 2008 lead standard (0.15 ug/m^3 as a 3-month average).

Texas Air Quality Nonattainment Areas

Texas Commission on Environmental Quality
Office of Air
Air Quality Division
PO Box 13087 (Mail Code 164)
Austin, TX 78711-3087

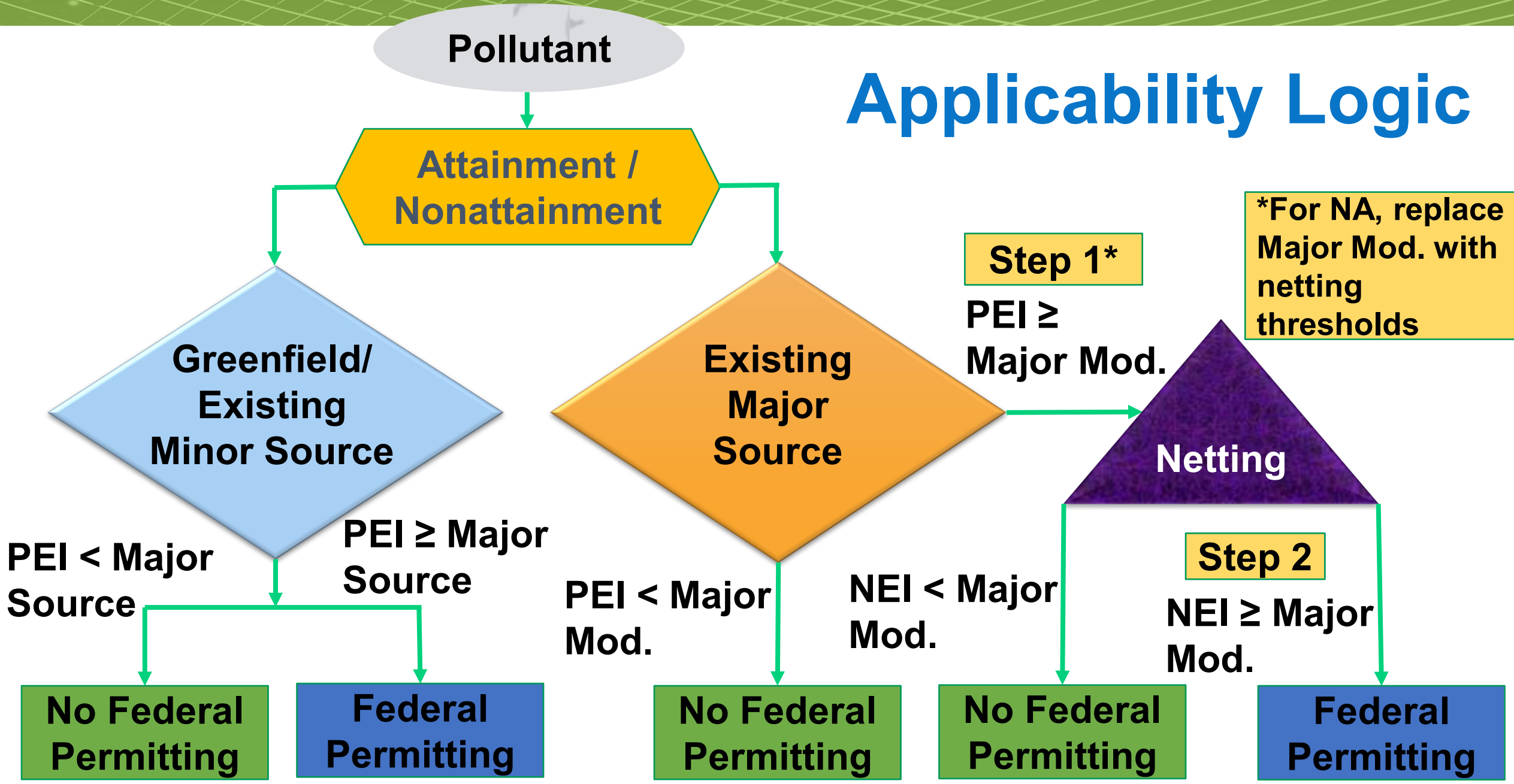


Made by: Laramie Mahan January 23, 2024

New $PM_{2.5}$ NAAQS

Pollutant	Averaging Time	Primary / Secondary	Level ($\mu g/m^3$)	2024 Update ($\mu g/m^3$)
$PM_{2.5}$	Annual	Primary	12.0	Revise to 9.0
		Secondary	15.0	Retain
	24-hour	Primary / Secondary	35.0	Retain
PM_{10}	24-hour	Primary / Secondary	150.0	Retain

Applicability Logic



Major Modification
Two Step Applicability Test

Step 1

Significant Project Emissions Increase (PEI)

New / Existing units:

PEI = PTE – BAE

Existing units:

PEI = PAE – BAE

PEI = PAE – BAE – CHA

Step 2

Significant Net Emissions Increase (NEI) in contemporaneous netting window

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PEI = Project Emissions Increase; PTE = Potential To Emit; BAE = Baseline Actual Emissions; PAE = Projected Actual Emissions (current project); CHA = Could Have Accommodated increment.

Step 1: Project Emissions Increase

New Facility

- PEI = PTE

  For units that have not begun operation, BAE = 0
- PEI = (Proposed – Current) PTE

  For units with SOO < 2 years

  BAE = Current PTE

Existing Facility

- PEI = PTE – BAE
- PEI = PAE – BAE
- PEI* = PAE – BAE – CHA

PEI = Project Emissions Increase; PTE = Potential To Emit; BAE = Baseline Actual Emissions; PAE = Projected Actual Emissions (current project); CHA = Could Have Accommodated increment. *Cannot be a negative number.

Step 1 : PEI

- Includes emissions from all new, modified, and affected facilities associated with the project.
- Table 2F: Represent PEI for each pollutant.
- Table 1F: Summarize results.
- Follow EPA guidance on aggregation.

Step 1
Project Emissions Accounting (PEA)

- Historically, emission increases could only can be considered in Step 1 of estimating project related emission increases.

- Project Emissions Accounting previously referred to as “Project Netting”.
  - Adopted by EPA in the FR Notice and effective on December 24, 2020.
  - Adopted by TCEQ in 30 TAC §116.12 (32) (D) and effective July 1, 2021.

- EPA clarified Step 1 of Project Emissions Increase in major NSR applicability process can now **include both increases and decreases** in emissions.

Project Emissions Accounting (PEA)

- Not yet State Implementation Plan (SIP) approved.
- Subject to subsequent EPA approval of SIP.
- Applicant has the choice of using PEA in Step 1 or traditional approach in Step 1.

PEA: Reductions

- Units must be constructed and in operation.
- All units must be part of a single project.
- Units must be “substantially related” to other units in the project.
- Decreases do not have to totally offset increases. Under current rule*, decreases for PEA are not required to be real or enforceable depending on how they are determined (i.e., projected actuals may be used).
- Emission Reduction Example: Shutdown of existing units or add on control.

*Proposed rule about PEA reductions under review

Example 1 - Step 1

Project: An existing major source in a severe nonattainment area for ozone. The proposed changes are:

- Add **(+)** one new storage tank (EPN Tank 1).
- Control existing tank emissions (EPN Tank 2) **(-)** and route it to a new Flare (EPN Flare) **(+)**.
- Replace existing coal-fired boiler (EPN: Boiler 1) **(-)** with a new natural gas-fired boiler (EPN: Boiler 2) **(+)**.

Example 1

Pollutant: VOC

EPN	Baseline emissions (TPY)	Proposed allowable emissions (TPY)	Project Emissions Increase (PEI) (TPY)
Tank 1 (New)	0.00	18.00	(+) 18.00
Tank 2 (Routed to control)	15.00	0.00	(-) 15.00
Flare (New)	0.00	0.50	(+) 0.50
Boiler 1 (Remove)	16.00	0.00	(-) 16.00
Boiler 2 (New)	0.00	13.00	(+) 13.00
	Step 1:	PEI (Net Increase)	0.50 TPY

Baseline Actual Emissions (BAE)

Emissions (tpy) emitted during a **consecutive 24-month period out of the previous 10 years** (previous 5 years for electric utilities) from the date immediately preceding either:

- the date the owner or operator begins actual construction of the project, or
- the date a complete permit application is received for a permit.

BAE

- Typically, highest actual (TPY) average is used for lowest PEI.
- All sources of single pollutant have same 24-month period for a given project.
- Different pollutants may have a different 24-month period.
- Baseline period can extend back 10 years.

Pollutant : VOC		
Year	Unit A (TPY)	Average (BAE)
2023	190	182.5
2022	175	177.5
2021	180	190
2020	200	200
2019	200	195
2018	190	192.5
2017	185	180
2016	175	170.5
2015	166	171
2014	176	

Example 2- BAE

Pollutant: VOC

EPN	2019	2020	2021	2022	2023
Tank1 Vent	14.70	12.70	13.30	12.30	14.60
Tank2 Vent	16.30	14.20	10.30	14.90	15.00
Heater Vent	9.80	7.10	6.50	9.20	8.30
Totals	40.80	34.00	30.10	36.40	37.90
Average		37.40			
			32.05		
				33.25	
					37.15

Projected Actual Emissions (PAE)

- The maximum annual rate (tpy) at which an existing facility is projected to emit a federally regulated pollutant in any rolling 12-month period. [30 TAC §116.12(31), §116.127]
- Relevant information used to determine the projected rate should be provided.
- The permit will require records of actual emissions.
- A PAE rate is not an enforceable limit, but exceeding the PAE could indicate that federal applicability may need to be reevaluated for the project.
- Cannot be used to define contemporaneous increases and decreases.

PTE vs. PAE

PTE	PAE
• New and existing units • Potential to emit to Baseline actual • No additional recordkeeping / monitoring unless otherwise required • Delta is higher, most conservative and easy - Enforceable limit	• Existing units • Projected actual to Baseline actual • Documentation and recordkeeping - permit condition added to maintain records 30 TAC §116.127 • Delta is less, Not Enforceable limit

Could Have Accommodated (CHA) Considerations

- In estimating the project emission increase, the source owner can exclude emissions that could have been accommodated during the selected baseline period. [30 TAC §116.12(32)(A)]

- The rule only allows CHA to be used with the BAE to **PAE** test.

- **Data** must be provided to support the accommodation.

CHA Criteria

- The facility must have been **legally** and **physically** capable to sustain the higher production rate during the baseline period.

- CHA emissions must be **unrelated** to the proposed project. Project emissions cannot be accommodated.

Step 2
Net Emission Increase (NEI)

- Evaluate the NEI in the project's **contemporaneous period.**
- Applies only to **existing major sources.**
- Conducted **per pollutant**.

Contemporaneous Period

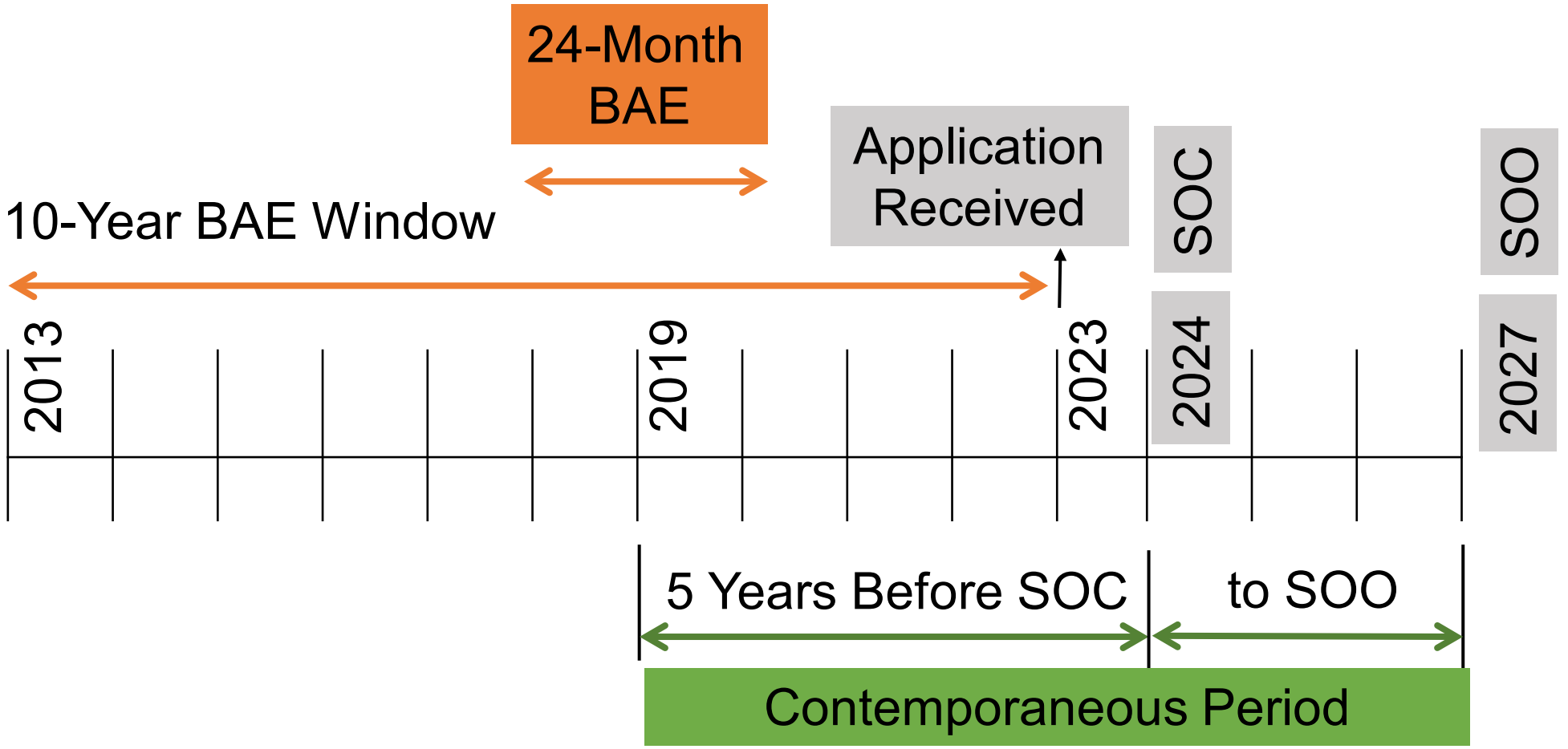
- Contemporaneous Window:

  = [5 years prior to Start of Construction (SOC) to Start of Operation (SOO)].

- ∑ Creditable emissions (increases + decreases) in the contemporaneous window (TCEQ Table 3F).

- If NEI ≥ Major Modification → Federal permitting applies.

BAE Window vs Contemporaneous Period



Creditable Increases and Decreases

During contemporaneous period (TCEQ Table 3F).

Based on records of actual emissions.

Include planned projects up to the start of operation.

Not previously relied upon for issuance of a major NSR permit.

During contemporaneous period (TCEQ Tables 3F and 4F).

Must be real and enforceable prior to start of operation.

Not creditable if it is required to meet permit limit / SIP.

Not previously relied upon for issuance of a major NSR permit or used as an offset in a Nonattainment NSR permit.

Step 2 - Net Emissions Increase (NEI)

NEI = Proposed Project Emissions Increase (PEI) (Table 2F) +

[Creditable Contemporaneous Increases - Creditable Contemporaneous Decreases]

Table 3F

Table 4F

Example 3: PEI & NEI

Step 1

Pollutant	PEI (TPY)	PSD Major Mod.	Netting	NEI	PSD review required?
NO_X	70	40	Yes	76	Yes
CO	110	100	Yes	73	No
VOC	52	40	Yes	67	Yes
SO_2	45	40	Yes	32	No

Step 2

Federal Applicability

Major NSR programs

Major NSR	Pollutant	Area	Major Source / Modification Threshold	Control requirements	Additional analysis
Prevention of Significant Deterioration (PSD)	Criteria and Non-Criteria pollutants Major for one pollutant, Major for all pollutants	Attainment / Unclassifiable Compliance with NAAQS	Source type: Named Sources Unnamed sources	BACT	Increments Additional Impacts analysis
Nonattainment (NA)	Criteria Pollutants Major source determination is made for each pollutant individually.	Nonattainment - Out of compliance with NAAQS	Thresholds based on NA classification for area	LAER	Statewide compliance Emission Offsets Net Air Quality Improvement

Federal Applicability

Federal Review

Federal Review

PSD

Control Technology	Air Quality Analysis	Public Involvement
• BACT • EPA's Top-Down Method (or TCEQ Three-Tier Method)	• NAAQS Analysis • Increment Analysis • Additional Impacts Analysis • Class I Area Analysis	• Public Notice: Public Comment - EPA, Mayor, Council of Governments

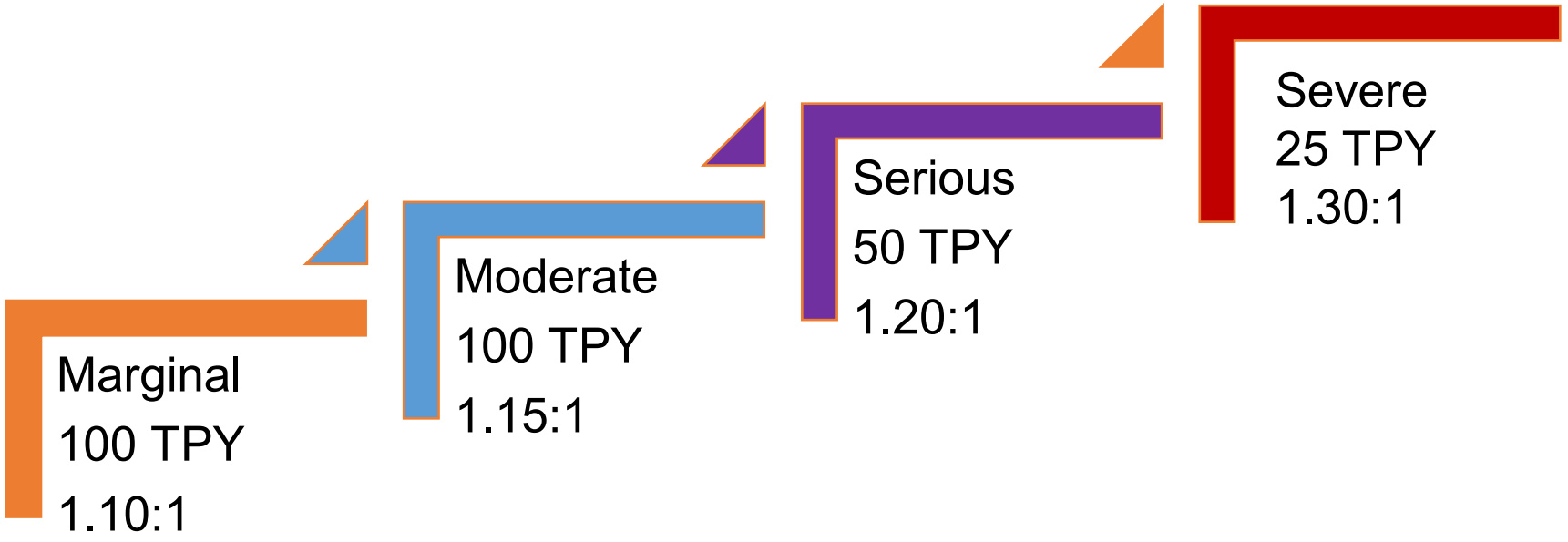
NNSR

Control Technology	Air Quality Analysis	Public Involvement
• LAER	• Emission Offsets • Alternative Site Analysis	• Public Notice: Public Comment - EPA, Mayor, Council of Governments

Offsets

- Offsets are an actual emission reduction ≥ increases from new and modified facilities.
- Amount depends on the nonattainment classification.
- Offsets must be obtained before operation.
- TCEQ Emissions Banking and Trading Team must review/approve.
- Offsets = (Emission Increases from New and Modified Facilities) x Offset Ratio.

Offsets:
Ozone Precursors (VOC & NOx)



Offsets for other pollutants (CO, SO_2, PM_{10}, NO_2, Lead) listed in 30 TAC §116.12(20)(A) Table 1.

Example 4

Project: Site C is a major unnamed source of VOC in a severe nonattainment area for ozone. The March 2024 application is seeking authorization of new facilities and modified facilities. The proposed start of construction date is May 2025, and the estimated start of operation date is May 2027.

Will Site C need a federal NSR permit?

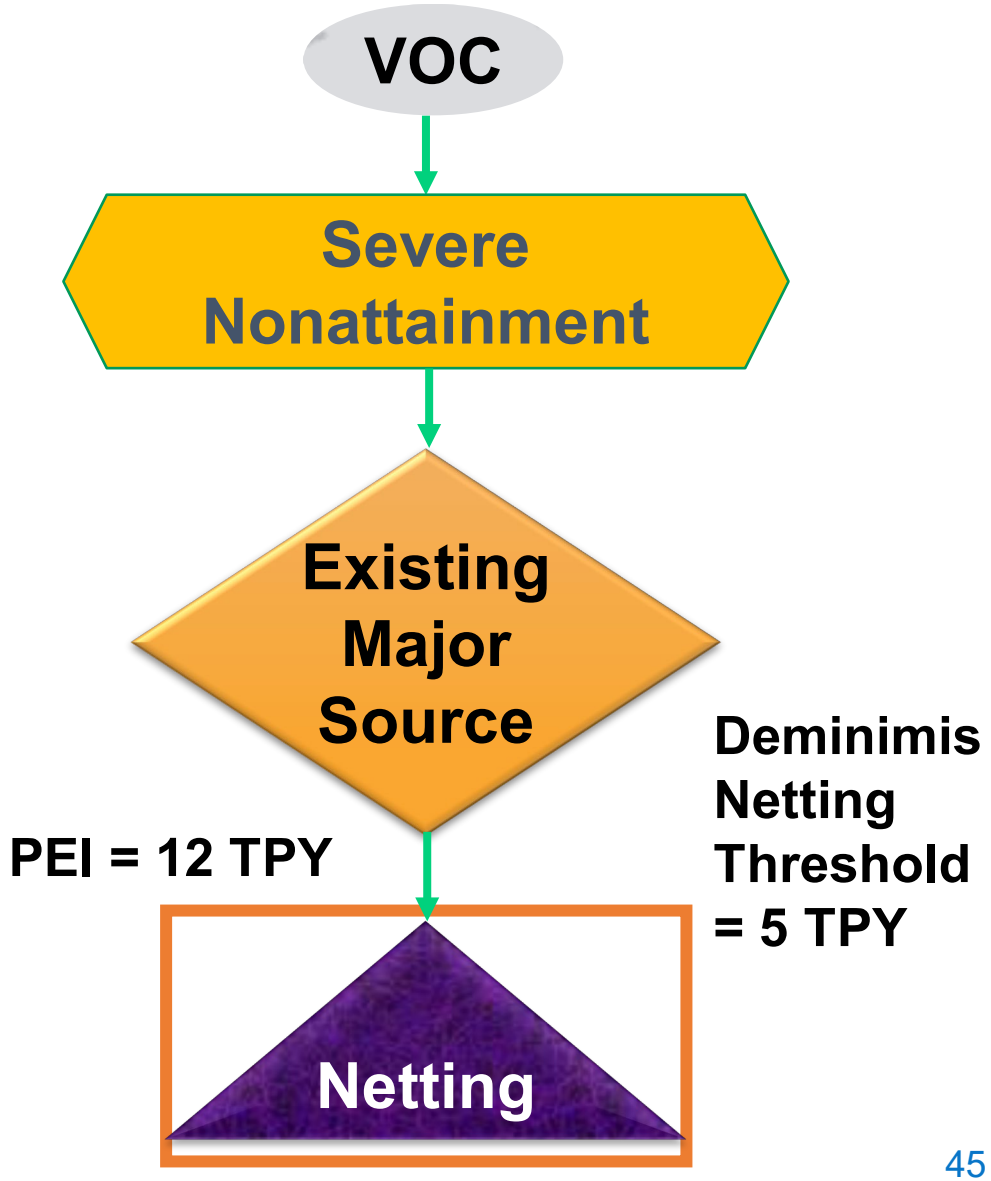
Project Details	
Pollutant	VOC
New / Existing	Existing (Major)
Source Category	Unnamed
Classification	Nonattainment (Severe)

Example 4
Step 1 – PEI (VOC)

EPN	Facility	Proposed PTE (B) (TPY)	Baseline (A) (TPY)	Difference (B-A) (TPY)
Tank 1				
Tank 2				
Tank 3				
Boiler 1				
Boiler 2				
Flare				

Example 4
Step 1

Step 1 Check	
PEI (TPY)	12
Major Modification Threshold (TPY)	25
Netting Threshold (TPY)	5
Major Source for PSD	No
Major Source for NNSR	**Yes**

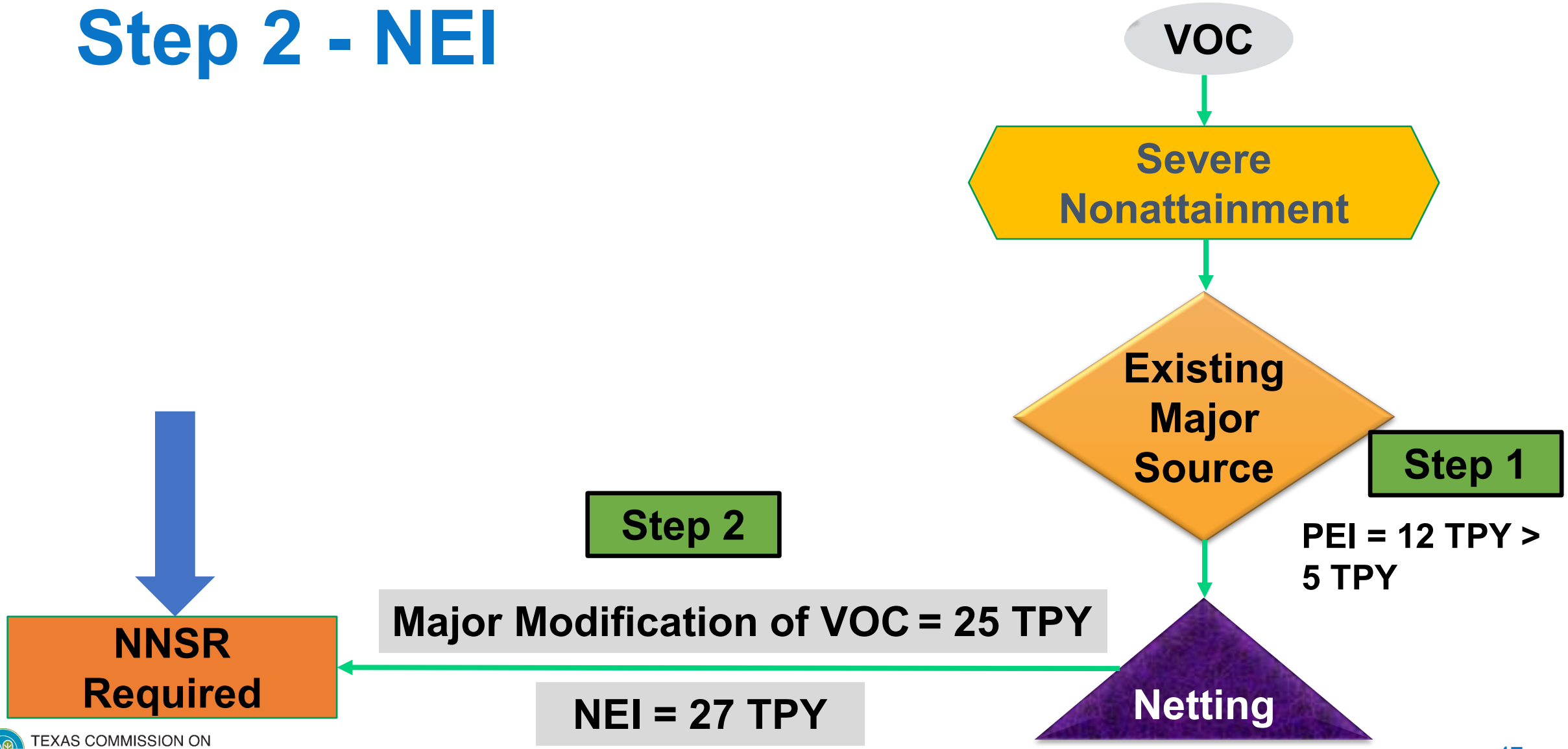


Example 4
Step 2: NEI (VOC)

Contemporaneous Window	Creditable Increase (TPY)	Creditable Decrease (TPY)	Net Emissions Increase (NEI)
March 2024 (Current Project = PEI)			
January 2024			
May 2023			
December 2022			
November 2018*			

*Note: The contemporaneous period goes back in time five years from the proposed start of construction (SOC = May 2025).

Example 4
Step 2 - NEI



Example 4
Offsets

EPN	Facility	Proposed PTE (B) (tpy)	Baseline (A) (tpy)	Difference (B-A)* (tpy)
Tank 1				
Tank 2				
Tank 3				N/A
Boiler 1				
Boiler 2				
Flare				

*Note that this is not the PEI from Step 1. Project decreases should not be considered while calculating offsets.

Example 4
Offset

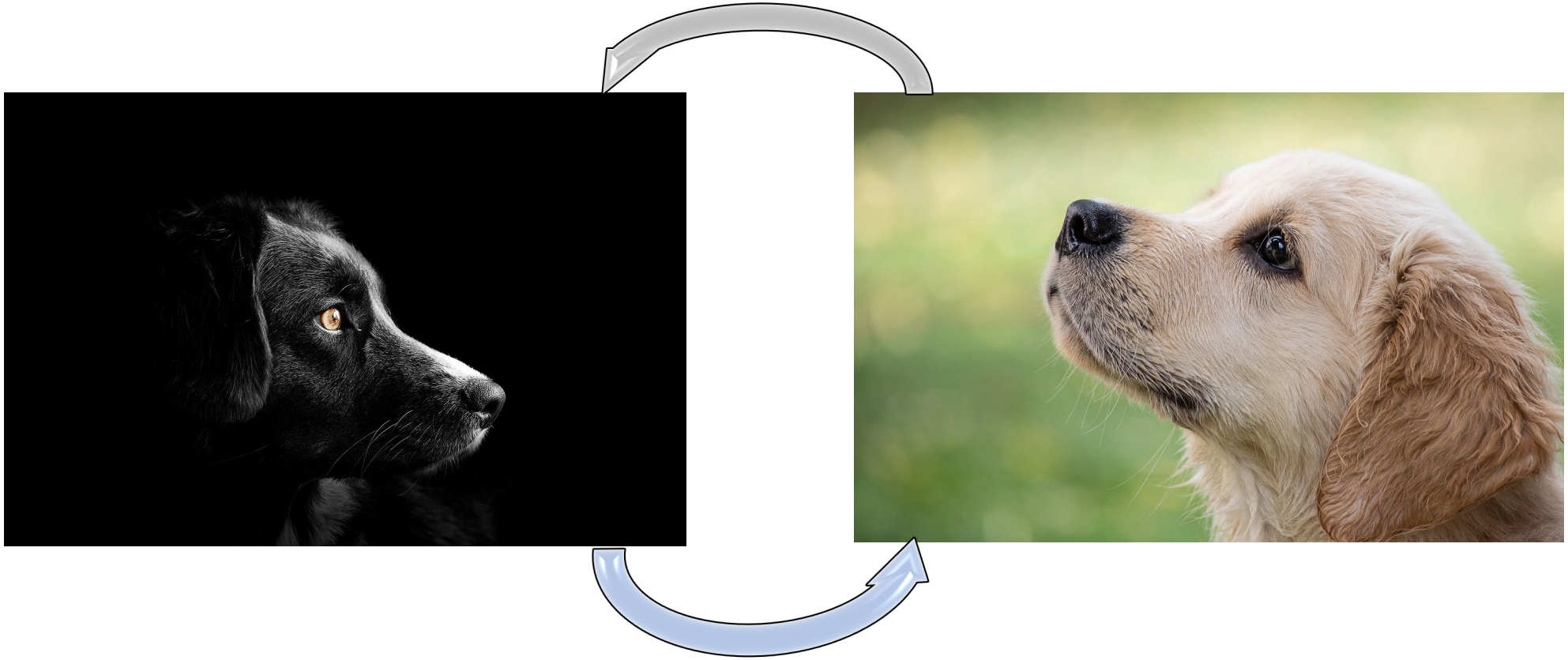
Pollutant	Classification	Offset Ratio	(PTE-BAE) Increases only (TPY)*	Offset Amount (TPY)
VOC	Severe	1.3 to 1	Emissions Increases only	1.3 * 37 = 48.1

Classification	Offset Ratio
Extreme	1.50 to 1
Severe	1.30 to 1
Serious	1.20 to 1
Moderate	1.15 to 1
Marginal	1.10 to 1

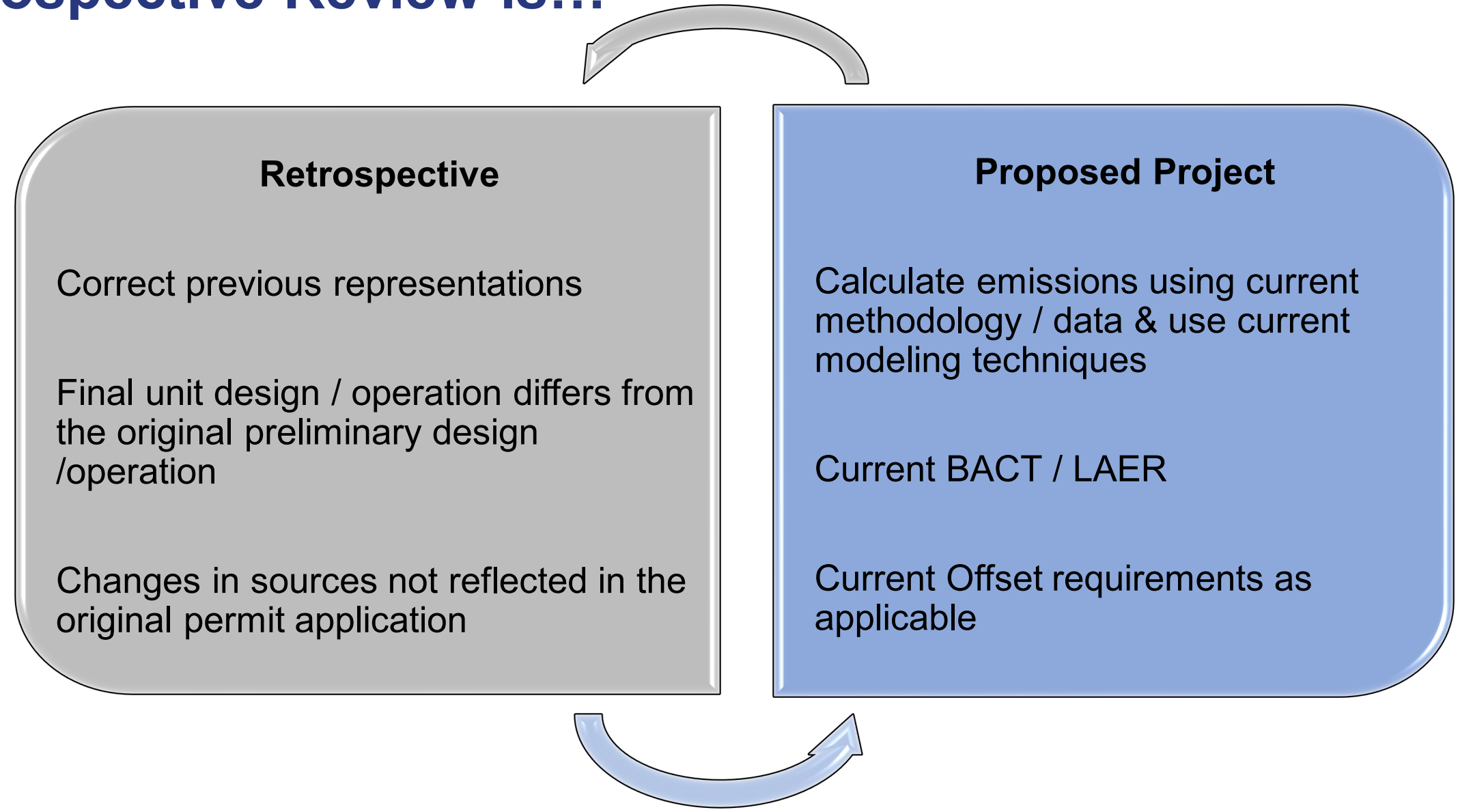
Based on the county classification and pollutant

Woohoo!!!

Retrospective Review

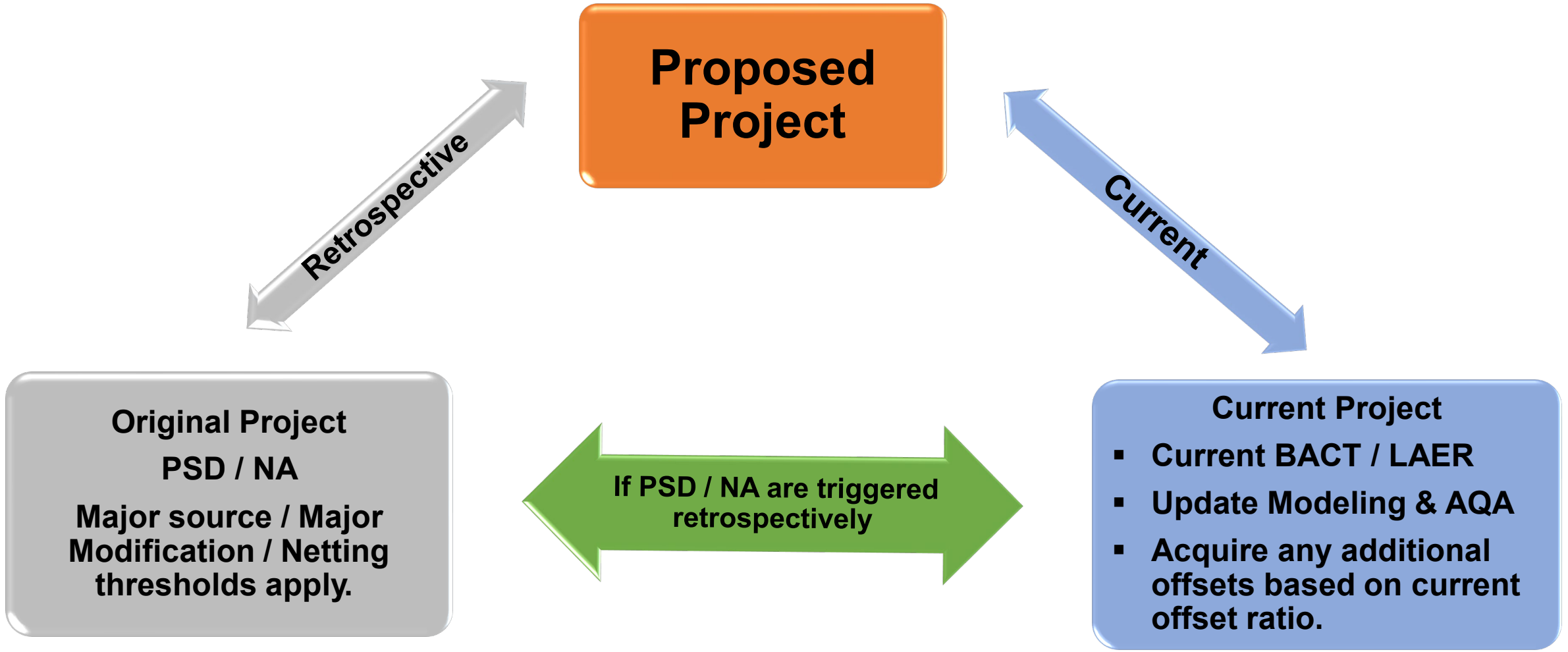


Retrospective Review is…



Not used to authorize changes that constitute a new modification

Federal Retrospective Review



Offset ratios if NA is triggered (ratio depends on area classification at the time of new permit issuance **as per 30 TAC §116.150(a)**).

Retrospective Considerations For Permit Applications

Retrospective emissions should be separated from new emissions.

- Provide separate project increase calculations.
- Provide separate Tables 1F and 2F (and 3F and 4F as applicable) with respect to the retrospective time frame.

Example 5: Retrospective Review

- A major source received a permit in November 2023 to authorize installation of two new furnaces and four new tanks.
- The area has been classified as serious ozone nonattainment in 2018.
- The source is not considered major under the PSD program.

Example 5
Necessary Corrections

- **Furnaces -** Original furnace capacities were underestimated. The emission correction results in an additional NEI of 1.64 tpy NOx and 0.10 tpy VOC.
- **Storage Tanks -** Original estimated fitting types, fitting counts, and pump capacities were not conservative compared to proposed equipment. The emission corrections resulted in an additional NEI of 2.30 tpy VOC.

Example 5: Retrospective Review
VOC

EPN	Status	Pollutant	Original Net Emission Increase (tpy)	Newly Quantified Emissions (tpy)	Corrected Net Emission Increase (tpy)
Furnace A	New	VOC	0.70	0.05	0.75
Furnace B	New	VOC	0.70	0.05	0.75
Tank 1	New	VOC	5.25	0.54	5.79
Tank 2	New	VOC	5.25	0.54	5.79
Tank 3	New	VOC	5.71	0.61	6.32
Tank 4	New	VOC	5.71	0.61	6.32
TOTAL NEI:		VOC	23.32	2.40	25.72

*Assuming Netting is triggered in Step 1.

Example 5: Retrospective Review
NOx

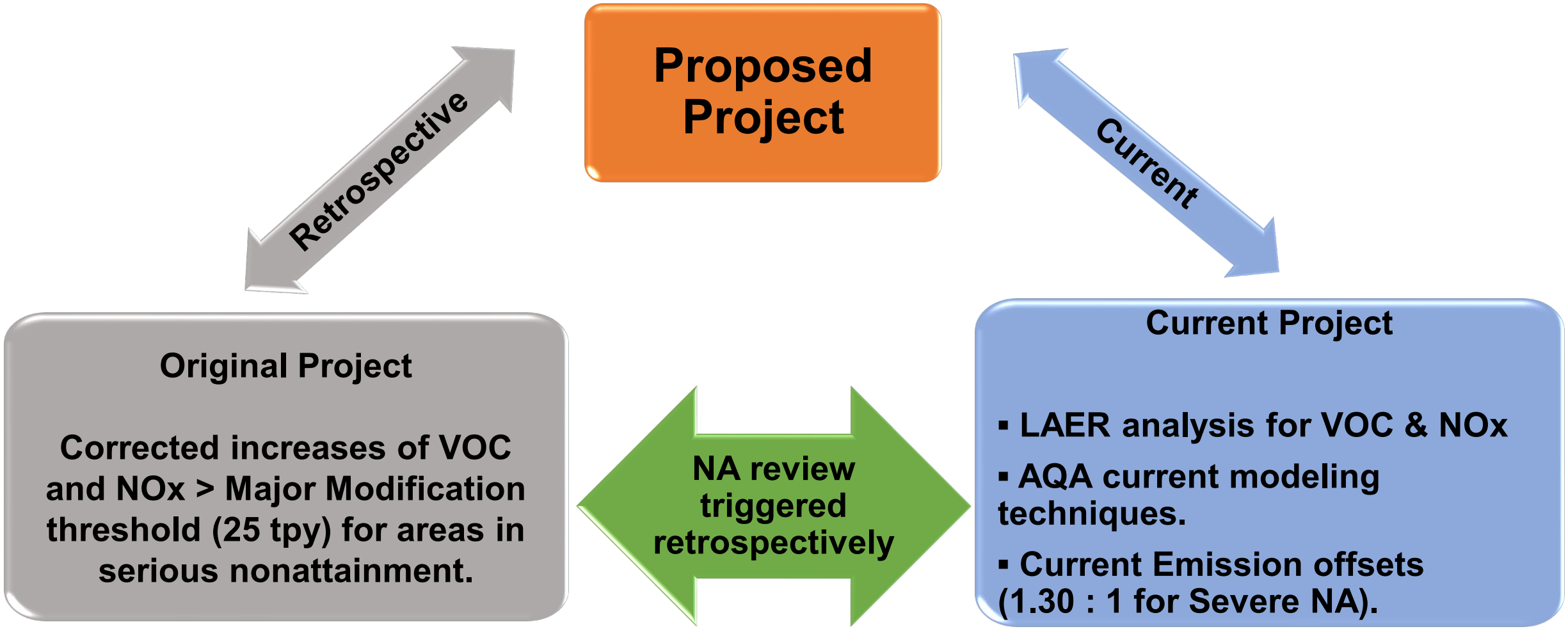
EPN	Status	Pollutant	Original Net Emission Increase (tpy)	Newly Quantified Emissions (tpy)	Corrected Net Emission Increase (tpy)
Furnace A	New	NOx	11.83	0.82	12.65
Furnace B	New	NOx	11.83	0.82	12.65
TOTAL NEI:		NOx	23.66	1.64	25.30

*Assuming Netting is triggered in Step 1.

Retrospective…

Pollutant	Serious NA Threshold	NEI	NA triggered
VOC	25	25.72	Yes
NOx	25	25.30	Yes

Retrospective Review…



More on Retrospective Review

For more details on retrospective review, please feel free to download the TCEQ presentation from October 18, 2022:

Federal Applicability and Retrospective Review

Tables related to Major NSR

Table	Description
Table 1F	Air Quality Application Supplement
Table 2F	Project Emission Increase
Table 3F	Project Contemporaneous Change
Table 4F	Description of Creditable Reductions
Table 4N	Initial Lowest Achievable Emission Rate Determination
Table 6N	Alternate Site Analysis for Texas NNSR
Table 9N	Signature Verification

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Thank You