

# Ozone Impacts of Proposed New Power Plants and Offsets

Presentation to the NETAC  
Technical and Policy Committees

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## Background

- New EGUs and offsets have been proposed – how do they impact Northeast Texas?
- Evaluate sensitivity of future Northeast Texas ozone to EGU changes using the 2007 model developed for the EAC

# Today's Presentation

- EGU emissions changes
  - New units
  - TXU's offsets
- Ozone Impacts
  - New units
  - New units with TXU's offsets

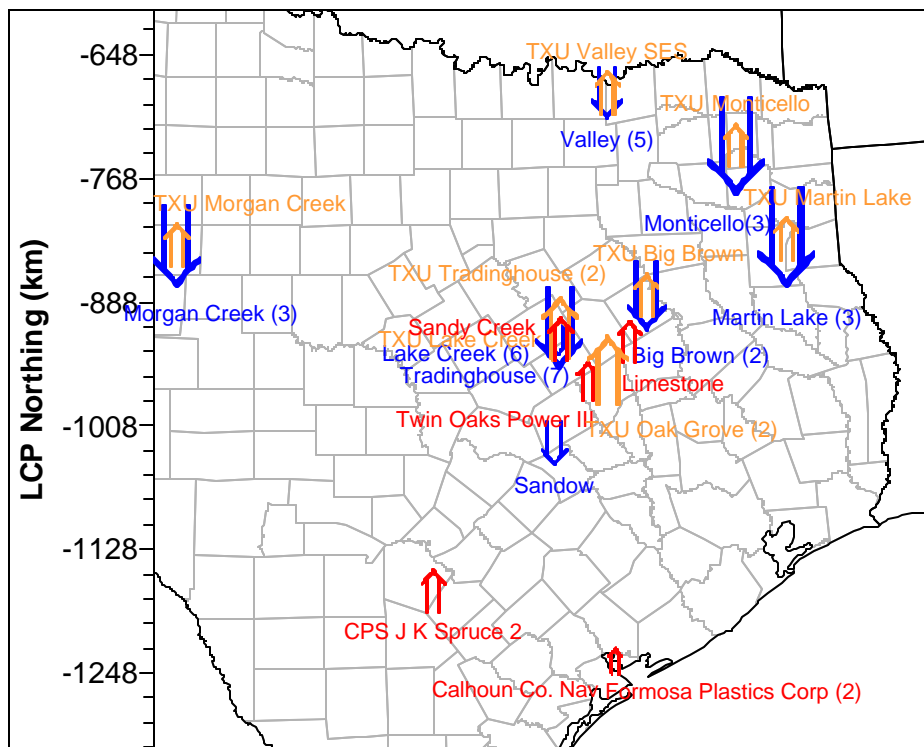
## Power Plant (EGU) Proposals

- 17 new EGUs proposed
  - 10 TXU units, including 800 MW units at Martin Lake, Monticello and Big Brown
  - 1 new EGU at Limestone
- TXU has proposed an offset strategy
  - Reductions at existing coal units including Martin Lake, Monticello and Big Brown
  - Shutdowns of other units

## EGU Emissions Data

- 2007 emissions from NETAC's EAC modeling
  - Emissions for existing Texas EGUs based on 1999 CEM data
- Proposed EGU emissions provided by TCEQ
  - Based on permit applications
  - Using 30-day emission limits
- TXU's offset strategy provided by TXU
  - New emission rates for offset units

# Location of Proposed EGU Changes

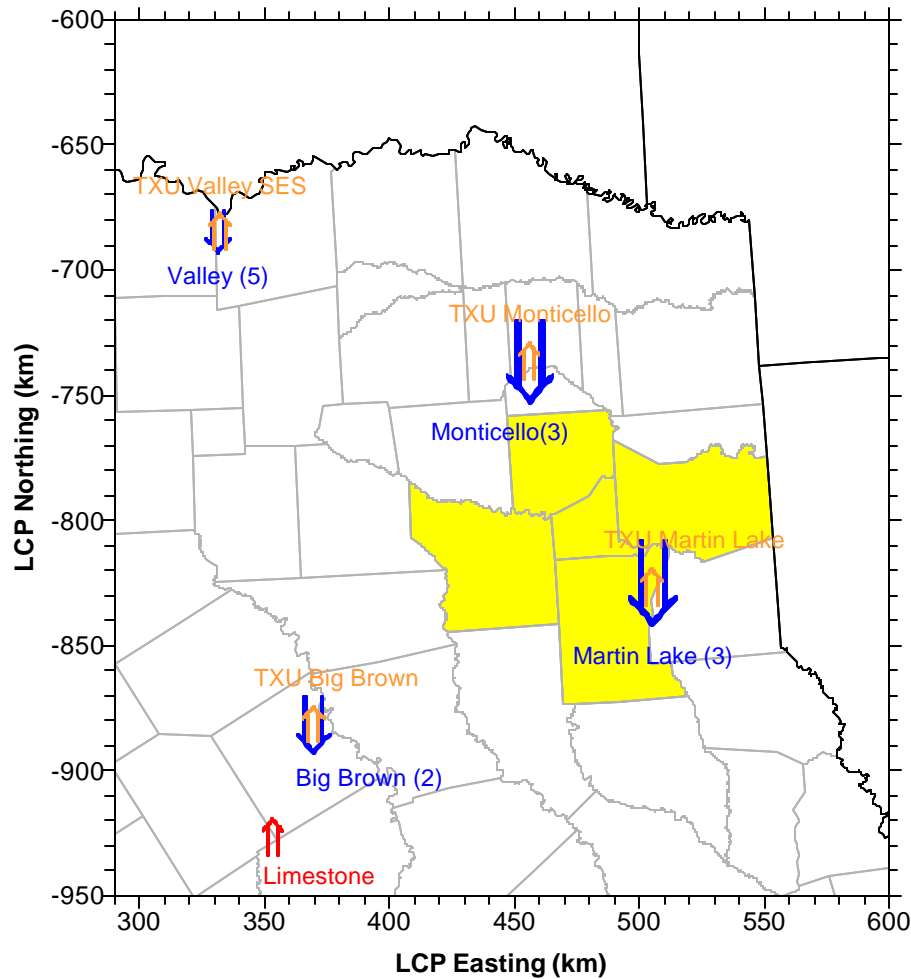


Arrows identify EGU emission increases and decreases

### Proposed EGUs and Offsets

- ↑ = Original proposed EGUs
  - ↑ = New TXU proposed EGUs
  - ↑ = Proposed Limestone EGU
  - ↓ = TXU proposed offsets
- ↑↑ = 20 TPD
  - ↑ = 10 TPD
  - ↑ = 5 TPD

# Proposed EGU Changes in NE Texas



## Summary of Emission Changes

- 103 tpd NO<sub>x</sub> from all 17 new EGUs
- 72 tpd NO<sub>x</sub> from ten new TXU units
  - New units at Martin Lake, Monticello and Big Brown each contribute 6.9 tpd
- TXU's offsets reduced NO<sub>x</sub> emissions by 157 tpd

tpd = tons per day

## NOx Changes From TXU's Offsets

TXU Plant (units)	County	Base	Offset	Change
Valley (5)	FANNIN	9.7	0	-9.7
Big Brown (2)	FREESTONE	24.6	7.4	-17.2
Lake Creek (6)	MCLENNAN	3.6	0	-3.6
Tradinghouse (7)	MCLENNAN	24.8	0	-24.8
Morgan Creek (3)	MITCHELL	24.1	0	-24.1
Martin Lake (3)	RUSK	57.5	21.5	-36
Monticello(3)	TITUS	48.4	14.5	-33.8
Sadow	MILAM	13.2	5.8	-7.4
<b>TOTAL</b>		<b>205.8</b>	<b>49.2</b>	<b>-156.7</b>

Emissions in tons/day based on NETAC 2007 inventory

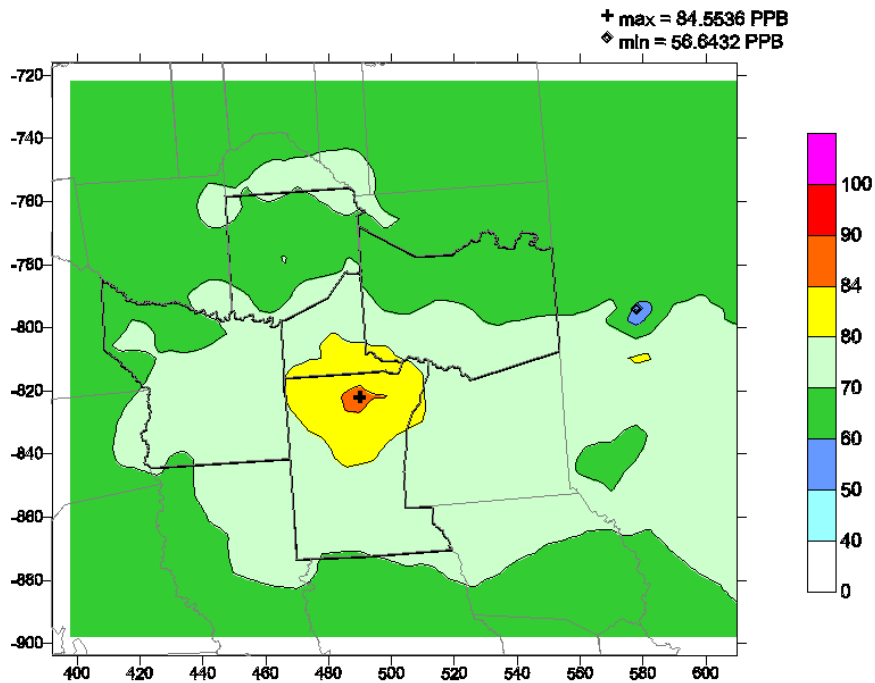
## Notes on Emissions Offsets

- Magnitude of offset reductions depend upon how the future base emissions are estimated
  - Heat input assumptions
  - Assumptions for mothballed units
- Offset strategy produced less emissions benefit with DFW's 2009 emission inventory

## Ozone Modeling Results

- Presenting two types of information
- Maps of changes in episode average daily max 8-hour ozone
  - Show episode average because concise and similar to the way models are used in Design Value calculations
- Projected 2007 design values

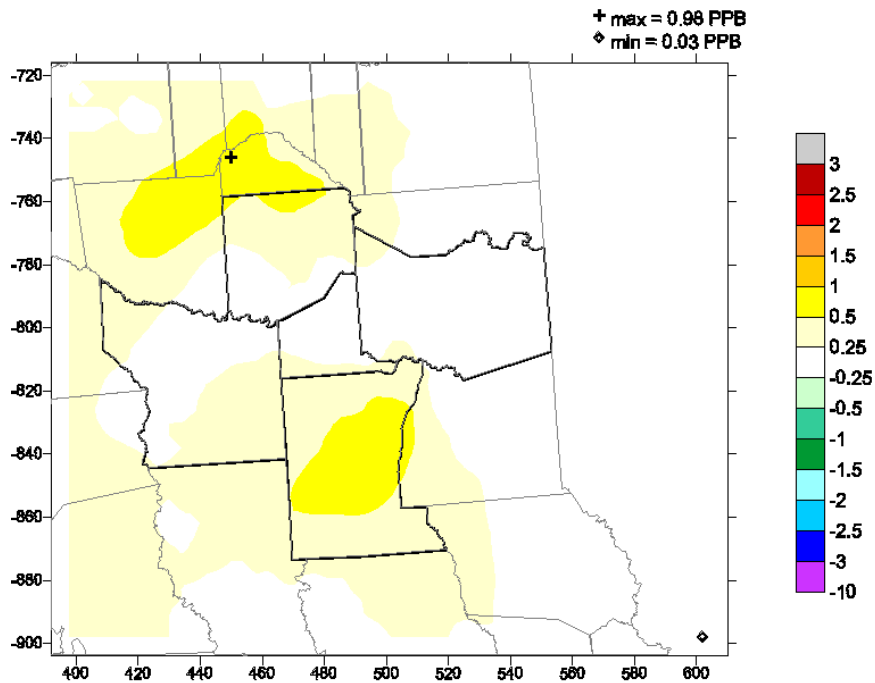
# 2007 Base Case



**Episode Average Daily Max 8hr O3 (ppb)**  
**2007 Base Case. East Texas 04km**  
**August 15-22, 1999 for FY 2007**

- Figure shows episode average daily maximum 8-hr ozone
- Highest near Longview due to local sources

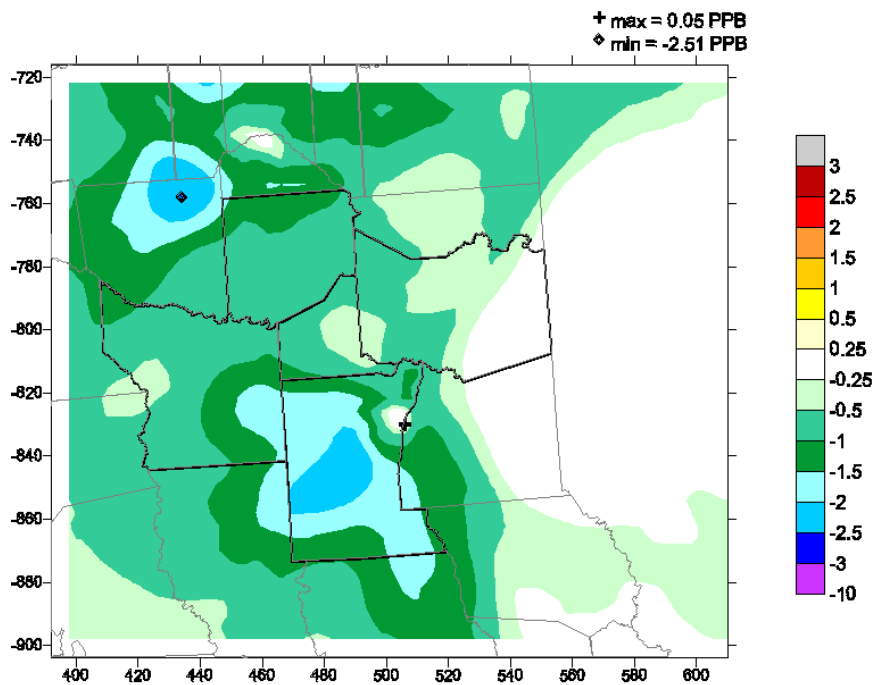
# Add Proposed New EGUs



**Differences in the Episode Average Daily Max 8hr O<sub>3</sub> (ppb)**  
**Addition of all 17 proposed EGUs. East Texas 04km**  
**August 15-22, 1999 for FY 2007**

- Increases of 0.5 ppb to 1 ppb near Martin Lake and Monticello

# New EGUs with TXU's Offsets



**Differences in the Episode Average Daily Max 8hr O<sub>3</sub> (ppb)**  
**Addition of 10 TXU-proposed EGUs with offsets. East Texas 04km**  
**August 15-22, 1999 for FY 2007**

- Decreases throughout NE Texas
- Decreases near Martin Lake and Monticello EGUs of up to 2.5 ppb

## Changes in 2007 Design Values (ppb)

Scenario	2007 base case	Add 17 proposed EGUs	Add 10 TXU-proposed EGUs	Add 10 TXU-proposed EGUs with offsets
Longview	80.4	80.9	80.9	79.5
Tyler	77.3	77.5	77.5	76.6
Karnack	81.1	81.5	81.5	80.3
Waskom	80.5	80.6	80.6	80.4
<b>Change from 2007 base</b>				
Longview		0.4	0.4	-1
Tyler		0.3	0.3	-0.6
Karnack		0.3	0.3	-0.8
Waskom		0.1	0.1	-0.1

- New EGU impacts (0.4 ppb at Longview) are due to TXU's units (i.e., at Martin Lake and Monticello)
- TXU's offsets more than mitigate the impacts of TXU's new units in Northeast Texas