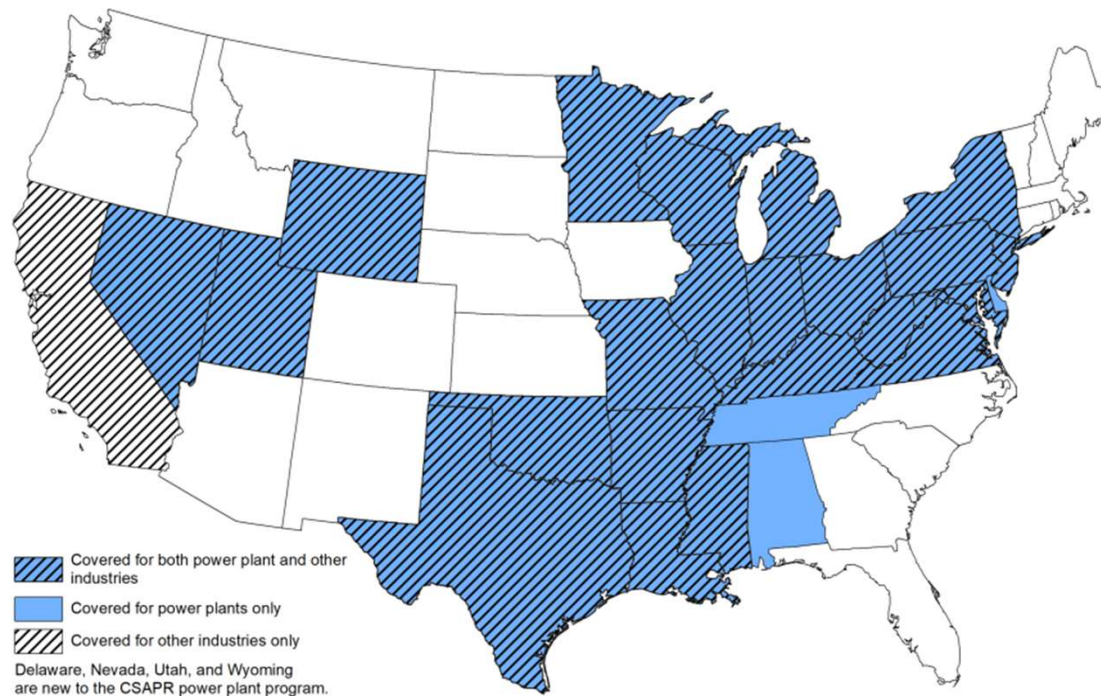


# Cross-State Air Pollution Rule CSAPR

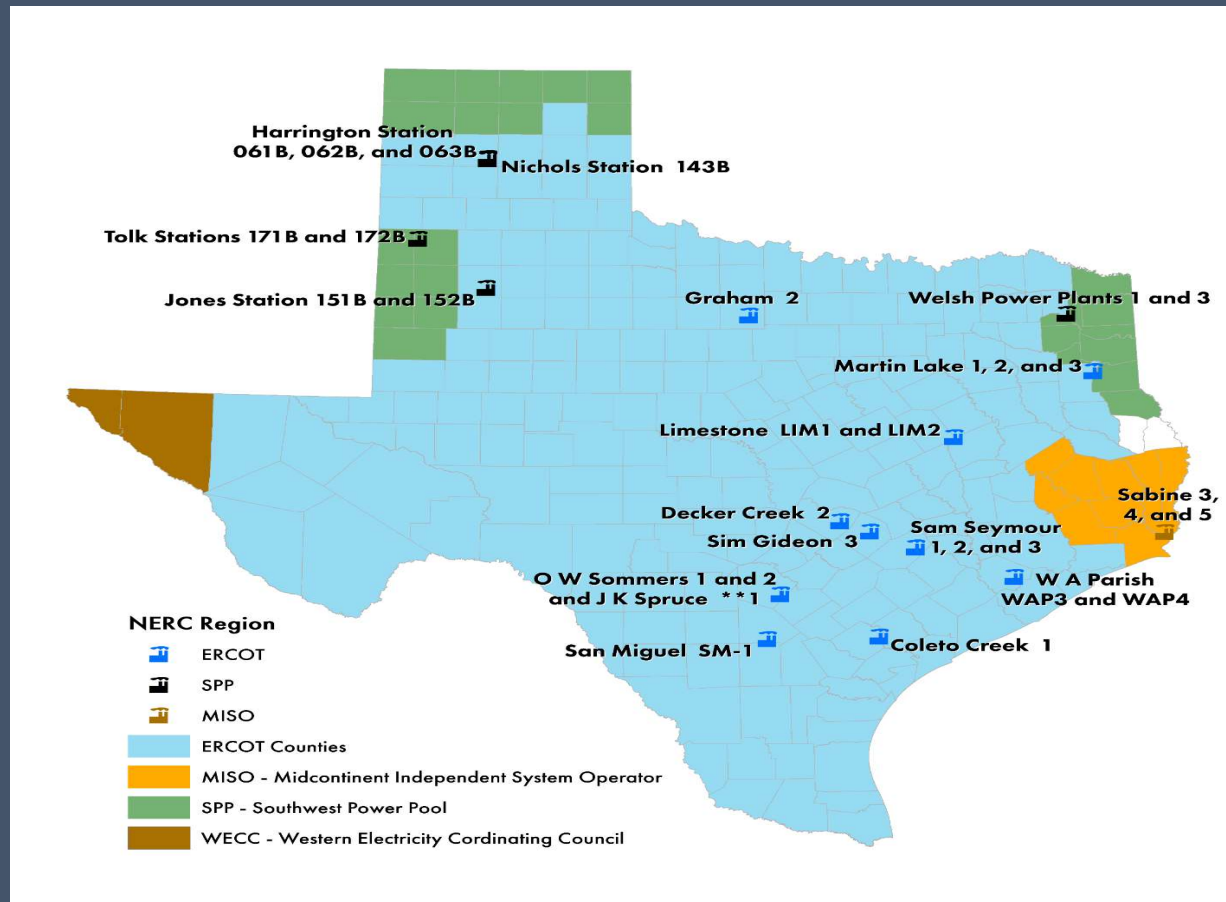
Based on April 6, 2022 Proposal

# Cross-State Air Pollution Rule (CSAPR)

- On February 22, 2022, the Environmental Protection Agency (EPA) disapproved numerous State Implementation Plans (SIPs) for the 2015 Ozone National Ambient Air Quality Standards (NAAQS). Comments on these disapprovals were due on April 25, 2022.
- EPA's Federal Implementation Plan (FIP) was published April 6, 2022. Comments were filed by June 21, 2022.
- The new FIP would establish an allowance-based ozone season trading program with nitrogen oxides (NO<sub>x</sub>) emissions budgets for fossil fuel-fired power plants in 25 states. The rule would also establish NO<sub>x</sub> emissions limitations for certain other industrial stationary sources in 23 states.



# Map – Texas Electric Generating Units (EGUs) Where EPA Assumes SCR Installation under Proposed CSAPR FIP



Courtesy LCRA

# Texas Implications

Generation units subject to rule

## All of Texas\*

- Coal Units ~9,400 MW
- Total Texas Thermal Units expected to install SCR >15,000 MW
- ~6,300 MW of Coal-fueled Units in Texas have SCR already installed

## ERCOT Only\*

- Coal Units ~7,300 MW
- Total Thermal Units expected to install SCR >10,000 MW

Firm Peak Load for Summer 2026: 85,020 MW\*\*

*\*Based on Nameplate Capacity*

*\*\*ERCOT : CapacityDemandandReservesReport\_Nov2022, was 79,782 MW in May 2022*

# CSAPR Timeline

- April 6, 2022 — Publication of Proposal
- June 21, 2022 — Comments due on FIP proposal
- January 2023 — Estimated Finalization of Texas Disapproval and FIP
- March\* 2023 – Final Rule

## **If adopted as proposed:**

- May 2023 — Budget Reduced for Optimization of Existing Controlled Units
- May 2024 — Daily Backstop Limit for Coal Units applies to Existing Units that have Selective Catalytic Reduction (SCR)
- May 2025 — Establish New Dynamic 2026 Budget based on 2023 Operation
- May 2026 — Budgets Reduced for Installation of New Controls and Dynamic Adjustment
- May 2027 — Daily Backstop Limit for New Controls at Coal Unit

# CSAPR Proposed State Budgets

Electrical Generating Unit Future Year Emission Baselines, Proposed Budgets and Illustrative Proposed Budgets (tons)												
State	2023			2024			2025			2026		
	Baseline <sup>1</sup>	Current Budgets	Proposed Budgets <sup>2</sup>	Baseline <sup>1</sup>	Current Budgets	Proposed Budgets <sup>2</sup>	Baseline <sup>1</sup>	Current Budgets	Proposed Budgets <sup>2,3</sup>	Baseline <sup>1</sup>	Current Budgets	Proposed Budgets <sup>2,3</sup>
Alabama	6,648	13,211	6,364	6,701	13,211	6,306	6,701	13,211	6,306	6,701	13,211	6,306
Arkansas	8,955	9,210	8,889	8,955	9,210	8,889	8,955	9,210	8,889	8,728	9,210	3,923
Delaware	423	--	384	473	--	434	473	--	434	473	--	434
Illinois	7,662	8179	7,364	7,763	8059	7,463	7,763	8059	7,463	7,763	8059	6,115
Indiana	12,351	12553	11,151	10,525	9564	9,391	9,737	9564	8,714	9,737	9564	7,791
Kentucky	13,900	14051	11,640	13,900	14051	11,640	13,211	14051	11,134	13,211	14051	7,573
Louisiana	9,987	14,818	9,312	9,987	14,818	9,312	9,854	14,818	9,179	9,854	14,818	3,752
Maryland	1,208	1,266	1,187	1,208	1,348	1,187	1,208	1,348	1,187	1,208	1,348	1,189
Michigan	10,737	9,975	10,718	10,737	9,786	10,718	10,778	9,786	10,759	9,129	9,786	6,114
Minnesota	4,207	--	3,921	4,207	--	3,921	4,197	--	3,910	4,197	--	2,536
Mississippi	5,097	6315	5,024	5,097	6315	4,400	5,097	6315	4,400	5,077	6315	1,914
Missouri	20,094	15,780	11,857	20,094	15,780	11,857	18,610	15,780	10,456	18,610	15,780	7,246
Nevada	2,346	--	2,280	2,438	--	2,372	2,438	--	2,372	2,438	--	1,211
New Jersey	915	1253	799	915	1253	799	915	1253	799	915	1253	799
New York	3,927	3,421	3,763	3,927	3,403	3,763	3,927	3,403	3,763	3,927	3,403	3,238
Ohio	10,295	9,773	8,369	10,295	9,773	8,369	10,295	9,773	8,369	10,295	9,773	8,586
Oklahoma	10,463	11,641	10,265	10,463	11,641	9,573	10,283	11,641	9,393	10,283	11,641	4,275
Pennsylvania	12,242	8373	8,855	12,242	8373	8,855	12,242	8373	8,855	11,738	8373	6,819
Tennessee	4,319	7,736	4,234	4,319	7,736	4,234	4,064	7,736	4,008	4,064	7,736	4,008
Texas	40,860	52,301	38,284	40,860	52,301	38,284	39,186	52,301	36,619	39,186	52,301	21,946
Utah	15,500	--	14,981	15,673	--	15,146	15,673	--	15,146	9,679	--	2,620
Virginia	3,415	3,980	3,090	3,106	3,663	2,814	3,243	3,663	2,948	3,243	3,663	2,567
West Virginia	14,686	12,884	12,478	14,686	12,884	12,478	14,686	12,884	12,478	14,686	12,884	10,597
Wisconsin	5,933	7,915	5,963	5,029	7,915	5,057	4,178	7,915	4,198	3,628	7,915	3,473
Wyoming	10,191	--	9,125	10,249	--	8,573	10,249	--	8,573	10,249	--	4,490
<b>Total</b>	<b>236,363</b>	<b>224,635</b>	<b>210,297</b>	<b>233,849</b>	<b>221,084</b>	<b>205,835</b>	<b>227,962</b>	<b>221,084</b>	<b>200,352</b>	<b>219,017</b>	<b>221,084</b>	<b>129,522</b>

1 Baseline values shown here reflect current 2021 emissions adjusted to account for the removal of units scheduled to retire or the addition of under-construction new fossil units scheduled to occur by that year. Actual future year baseline emissions will likely be lower due to yet-to-be announced changes in the fleet composition (see RIA for these estimates).

2 Each state has a variability limit of 21%, meaning they can emit up to an assurance level of 121% of the budgets shown in the tables provided that they do not collectively exceed the regional budget and any available banked allowances.

3 2025 and 2026 budget values are illustrative only. Eventual budgets for those years will be calculated at a later date by applying the methodology described in the proposed rule to latest fleet characteristics at that time.

# CSAPR Proposed Texas Budget

Electrical Generating Unit Future Year Emission Baselines, Proposed Budgets and Illustrative Proposed Budgets (tons)								
State	2021	2022	2023			2026		
	Actual Ozone Season Emissions	Actual Ozone Season Emissions	Baseline <sup>1</sup>	Current Budgets	Proposed Budgets <sup>2</sup>	Baseline <sup>1</sup>	Current Budgets	Proposed Budgets <sup>2,3</sup>
<b>Texas</b>	<b>42,761</b>	<b>44,944</b>	40,860	52,301	<b>38,284</b>	39,186	52,301	<b>21,946</b>

1 Baseline values shown here reflect current 2021 emissions adjusted to account for the removal of units scheduled to retire or the addition of under-construction new fossil units scheduled to occur by that year. Actual future year baseline emissions will likely be lower due to yet-to-be announced changes in the fleet composition (see RIA for these estimates).

2 Each state has a variability limit of 21%, meaning they can emit up to an assurance level of 121% of the budgets shown in the tables provided that they do not collectively exceed the regional budget and any available banked allowances.

3 2025 and 2026 budget values are illustrative only. Eventual budgets for those years will be calculated at a later date by applying the methodology described in the proposed rule to latest fleet characteristics at that time.

# Challenges

- Coal units would have an additional daily limitation with 3 to 1 surrender for emissions exceeding daily rate
- Timing of installation of controls
- New banking limitations of 10.5%
- State assurance level
  - Applies to all Texas CSAPR units in aggregate
  - Triggers penalties at unit level



# CSAPR – Proposed Program Changes

- Dynamic Adjustments to state budgets over time.
  - Starting with the 2025 budgets, assurance levels, variability limit and unit allocations will be adjusted to account for unit retirements and new units.
  - “Emission reductions derived from generation shifting will be captured.”
- Emission Budgets set for control period in year before.

## EPA Example of Dynamic Budgeting

	Preset Budget Approach (2026)			Dynamic Budget Approach (2026)		
	Preset Heat Input (tBtu)	Preset Emissions Rate (lb/mmBtu)	Preset Tons (Heat input X Emissions Rate)/2000	Updated Heat Input (tBtu)	Emissions Rate (lb/mmBtu)	Updated Tons (Heat Input X Emissions Rate)/2000
Coal Units	600	0.05	15,000	500	0.05	12,500
Gas Units	400	0.01	2,000	500	0.01	2,500
<b>State Budget (tons)</b>			<b>17,000</b>			<b>15,000</b>

# CSAPR – Proposed Program Changes

## Trading program updates

- **Bank Ceiling Target of 10.5%.** Starting in 2024, EPA will annually recalibrate banked allowance to limit the bank to a target level set at 10.5% of the total of state budgets.
- **Assurance level backstop limit.** Units contributing to exceedance of a state's assurance level will be further penalized if certain thresholds are exceeded.
- **Unit shutdowns would only get allocations for two control periods of non-operation.** Currently get allocations for five control periods.

## Regulation of non-EGUs

- Non-EGUs are subject to an emission limit without the trading program.
- Indirect costs of operation may result from imposition on supply chain industries.
- Limits become applicable in 2026.

Pipeline transportation of natural gas  
Cement and cement product manufacturing  
Iron and steel mills  
Glass and glass product manufacturing  
Chemical manufacturing  
Petroleum and coal manufacturing  
Pulp, paper, and paperboard mills

# Reliability Concerns Across All Markets

- The proposed rule does not contemplate reliability concerns or provide any safety valve to ensure grid reliability under unforeseen circumstances
- Dynamic Budgeting will reset budget every year after 2025 based on prior ozone season's operation.
  - Creates issues for general planning purposes
  - Incorporates generation shifting
  - Ignores variability of ozone season weather
  - Would create market volatility with annual reset
- Overall cost of compliance and risk mitigation are already driving significant increases in price of allowances
  - Cost of allowances at start of 2022: \$300/ton
  - Cost of allowances reported post draft publication: up to \$20,000/ton