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Market Update

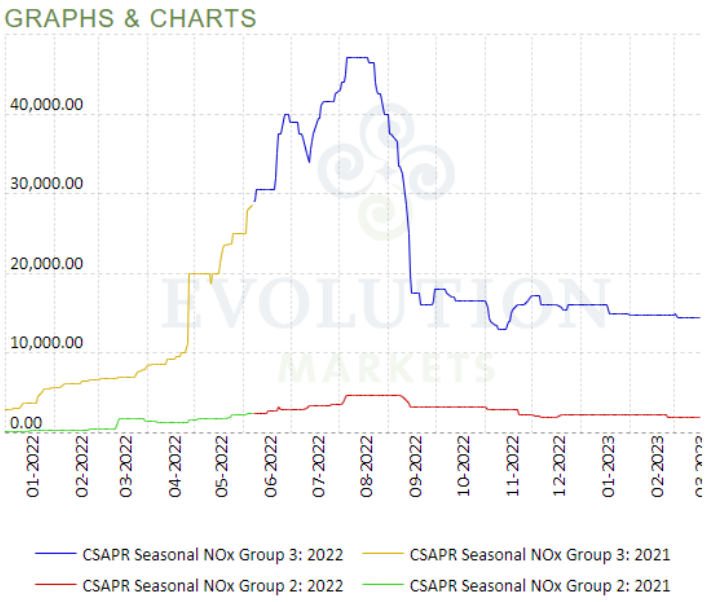
March 20, 2023

Cross State Air Pollution Rule

Market Status

On March 15, 2023, EPA issued its final Good Neighbor Plan which revises the Cross-State Air Pollution Rule https://www.epa.gov/csapr/good-neighbor-plan-2015-ozone-naaqs#history. The rule is part of an overall "good neighbor" plan proposed by the EPA to help cut smog across the US. Starting in 2023, the proposed rule looks to expand the Group 3 Ozone NOx Season from 12 States to 22 States. The program looks to include industrial stationary sources starting in 2026.

Term	Bid	Offer
SNOx Group 1	$1500	$2500
SNOx Group 2	$1500	$2500
SNOx Group 3	$14000	$15000



EPA revised the existing CSAPR Rule in 2021, splitting the original 21 State region into two groups, existing Group 2 States and a new Group 3 States, revising budget allocations for sources in Group 3 States and allowing sources to converting their existing Group 2 banked allowances to Group 3 Allowances at a ratio of 8:1.

This new Good Neighbor Plan rule looks to move seven states that are currently in Group 2 to Group 3 and add three new states that are currently not covered by CSAPR, expanding the Group 3 CSAPR market from 12 States to 22 States. There would be only 3 remaining States in the existing Group 2.

The newly expanded Group 3 States starts with a budget cap of 208,119 allowances and will get reduced to 195,259 by 2025. Starting in 2026, the allocation gets reduced to 151,329 Allowances to further reduce emission reductions and to incorporated known retirements. Starting in 2026, the EPA plans on incorporating "dynamic budgeting" to account for changes in operation etc.

EPA also plans to limit surplus allowances using a target 21% each year starting in 2024- 2029 – and then 10.5% for control periods 2030 and later where the Group 3 bank would be recalibrated to the target level of the sum of state emission budgets for the current control period. Also, starting in 2026, EPA plans on to include Industrial stationary sources from natural gas transportation, cement production, steel, and glass production.

Finally, EPA plans on allowing sources currently in Group 2 States to convert their banked Group 2 Allowances into Group 3 Allowances using the same methodology they used in the Revised CSAPR Update. The total amount of Group 3 Allowances to be created by the conversion of the Group 2 bank would be the sum of the 2024 variability limits from States being transitioned from Group 2 to Group 3, which is 23,094 allowances under a full 2023 control period. Based on

Evolution Markets, Inc.
10 Bank Street White Plains, NY 10606
T: +1 914.323.0255
ptesoriero@evomarkets.com

the proposed budget and the estimated Group 2 bank at that time, EPA estimates that the conversion ratio to be approximately 6.5:1. Meaning that one Group 3 Allowances would be created for every 6.5 Group 2 Allowances deducted in the conversion. This is an estimate based on the estimated Group 2 Bank expected to be converted.

Future

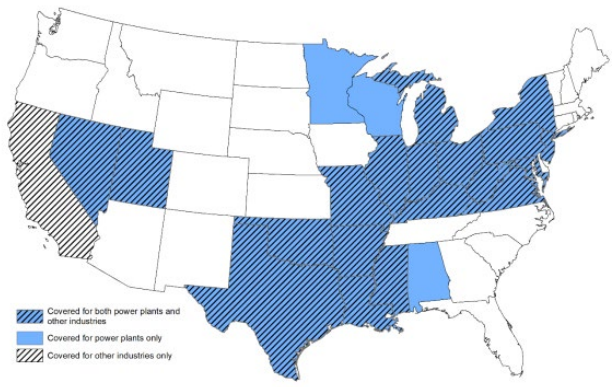
Prices for the 2023 Seasonal NOx look to be as uncertain as they were in 2022. The EPA published the final Good Neighbor Rule on March 15, 2023. However, the rule does not become effective until 60 days after the rule has been published in the Federal Register. So far, the rule has not been published, therefore all budgets and will be prorated since this rule will not be effective for the start of the 2023 control period of May 1, 2023. There is a likely scenario that the rule will be challenged by Industry, which then will have to be decided by a Judge weather to Stay the Rule prior to it be decided by the Courts. Added to this the EPA has stated that it will allocate the vintage 2023 allowances no later by September 2023, since the rule will take effect in the middle of the ozone season. This will certainty lead to liquidity issues in a market with regulatory uncertainty and potentially result in higher prices. Again, a key driver is typically summer heat that drives electricity prices, along with natural gas prices and coal transportation logistics, that hindered some coal usage in 2022.

Final CSAPR Good Neighbor Plan	
	Seasonal Nox Group 3
Allocation 2021	143 K
Emissions 2021	114 K
Bank 2021	29 K
Allocation 2022	104 K
Total Available for Compliance 2022	133 K
Emission 2022	90 k
Bank 2022	43 k
Allocation 2023	208,119
G2 Conversion	23,094
Total Available for Compliance in 2023	274 K
2022 Emissions for Good Neighbor	216 k

To the left is a Table looking at the fundamentals of the G3 Seasonal NOx market under the Final Good Neighbor Plan. As you can see, the 2022 emissions for the New Group 3 States are greater than the 2023 Allocation, however the existing G3 bank and Allowances from the G2 Conversion leaves the market with about 21% surplus. Noting that the Vintage 2023 Allowances may not get allocated until September, illiquidity issues and regulatory uncertainty may cause prices to go back to where they were the past summer.

A Map of the New Group 3 States is to the right, and details of the proposed rule can be found on the EPA Website. Additional details are that the EPA will reduce the allocation further starting in 2026 and will begin a new way to allocate allowances call "dynamic budgeting".

Map of States Covered by the Final Good Neighbor Plan



In Summary, in 2023 I have identified many different variables that will affect the G3 Seasonal NOx price, the implementation of the Good Neighbor Plan being the biggest driver. I also believe the lack of Vintage 2023 Allowances being available to purchase during the season will cause an illiquidity crunch that will abnormally affect the market and cause prices to be higher than they should if the allowances were allocated. Counterparties tend to not want to Purchase or Sell Allowances "upon allocation" with credit and allocation risks associated with the transaction. Finally, summer coal prices and logistics and potentially high natural gas prices coupled with a hot summer could drive electricity prices up, forcing compliance buyers to purchase and cover any anticipated shortfall as we saw in 2022.

Below is a Table of the New Group 3 States and their allocations starting 2023. Again, the EPA acknowledges that due to the length of the rulemaking process, it expects to prorate the budgets and allowance allocations for 2023 based on when the rule can be put into effect. The ozone season from May 1 – Sept 30.

CSAPR NO_x Ozone Season Group 3 Preset State Emissions Budgets for the 2023 through 2029 Control Periods (tons)							
State	Final Emissions Budgets for 2023	Final Emissions Budgets for 2024	Final Emissions Budgets for 2025	Preset Emissions Budgets for 2026	Preset Emissions Budgets for 2027	Preset Emissions Budgets for 2028	Preset Emissions Budgets for 2029
Alabama	6,379	6,489	6,489	6,339	6,236	6,236	5,105
Arkansas	8,927	8,927	8,927	6,365	4,031	4,031	3,582
Illinois	7,474	7,325	7,325	5,889	5,363	4,555	4,050
Indiana	12,440	11,413	11,413	8,410	8,135	7,280	5,808
Kentucky	13,601	12,999	12,472	10,190	7,908	7,837	7,392
Louisiana	9,363	9,363	9,107	6,370	3,792	3,792	3,639
Maryland	1,206	1,206	1,206	842	842	842	842
Michigan	10,727	10,275	10,275	6,743	5,691	5,691	4,656
Minnesota	5,504	4,058	4,058	4,058	2,905	2,905	2,578
Mississippi	6,210	5,058	5,037	3,484	2,084	1,752	1,752
Missouri	12,598	11,116	11,116	9,248	7,329	7,329	7,329
Nevada	2,368	2,589	2,545	1,142	1,113	1,113	880
New Jersey	773	773	773	773	773	773	773
New York	3,912	3,912	3,912	3,650	3,388	3,388	3,388
Ohio	9,110	7,929	7,929	7,929	7,929	6,911	6,409
Oklahoma	10,271	9,384	9,376	6,631	3,917	3,917	3,917
Pennsylvania	8,138	8,138	8,138	7,512	7,158	7,158	4,828
Texas	40,134	40,134	38,542	31,123	23,009	21,623	20,635
Utah	15,755	15,917	15,917	6,258	2,593	2,593	2,593
Virginia	3,143	2,756	2,756	2,565	2,373	2,373	1,951
West Virginia	13,791	11,958	11,958	10,818	9,678	9,678	9,678
Wisconsin	6,295	6,295	5,988	4,990	3,416	3,416	3,416
Total	**208,119**	**198,014**	**195,259**	**151,329**	**119,663**	**115,193**	**105,201**