Technical Support Document (TSD) for the
Proposed Supplemental Rule to Add Five States to the Federal Good Neighbor Plan
EPA-HQ-OAR-2023-0402[1]

Addendum to "EGU NO_X Mitigation Strategies Final Rule Technical Support Document (TSD) for the Final Federal Good Neighbor Plan for the 2015 Ozone National Ambient Air Quality Standards" for the Supplemental Interstate Transport SIP and FIP actions for the 2015 8-hour Ozone NAAQS

December 2023

For this Supplemental Proposal, the EPA is generally continuing to use the data, analysis, conclusions, or application of analysis included in the EGU NO_X Mitigation Strategies Final Rule TSD for the Federal Good Neighbor Plan. As described in Preamble Section III.D.4, the EPA finds it is appropriate to use the same data and conclusions in this Supplemental Proposal that it did in the Federal Good Neighbor Plan. Additionally, the EGU NO_X Mitigation Strategies Final Rule TSD is based upon analysis that considered the national EGU fleet and is still recent. It is therefore reasonable to continue to use the results of that analysis.

To further support this analysis, the EPA also considered if there were any changes in underlying data or assumptions that would lead to substantially different findings on cost, timing, or availability of EGU NO_X mitigation strategies. The EPA found no substantial changes to cost, timing, or availability of the mitigation strategies and, to the extent there were any differences, they suggested that the costs of some inputs may be lower now than when the analyses were performed for the Federal Good Neighbor Plan, and that perceived supply chain constraints were becoming less impactful. As the EPA used representative costs in the multi-factor test and performed sensitivity analysis of a variety of cost factors in the EGU NO_X Mitigation Strategies Final Rule TSD Appendix B, the EPA finds it is reasonable to continue to use the same representative costs for this rulemaking as it used in the Federal Good Neighbor Plan.

While the underlying data, analysis, and conclusions were generally unchanged, this Addendum includes updates to some data presented in the EGU NO_X Mitigation Strategies Final Rule TSD.

Update on Ammonia and Urea Costs

The EGU NO_X Mitigation Strategies Final Rule TSD assumed a price for urea (50% weight solution) of $350/ton, based on long term price trends and projections. As of Feb 27, 2023, close to when the Federal Good Neighbor Plan was finalized, the price of anhydrous ammonia and urea were $1,237/ton and $655/ton, respectively (or $705 and $655 per ton of NO_X removed, respectively). As of the first Illinois Production Cost Report of this July, which is the report the EPA has typically referred for the annual prices, those prices had dropped to $874/ton and $487/ton, respectively ($499 and $487 per ton

[1] Docket ID for the Final Federal Good Neighbor Plan for the 2015 Ozone National Ambient Air Quality Standards is EPA-HQ-OAR-2021-0668

NO_X removed, respectively).[2] Additionally, the Henry Hub price for natural gas, a key input for urea and ammonia production, has averaged $2.42/mmBtu January through July of 2023 and the EIA Short Term Energy Outlook from August 2023 expects the Henry Hub natural gas price for 2023 to average $2.58/mmBtu,[3] down from the $3.02/mmBtu average for 2023 expected in the March 2023 EIA Short Term Energy Outlook and referenced in the EGU NO_X Mitigation Strategies Final Rule TSD.[4]

While the price for urea is still above the long-term price assumed in the EGU NO_X Mitigations Strategies Final Rule TSD and Retrofit Cost Analyzer, the prices have continued to trend downward as various supply shocks and production interruptions are resolved, which is consistent with the economic trends EPA considered at the time of finalizing the Good Neighbor Plan (see 88 FR at 36759-60). It is therefore reasonable to continue to use the assumption of a long-term urea price of $350/ton.

Update on Inflation and Cost Changes

General inflation has continued to cool in 2023 compared to the previous years. While inflation measured by CPI-U increased 12.1% from January 2021 to July 2022 (or, roughly 8% annualized), it increased only 3.3% from July 2022 to July 2023.[5] The Chemical Engineering Plant Cost Index (CEPCI) fell by 3.8% from July 2022 to July 2023,[6] and costs for many construction inputs have either slowed in growth or decreased, such as steel mill products which have decreased in price by 20% from July 2022 to July 2023.[7]

[2] Ammonia and urea prices listed are the Illinois state-wide average production costs, cash bulk prices as reported in the Illinois Production Cost Report 7/13/2023. https://mymarketnews.ams.usda.gov/filerepo/sites/default/files/3195/2023-07-13/728254/ams_3195_00090.pdf

[3] Short Term Energy Outlook, August 2023, Energy Information Administration https://www.eia.gov/outlooks/steo/archives/aug23.pdf

[4] Short Term Energy Outlook, March 2023, Energy Information Administration https://www.eia.gov/outlooks/steo/archives/mar23.pdf

[5] Consumer Price Index for All Urban Consumers: All Items in U.S. City Average. Federal Reserve Bank of St. Louis. https://fred.stlouisfed.org/series/CPIAUCSL. Data Accessed 9/1/2023

[6] 2023 CEPCI Updates: July (prelim) and June (final). Data Accessed 12/8/2023 https://www.chemengonline.com/2023-cepci-updates-july-prelim-and-june-final/. The CEPCI Index is an alternative to the Handy-Whitman Index, which will be updated in early January 2024.

[7] Producer Price Index by Commodity: Metals and Metal Products: Steel Mill Products. Federal Reserve Bank of St. Louis. https://fred.stlouisfed.org/series/WPU1017. Data Accessed 9/1/2023