



February 21, 2023

TO: ENVIRONMENTAL PROTECTION AGENCY
FR: THE INSTITUTE OF CLEAN AIR COMPANIES
**RE: NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS: LIME
MANUFACTURING PLANTS AMENDMENTS (DOCKET ID NO. EPA-HQ-OAR-2017-0015-
0066)**

The Institute of Clean Air Companies (ICAC) appreciates the opportunity to offer comments in response to Environmental Protection Agency's proposed rulemaking on National Emission Standards for Hazardous Air Pollutants: Lime Manufacturing Plants Amendments.

ICAC is the national trade association of companies that supply greenhouse gas management and air pollution control and monitoring systems, and equipment and services for stationary sources. For over 60 years, ICAC member companies have helped to clean the air by developing and installing reliable and cost-effective control and monitoring systems.

ICAC supports technology-neutral and flexible policies that enable cost-competitiveness and a diverse set of technologies to compete in the market. ICAC's comments will respond to cost estimates for dry sorbent injection systems indicated in the NESHAP amendments for lime manufacturing plants.

Again, ICAC appreciates the opportunity to offer input to EPA and we look forward to answering any further questions or provide additional information.

Best regards,

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ICAC wishes to provide cost information to help EPA better gauge the impacts to affected sources subject to the proposed National Emission Standards for Hazardous Air Pollutants, Lime Manufacturing Plants Amendments. For your consideration, ICAC is providing actual industry-derived information regarding purchased-equipment capital cost for various dry sorbent injection systems, shown in 2016 dollars. The information has been previously submitted to the EPA in 2017 during a formal technology transfer discussion¹ The costs in the table below represent a value for cost of purchased equipment and do not attempt to assess the costs associated with delivery, installation, or commissioning. Furthermore, recent inflationary costs for raw materials and fabrication expenses have significantly escalated the purchased equipment cost and are most likely yet to be captured in the EPA’s cost analysis.

Criteria	example 1	example 2- FGT Grade	example 3	example 4	example 5
Industry	biomass WTE	ICI boiler	pulp & paper	cement	agriculture
Pollutant(s) Controlled	HCl	HCl	HCl	SO ₂ , HCl	HCl
Acid Gas Sorbent	Hydrated Lime	Hydrated Lime	Hydrated Lime	Hydrated Lime	Hydrated Lime
Annual Capacity Factor	0.51	0.633	0.91	0.15	0.8
Average Sorbent Feed rate (lb/hr)	225	124	550	7,700	5,600
No. of silos	0	1	1	1	5
Storage Capacity (cubic feet, total)	1,400	5,800	6,700	6,700	40,000
Storage Capacity (nominal ton, total)	22	93	107	107	640
Blower Size (horsepower rating)	25	7.5	25	25	15
No. of Blowers	2	3	3	3	9
Motive air redundancy	Yes	Yes	Yes	Yes	No
Motive air treatment 1	N/A	N/A	N/A	N/A	N/A
Motive air treatment 2	N/A	Heat Exchanger	Heat Exchanger	Heat Exchanger	Heat Exchanger
Motive air treatment 3	N/A	N/A	Dehumidifier	N/A	Dehumidifier
Motive air treatment 4	N/A	N/A	After Cooler	N/A	N/A
Distribution/mixing enhancement 1	N/A	Pressure-compensated flow control	Pressure-compensated flow control	Pressure-compensated flow control	Pressure-compensated flow control
Distribution/mixing enhancement 2	in-duct static mixer	N/A	N/A	N/A	N/A
Distribution/mixing enhancement 3	N/A	N/A	N/A	N/A	N/A
Estimated System Capital Price (ROM \$USD)	\$552,000	\$900,000	\$1,352,000	\$1,250,000	\$3,700,000
Estimated Annualized Fixed Cost (ROM \$USD/yr)	\$93,840	\$153,000	\$229,840	\$212,500	\$629,000
Estimated Operating Expense ex-labor (ROM \$USD/yr)	\$149,000	\$113,000	\$644,000	\$1,398,000	\$5,478,000
Annualized Operating Cost (ROM \$USD/yr)	\$242,840	\$266,000	\$873,840	\$1,610,500	\$6,107,000

Additionally, it would be helpful if, in response to comments, EPA would further describe the cost development methodology shown in Document ID EPA-HQ-OAR-2017-0015-0134, tab “07_Dry_Sorbent_Cost.” The basis for the algorithm shown to be applied to compute the “Total Capital Invested” value is unclear, both in the current document and the referenced 2002 source document. Affected sources unfamiliar with this algorithm-based methodology may be significantly disadvantaged in evaluating the impacts to their small business entities.

Other Considerations

There are other considerations when looking at cost estimates for DSI systems. This includes engineering, site preparation, foundation, utility tie in and environmental permitting costs to name a few. In addition, there are costs and emissions related to

¹ [ICAC, Dry Sorbent Injection: Applicability, Cost & Performance](#)



delivery of equipment and sorbents, as well as the current protracted equipment order/construction time schedule. Each of these elements subscribes additional costs to the overall cost of control and may contribute to an imbalance burden on small businesses.

Another consideration to keep in mind is that to meet proposed Total Hydrocarbon Content (THC), Mercury, and Dioxins/Furans levels, an activated carbon injection (ACI) system may be required in addition to the Dry Sorbent Injection System for hydrogen chloride (HCl) emissions control. While the purchased equipment cost for an Activated Carbon Injection system may be similar to that of a DSI system, the cost of the activated carbon sorbent is assumed to be about five to ten times the unit cost of the alkaline or alkali sorbents used for acid gas control.

Conclusion

Again, ICAC would like to thank EPA for the opportunity to respond to this proposed rulemaking. We welcome an opportunity to further discuss these thoughts with you and are happy to answer additional questions or clarify any points made.