To: [HYPERLINK "mailto:airaction@epa.gov"]

Subject: Presidential Exemption: Section 112 of the Clean Air Act : San Miguel Electric Cooperative, Inc.

Emission Standards subject to request

- non-Hg HAP metal surrogate fPM emission standard for all existing coal-fired EGUs of 0.010 lb/MMBtu. [40 CFR 63.9991(a), Table 2]
- Hg emission standard of 1.2 lb of Hg per trillion British thermal units of heat input (lb/TBtu) [40 CFR 63.9991(a), Table 2]

Facility Name

- San Miguel Electric Cooperative, Inc. in Christine, TX

Length of compliance period

- 2 years

Justification – Why the Technology to Implement the Standard is Unavailable

The proposed Hg emission limit of 1.2 lb/TBtu is not technically achievable. San Miguel has an average mercury inlet concentration on 34 lb/TBtu based on the average concentration since 2011. This is due to the highly variable mercury content of lignite.

Table 1: Historical Mercury Inlet Concentrations Since 2011 and Required Removal Rates

Calculated Mercury Inlet and Mercury Capture Rates at Full Load Using Lignite Monthly Composite Data from 2011- Present	
Mercury Inlet (lb/Tbtu)	Capture Percentage Required to Reach Target of 1.2 lb/Tbtu
22.8 (minimum)	94.7%
34.0 (average)	96.3%
69.4 (maximum)	98.3%

A 2013 technical report prepared by Sargent & Lundy that was prepared for EPA analyzed mercury controls (the "S&L Report"). The report describes in detail how activated carbon injection is rendered significantly less effective when the flue gas contains SO_3, stating:

> *Some flue gas constituents, especially $S0_3$, reduce the mercury removal effectiveness of both activated carbon and non-carbon sorbents. With flue gas $S0^3$ concentrations greater than 5 7 ppmv, the sorbent feed rate may be increased significantly to meet a high Hg removal and 90% or greater mercury removal may not be feasible in some cases. Based on commercial testing, the capacity of activated carbon can be cut by as much as one-half with an $S0_3$ increase from just 5 ppmv to 10 ppmv.*

The higher sulfur content of lignite equates to greater production rates of SO_3. Texas lignite units often have high flue gas SO_3 concentrations and could be considered medium- to high-sulfur coals based on pounds of SO_2 produced per million Btu of heat input. Gulf Coast lignite generally features higher sulfur content - by a factor of two or more. Notably, Texas lignite is disadvantaged as the alkalinity to sulfur ratio is half that of Powder River Basin Coal (PRB).

As to San Miguel, since 2017, the sulfur percentage of the lignite fuel ranges from a minimum of 1.31 % to a maximum of 3.42%. The lignite fuel used at San Miguel during that time period had an average of 2.48% sulfur content. Based on a fuel analysis conducted in 2014, San Miguel has an average sulfur content of 9.6 lb/SO_2 per million Btu.

Lignite presents significantly greater variability in Hg and sulfur than PRB. Consequently, the higher sulfur content of lignite combined with equal or lower total alkali relative to sulfur allows measurable levels of SO_3 in the lignite-generated flue gas.

EPA has not demonstrated any technical developments since the issuances of the previous MATS requirements. The 2020 Final Rule did not discover any developments in control technologies, practices, or processes. In 2023 as to the fPM emission standard, the Proposed Rule concurs. It states that EPA found "no new practices, processes, or control technologies for non-Hg HAP." (88 Fed. Reg. 24868). Yet, EPA identifies fPM "developments" to justify an emissions change based on reporting fPM emissions levels and lower costs than originally assumed. Similarly, for Hg, in 2023, EPA identifies new "developments" for lignite EGUs based on the operator's compliance with the regulations.

In the Proposed Rule, EPA provides no new control technologies or methods. For both pollutants, EPA finds "developments" based on control performance (lower emissions data). It appears that because operators have been diligent in reducing emissions and have been able to achieve the standards set by EPA, EPA feels the need to again tighten the applicable standards. In sum, EPA has found that the current MATS requirements provide an ample margin of safety and has identified no new control technologies or methods.

The proposed fPM emission limit of 0.010 lb/MMBtu is not technically achievable.
Particulate at San Miguel is captured and removed from the flue gas path primarily by the existing electrostatic precipitators ("ESPs"). The wet flue gas desulfurization ("WFGD") system downstream of the ESPs will also capture some of the particulate that makes it through the ESPs. The effectiveness of the existing ESPs and WFGD system to control PM emissions is demonstrated by the data in Table 2. San Miguel works extremely hard to maintain compliance with this standard. Compliance with the proposed fPM emission limit of 0.010 lb/MMBtu will be marginal under even the best operating scenarios.

Table 2: Summary of Filterable Particulate Matter (fPM) Quarterly Emissions Since 2016

	Measured fPM 0.03 lb/MMBtu current limit	Margin with Proposed Limit (lb/MMBtu)	Percent Margin (%)
min	0.00600	0.00400	40.0%
5th percentile	0.00614	0.00386	38.6%
average	0.03266	-0.02266	-226.6%
95th percentile	0.16411	-0.15411	-1541.1%
max	0.23300	-0.22300	-2230.0%

Justification – Why an Extension is in the National Security Interests of the United States

San Miguel is a 400 MW, mine-mouth, lignite-fired EGU located in Atascosa County, Texas. San Miguel is a not-for-profit electric cooperative created on February 17, 1977, under the Rural Electric Cooperative Act of the State of Texas. One hundred percent of the output of the plant is sold to San Miguel's member rural electric cooperatives through the South Texas Electric Cooperative ("STEC"). The electricity that San Miguel produces powers approximately 200,000 rural Texas homes in 45 South Texas counties.

San Miguel has conducted a thorough review of the capital and O&M costs that it will be required to take in order to comply with the Proposed Rule. The data provided below in Table 3.

Table 3: Summary of Capital and O&M Costs

High Estimate Option	Capital (2024$)	O&M (2024$)	NPV (2024$)	Total Levelized Cost $/yr (2024$)
New Mercury Controls	$10,800,000	$12,745,000	$213,493,000	$21,126,000
New Baghouse	$160,000,000	$4,220,000	$209,671,000	$20,747,000
New Particulate CEMS	$1,950,000	$25,000	$2,133,000	$211,000

Low Estimate Option	Capital (2024$)	O&M (2024$)	NPV (2024$)	Total Levelized Cost $/yr (2024$)
New Mercury Controls	$8,100,000	$10,631,000	$177,277,000	$17,542,000
New Baghouse	$130,000,000	$3,430,000	$170,378,000	$16,859,000
New Particulate CEMS	$1,450,000	$25,000	$1,688,000	$167,000

The annual operating and maintenance cost of the mercury control system is estimated at approximately $10,631,000 - $12,745,000, or about **$10,000/lb Hg removed.**

To achieve compliance with the proposed 0.01 lb/MMBtu limit, San Miguel may consider several options including: 1) ESP upgrades, 2) full fabric filter downstream, 3) reduced size fabric filter downstream, and 4) an ESP to fabric filter conversion. Capital costs for the ESP upgrades are projected in the $20 M range. However, there is no way to know with any certainty

if the ESP upgrades will be able to achieve compliance with the proposed fPM limit of 0.01 lb/MMBtu on a continuous basis. As such, an ESP upgrade is considered technically not feasible.

A full-size baghouse installation in the $130 M to $160 M range. The reduced size baghouse would fall around 10 to 20 percent lower in total installed cost ($98 M - $145 M). The ESP to fabric filter conversion would fall around 20 to 40 percent lower cost ($80 M - $ 130 M) than the full-size fabric filter and would require a 3 to 4-month unit outage.

A cost increase of $35M to $45M annually would require rate payers to spend an extra 33% for their electricity. Because of this sharp increase in expense, it may not be feasible to operate the power plant. SMEC would have to consider securing generation from other sources.

The ERCOT grid, which distributes the power generated at SMEC, will likely lose a key dispatchable asset in their portfolio. While renewable sources of energy continue to generate more power for the grid, their lack of dependability to generate at anytime, especially during periods of inclement weather, presents an ominous concern to the public. Providing low-cost, dependable, and dispatchable sources of energy is vital to our national security interests, public health, and strength of our economy.