CAQM Report: Approval Note and Final Required Edits

Updated peer-review assessment of the latest revised version

Approval status

Yes — I approve the report now, subject to a few final line edits. In review language, this version is acceptable with minor revisions. It is now a credible and defensible independent re-analysis rather than an overclaimed critique.

What “de-weathering” means

De-weathering is a statistical attempt to separate the observed PM2.5 level into two parts: the underlying emissions signal and the effect of meteorology. In plain terms:

Observed PM2.5 = emissions signal + meteorological effect + noise

The goal is to estimate what PM2.5 would have looked like under standardized or average weather, so that year-to-year changes can be interpreted more as changes in emissions and less as changes in rain, wind, boundary-layer height, inversions, humidity, and temperature.

In your report, the Random Forest de-weathering model is best treated as a sensitivity tool, not as a perfect measure of the latent emissions trend.

Why the report is now approvable

- The report correctly presents itself as an independent re-analysis and sensitivity analysis, not an exact replication of CAQM’s undisclosed method.
- The earlier internal contradictions have largely been removed.
- The annual comparison table is now appropriately caveated as a sensitivity estimate.
- The sensor-blackout discussion is now limited to an event-level concern rather than a claim of proven annual bias.
- The de-weathering section is now a real fitted analysis with diagnostics instead of a failed model being used as evidence.
- The report acknowledges that the 2025 annual level improved and does not fight the data where improvement is visible.

Final edits I still recommend

1. **Correct the de-weathered level wording.** One passage says the de-weathered annual values remain around 90 ug/m3, but the table shown is closer to roughly 102–105 ug/m3. The text should match the table exactly.
2. **State the winter result plainly.** The revised analysis indicates that winter 2025 improved versus winter 2024 in the matched set, even though both remained extremely hazardous. Say this directly.
3. **Keep the Mann-Kendall interpretation restrained.** Use wording such as: “no statistically significant monotonic decline detected over 2020–2025,” rather than language that sounds like proof of no improvement.
4. **Keep the de-weathering interpretation cautious.** Prefer: “broadly consistent with limited underlying decline,” not “confirms stagnation.”

5. **Retain the matched-frame caveat for threshold comparisons.** Make clear that those results apply within the retained matched frame, not as a full-network census of all Delhi station-days.
6. **Keep the NCAP spending section descriptive.** It is acceptable as written only if it remains clearly non-causal.

Recommended final conclusion language

“The public data broadly support CAQM’s reported 2025 annual PM2.5 level as a plausible descriptive estimate. However, the broader claim of durable structural improvement remains less certain when assessed through matched-station comparisons, weather-sensitive interpretation, persistent daily threshold exceedances, and incomplete methodological transparency. The evidence therefore supports cautious interpretation rather than a strong claim of sustained underlying improvement.”

Overall recommendation

Accept with minor revisions. After the small corrections above, the report is in good shape for serious expert or public circulation.