



Chesapeake Bay Restoration

CAST-21 Urban Fertilizer Application Rates

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EPA, Chesapeake Bay Program Office
Urban Stormwater Workgroup Meeting

September 20, 2022



3. Develop a Process for Dealing with Data Abnormalities
 - Update process to include additional safeguards to prevent data analysis variations and to assess reasonability of modeling results after CBP protocols are applied.



3. Develop a Process for Dealing with Data Abnormalities

Suggestions:

- The designated entity should include representatives from each signatory partner;
- The Management Board agrees to draw on the knowledge and feedback from STAC, STAR, the WQGIT and others to develop safeguards, processes and protocols.
- The partnership should consider timing in the process including how it impacts public trust.
- The MB should report the progress on this effort to the PSC quarterly.
- The MB should have a special, stand alone meeting to address these issues (recognizing it will take many months to resolve).



Turfgrass Nutrient Application Rates

- This presentation describes the issue with data abnormalities and (again) proposes one change for the short term (CAST21) to the current USWG-approved methods for consideration by the group.



Turfgrass Nutrient Application Rates

- AAPFCO non-farm fertilizer sales data by county reported to AAPFCO by each state.
- Urban method uses mass of fertilizer nutrients for each state distributed to one “crop” type = turfgrass
- Additional credit for practices that make up nutrient management – depending on high-risk, low-risk, blended



Turfgrass Nutrient Application Rates

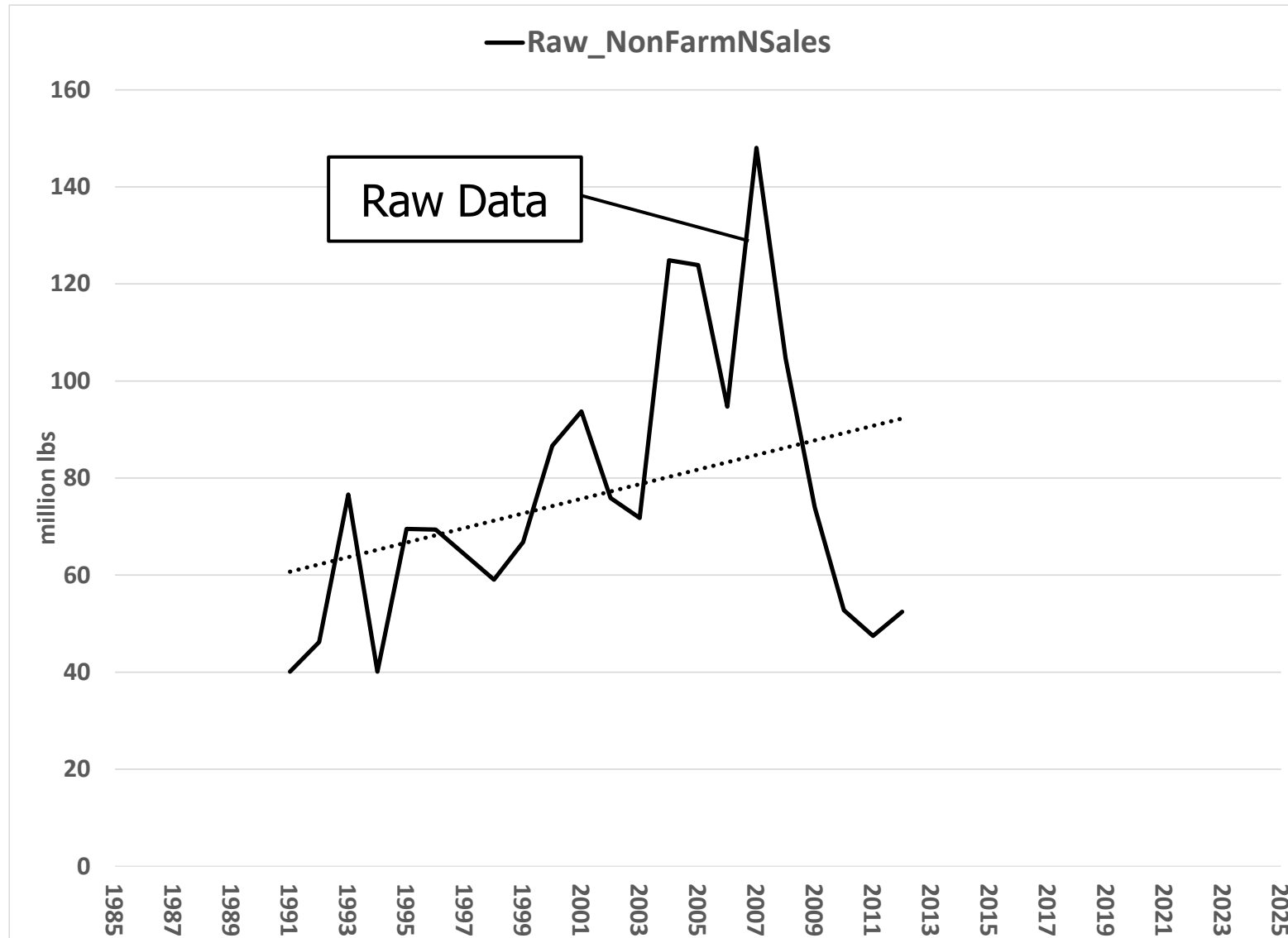
- Two components to turfgrass application rates:
 - Fertilizer mass data
 - Turfgrass acres – High-resolution land cover w/ approved change-product from 2013 to 2017
- Non-farm fertilizer mass \div turfgrass acres = turfgrass application rate (lbs. per acre)



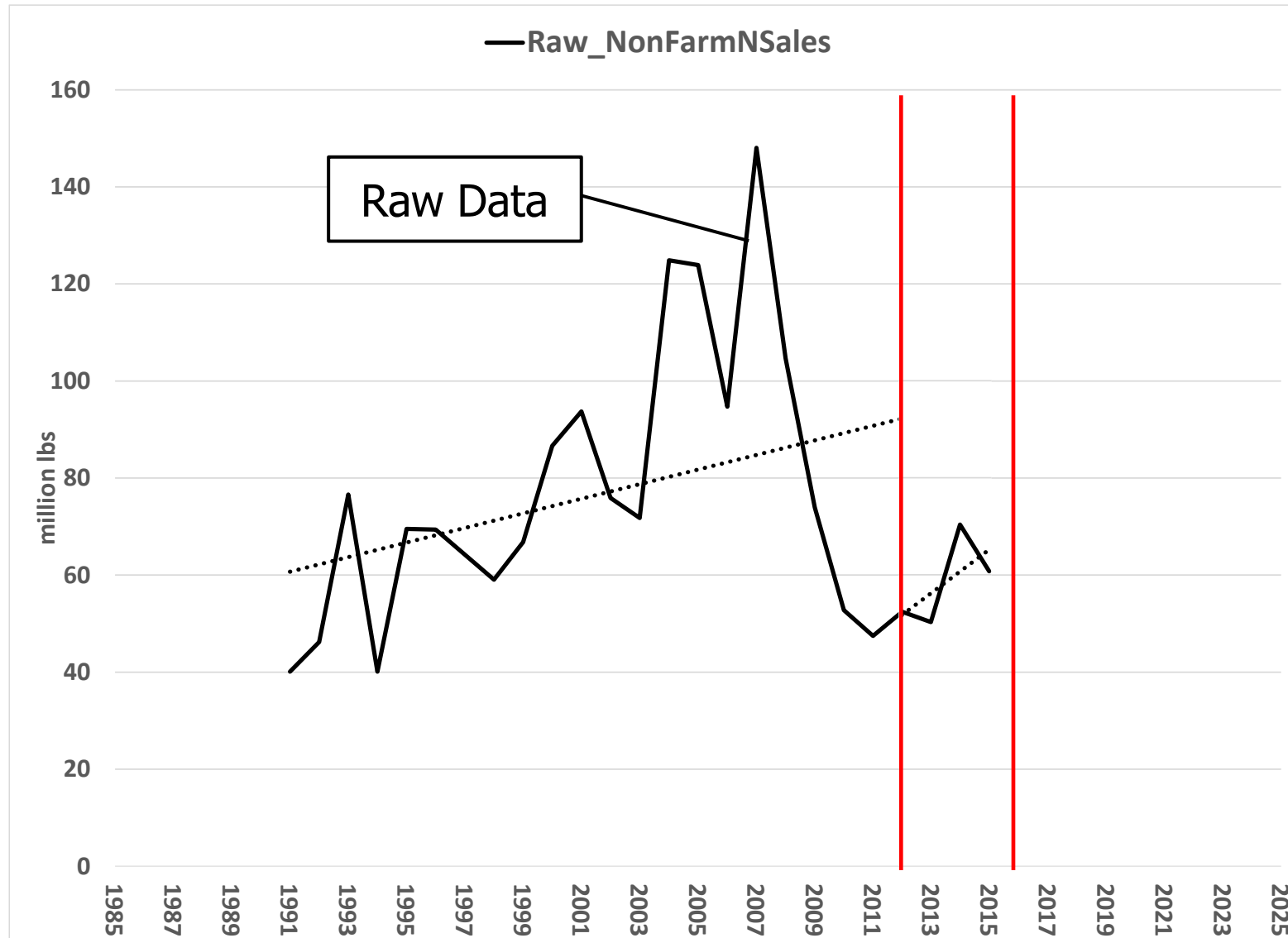
Turfgrass Nutrient Application Rates

- Current Method
 - Approved by USWG on 6/21/16, including varying applications by jurisdiction and through time
- Proposed Method
 - Linear regression through 2012-2016 smoothed data; Use annual percent change in per-acre rates from 2012 to 2016

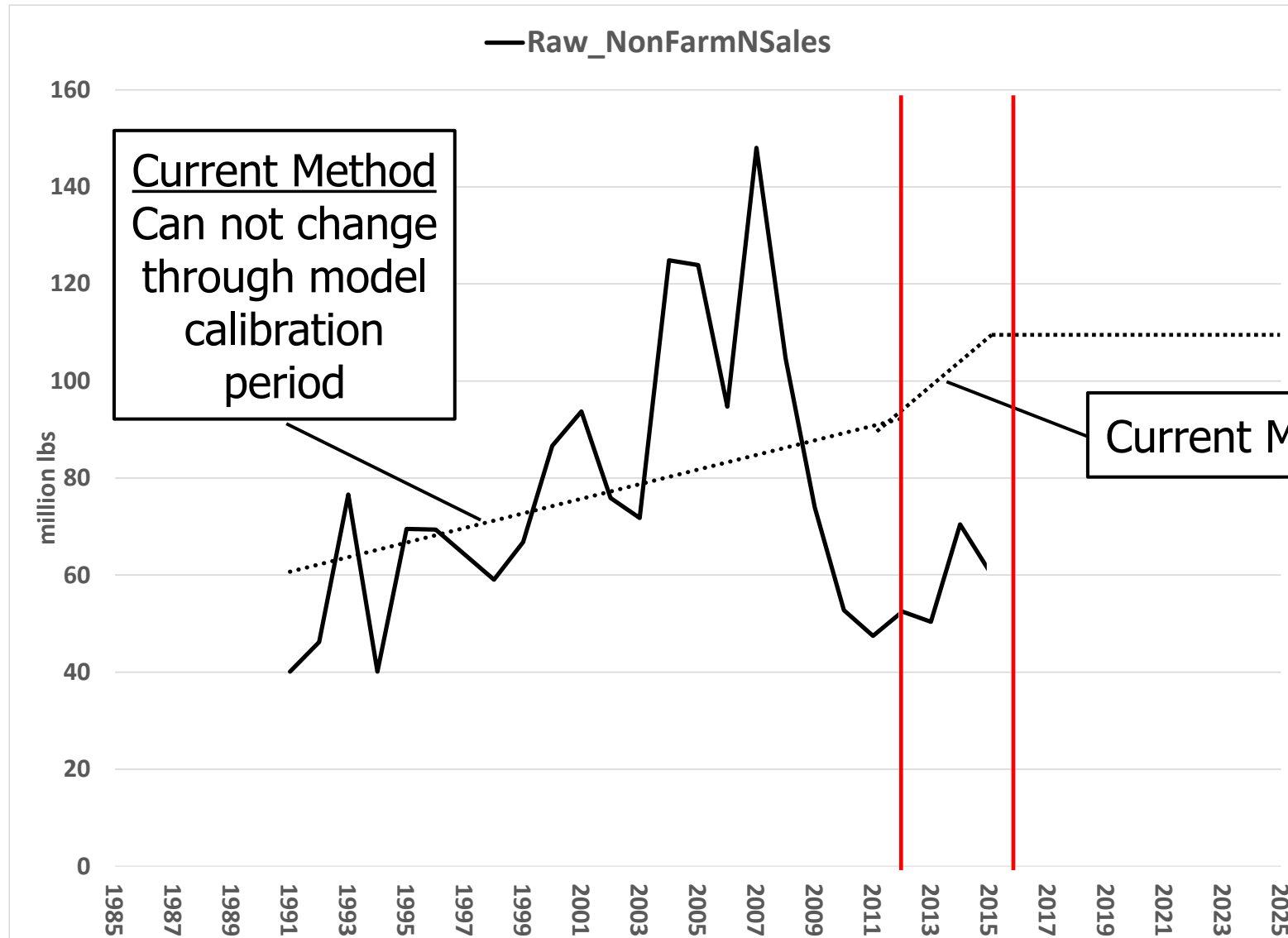
CB Watershed Pounds of Nitrogen Applied (1991–2012)



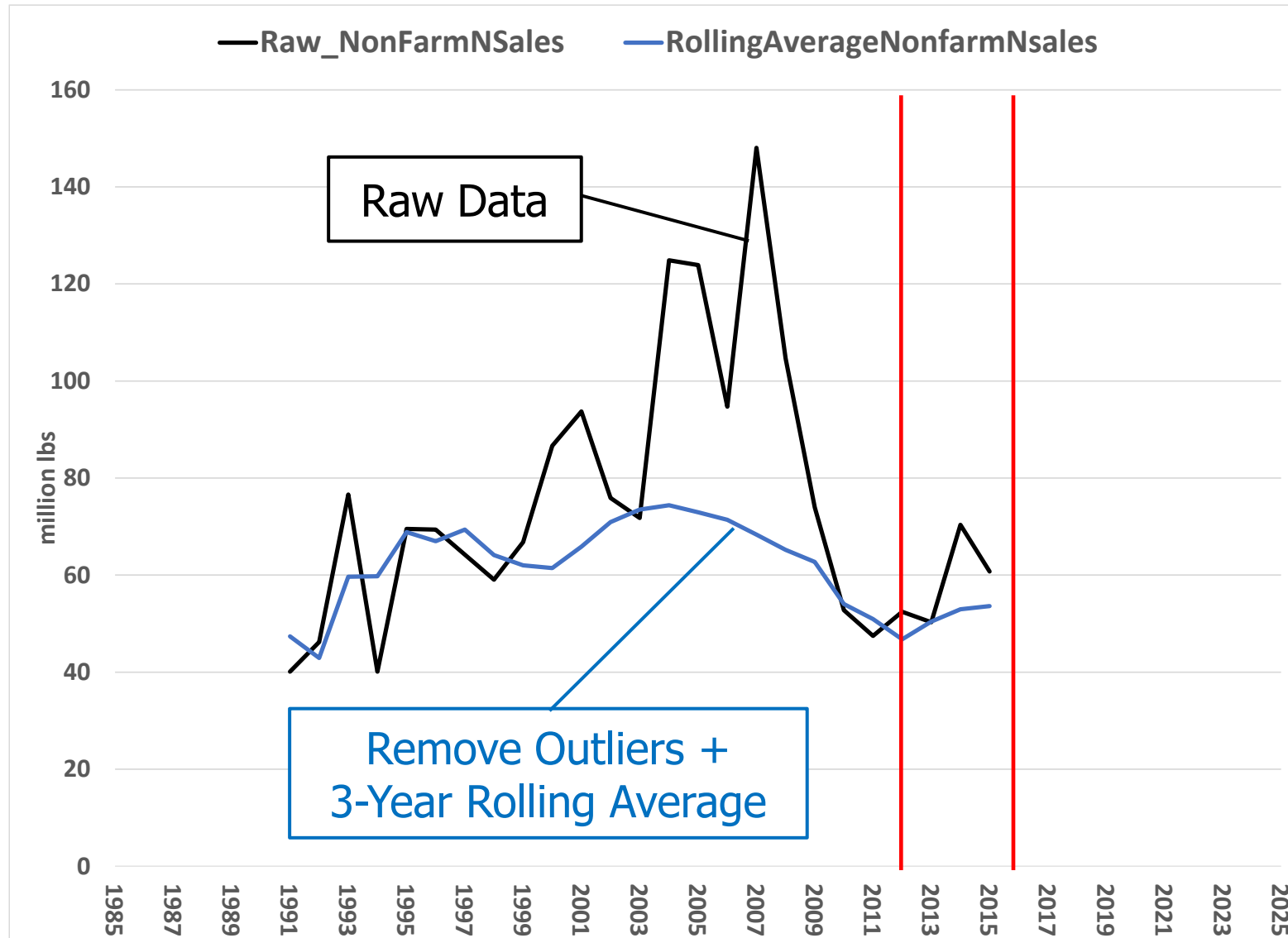
CB Watershed Pounds of Nitrogen Applied (1991–2015)



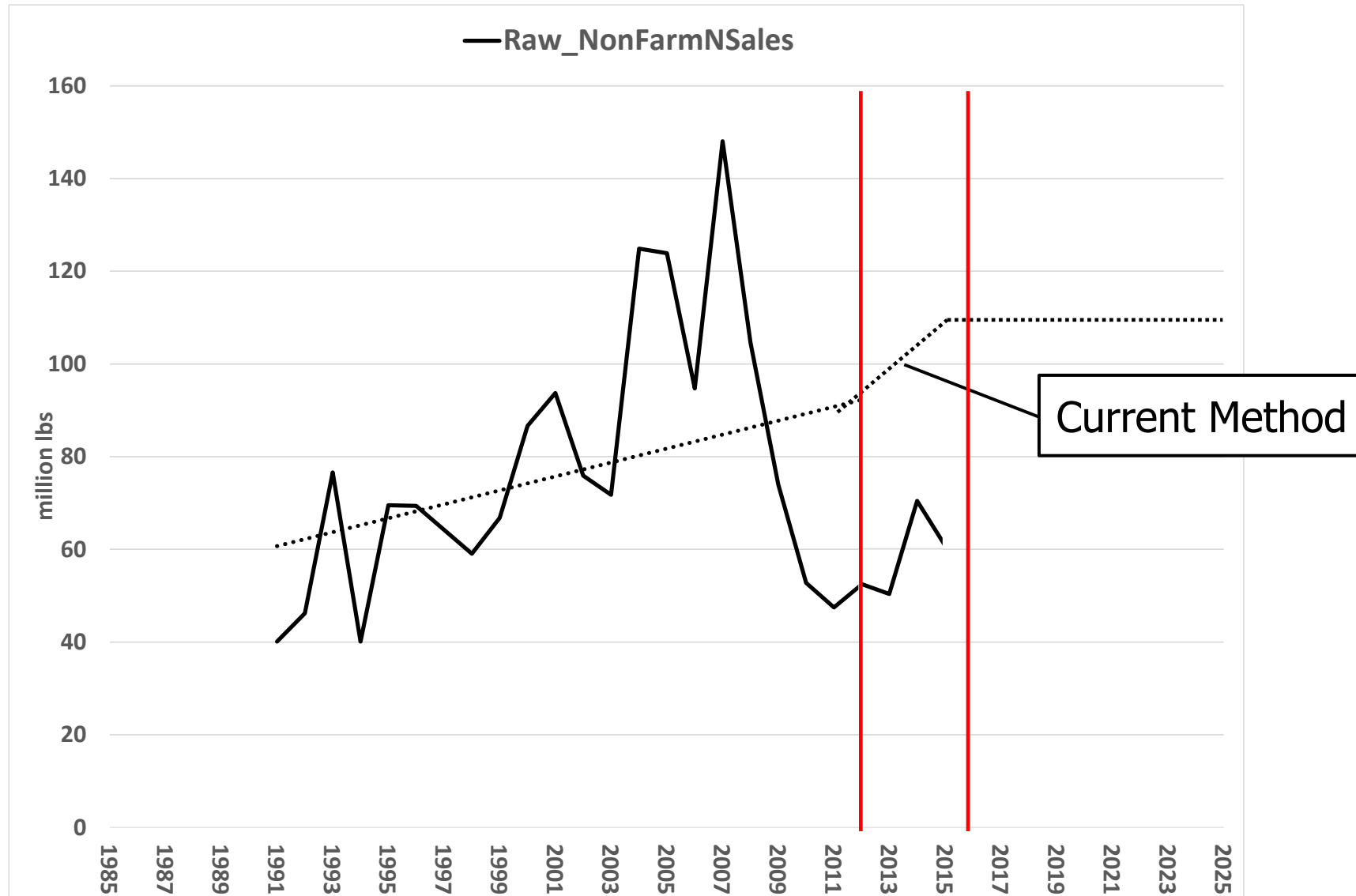
CB Watershed Pounds of Nitrogen Applied (1991–2025)



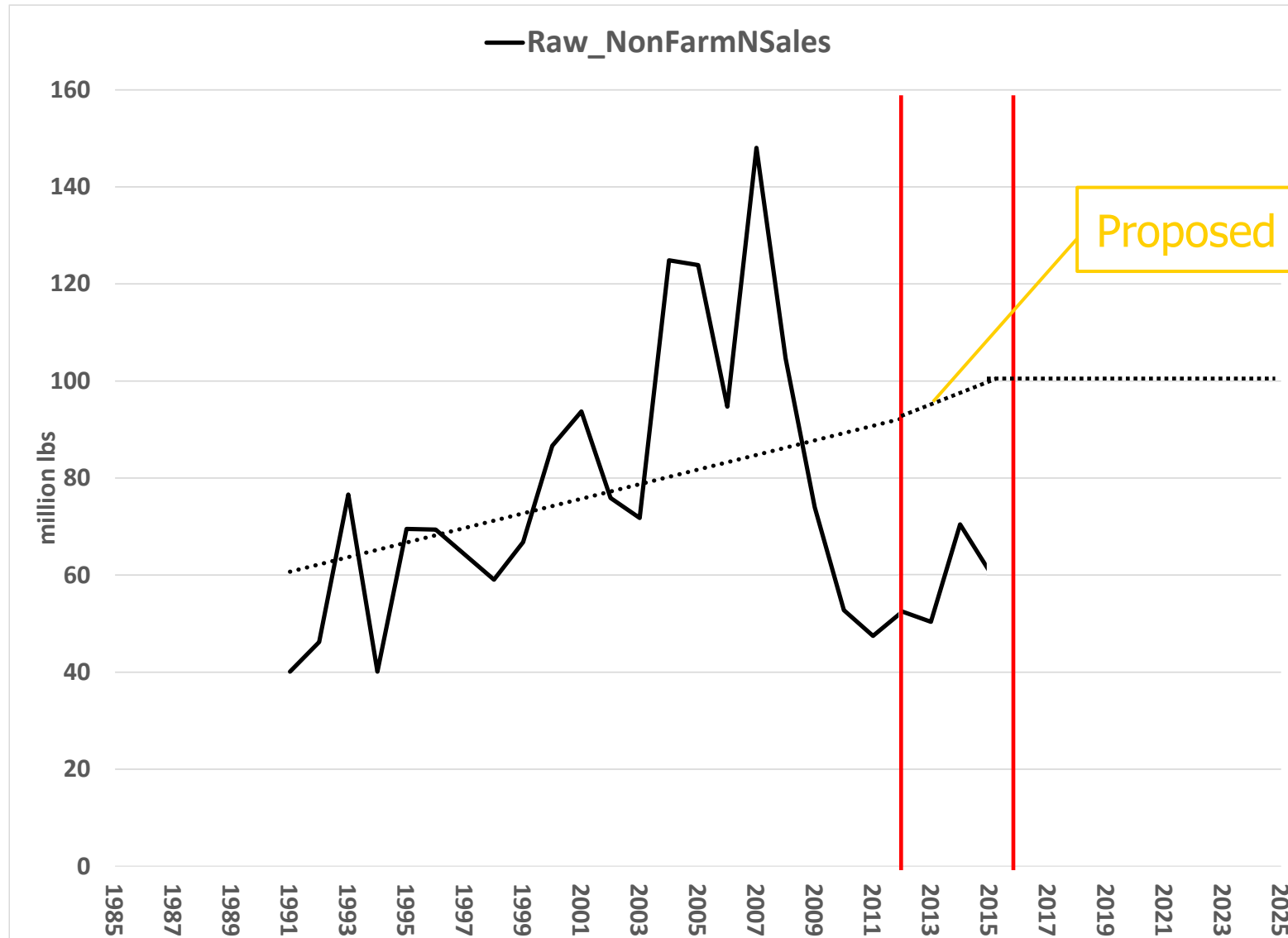
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CB Watershed Pounds of Nitrogen Applied (1991–2025)



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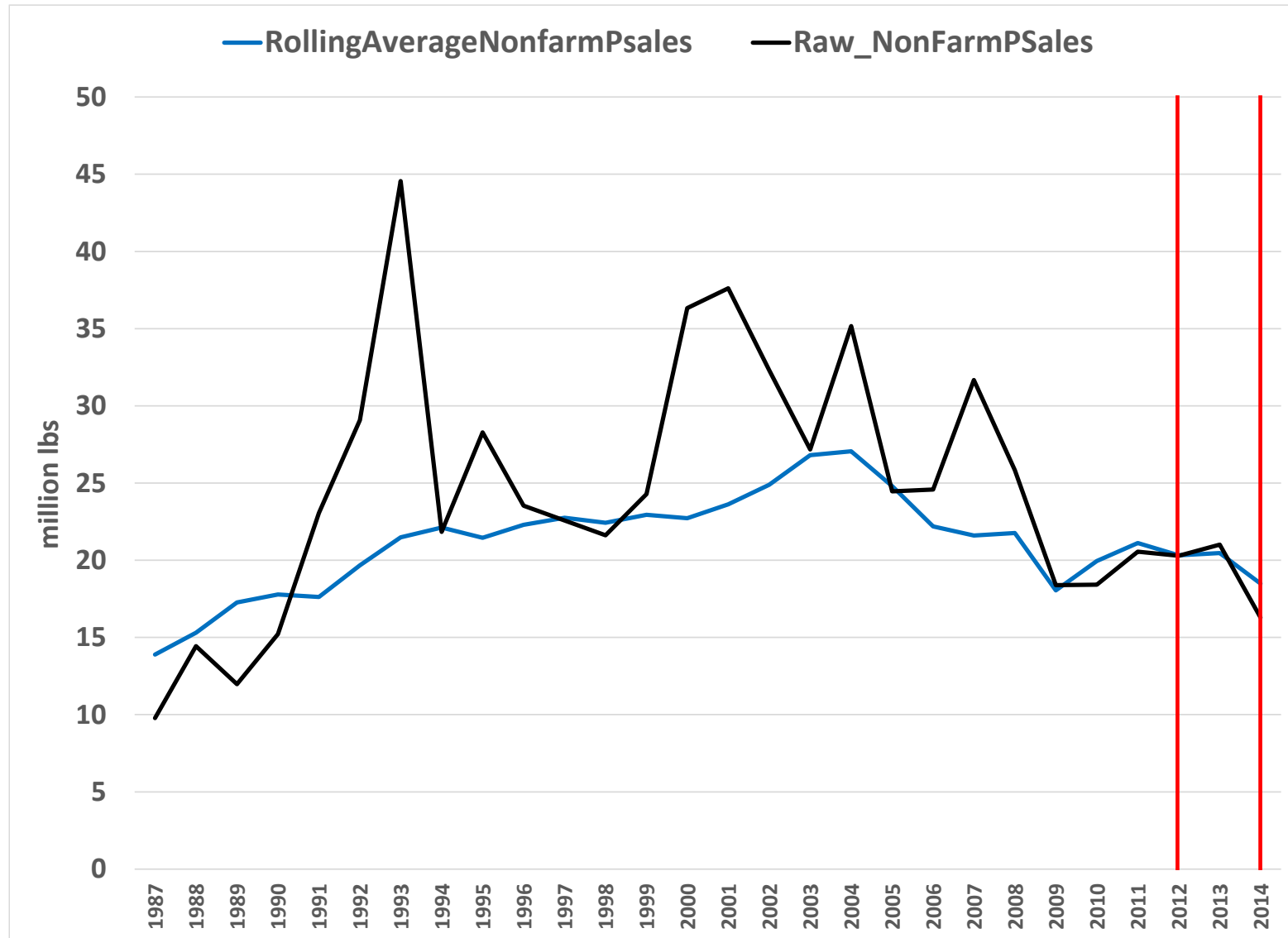


Fertilizers: cost of Nitrogen per pound



Source: DTN Fertilizer Index, a weekly survey of U.S. retailer prices DTN®

CB Watershed Pounds of Phosphorus Applied (1987–2014)





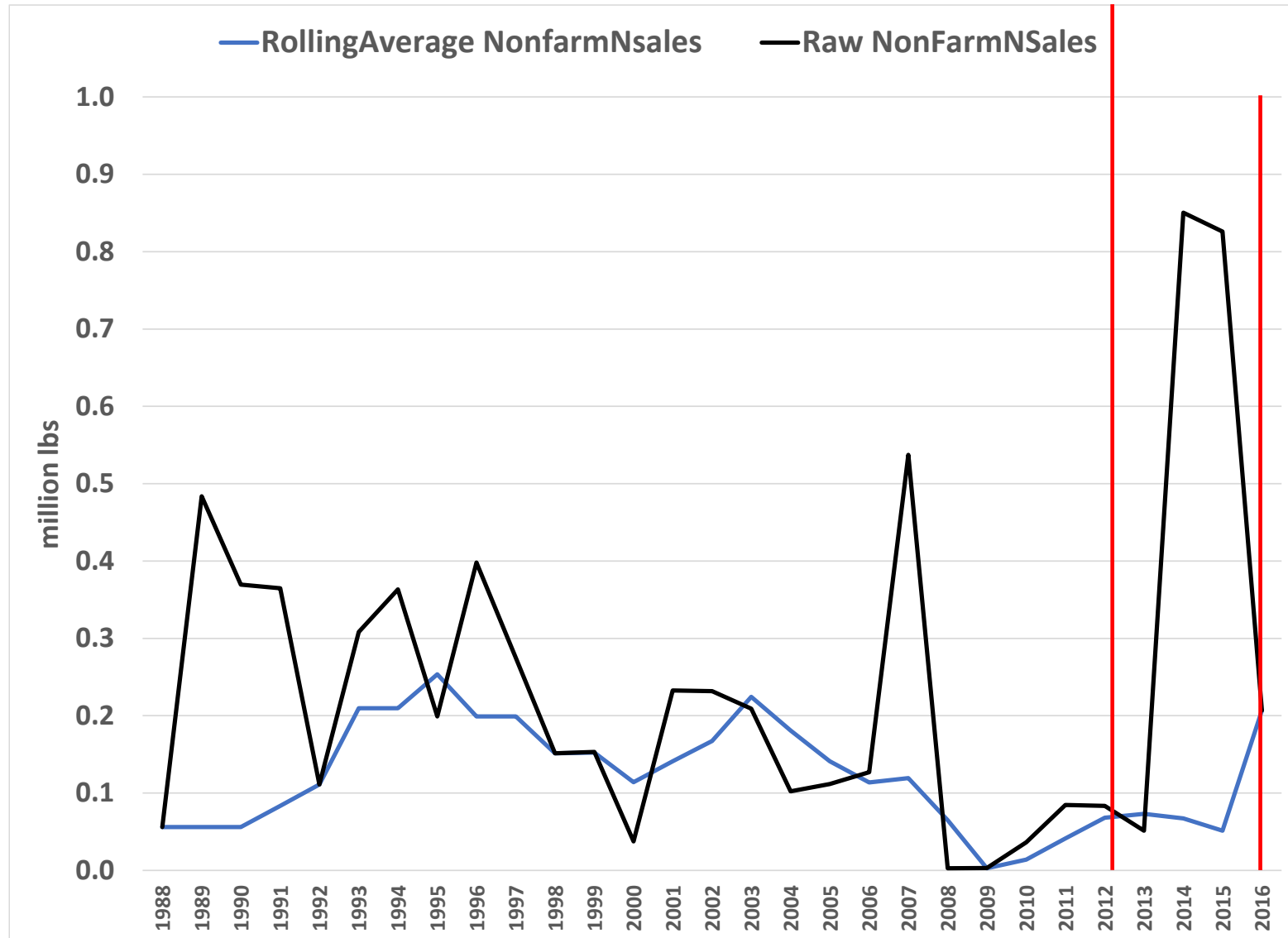
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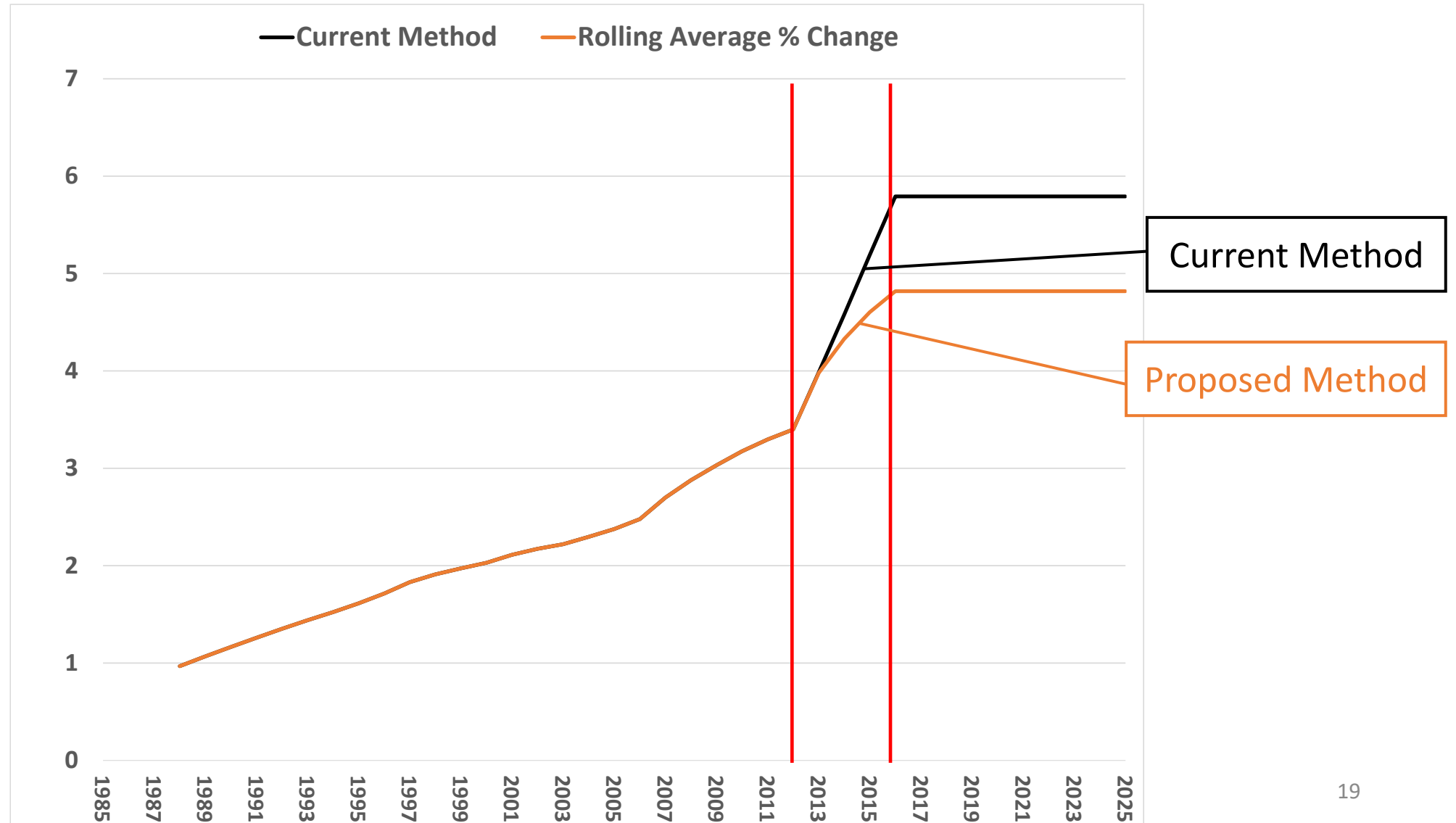


WEST VIRGINIA

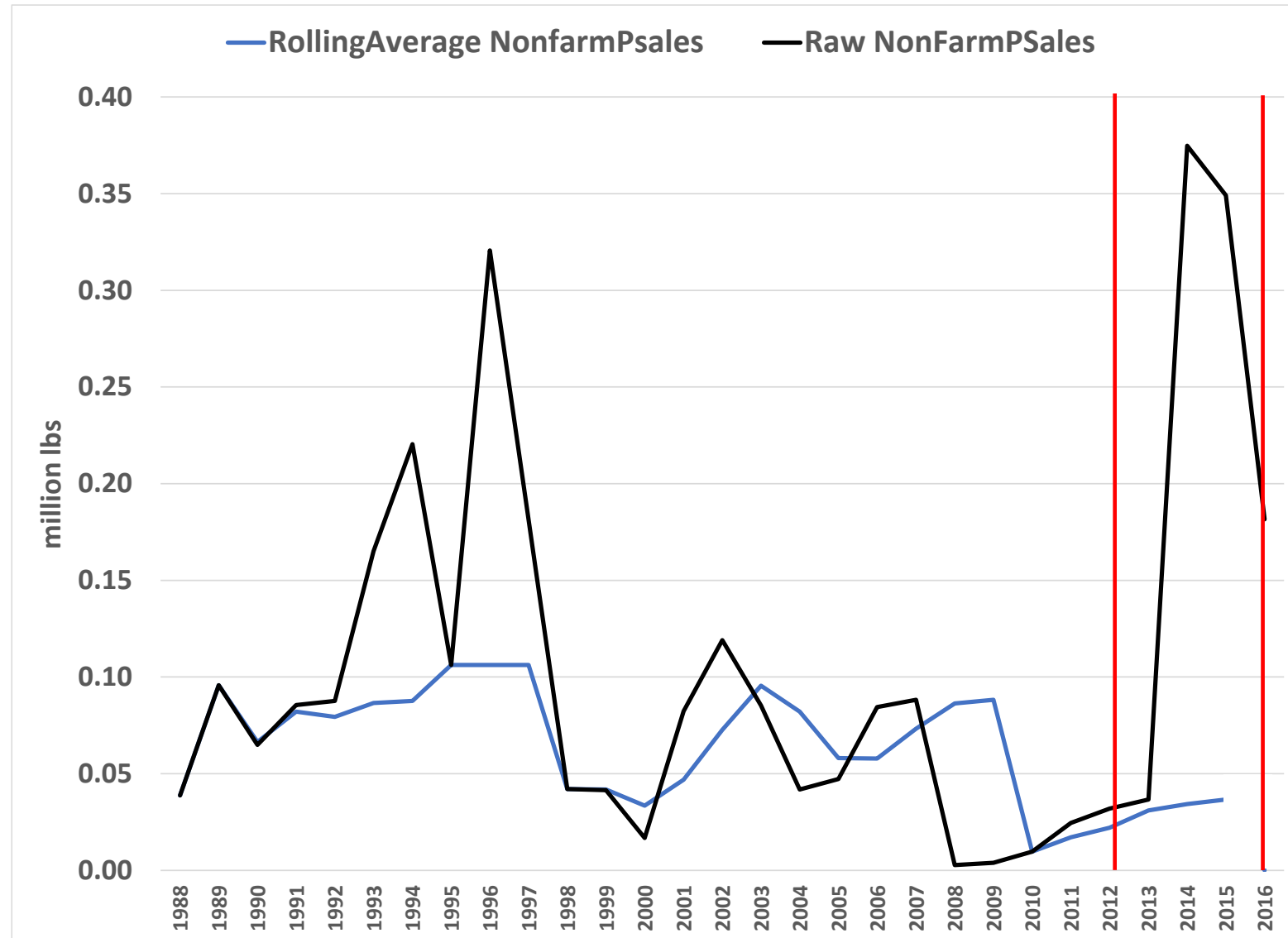
WV Pounds of Nitrogen Applied (1988–2016)



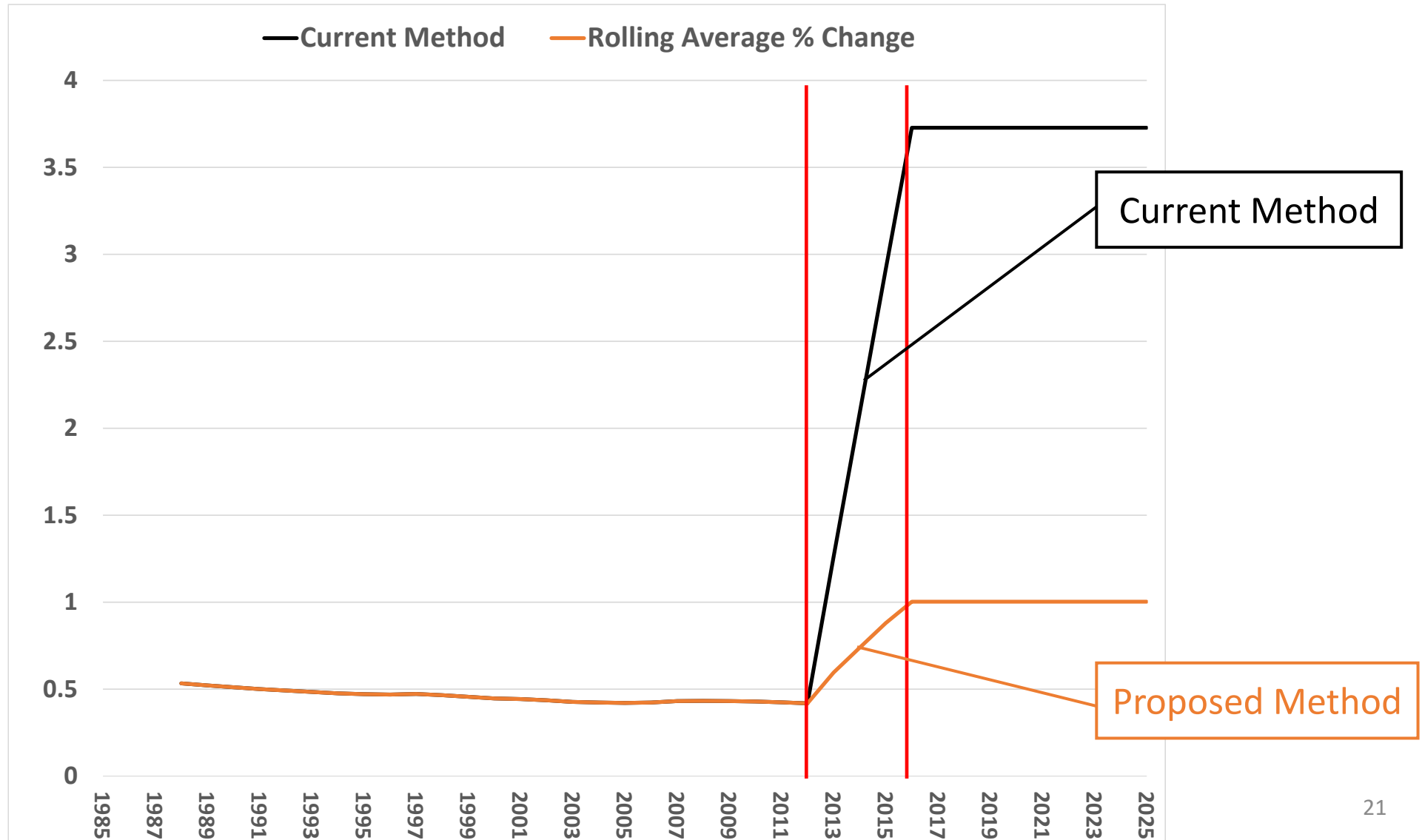
WV Turf Grass Pound/Acre Nitrogen Applications (1988–2025)



WV Turfgrass Phosphorus Applied w/ Smoothing (1988–2016)



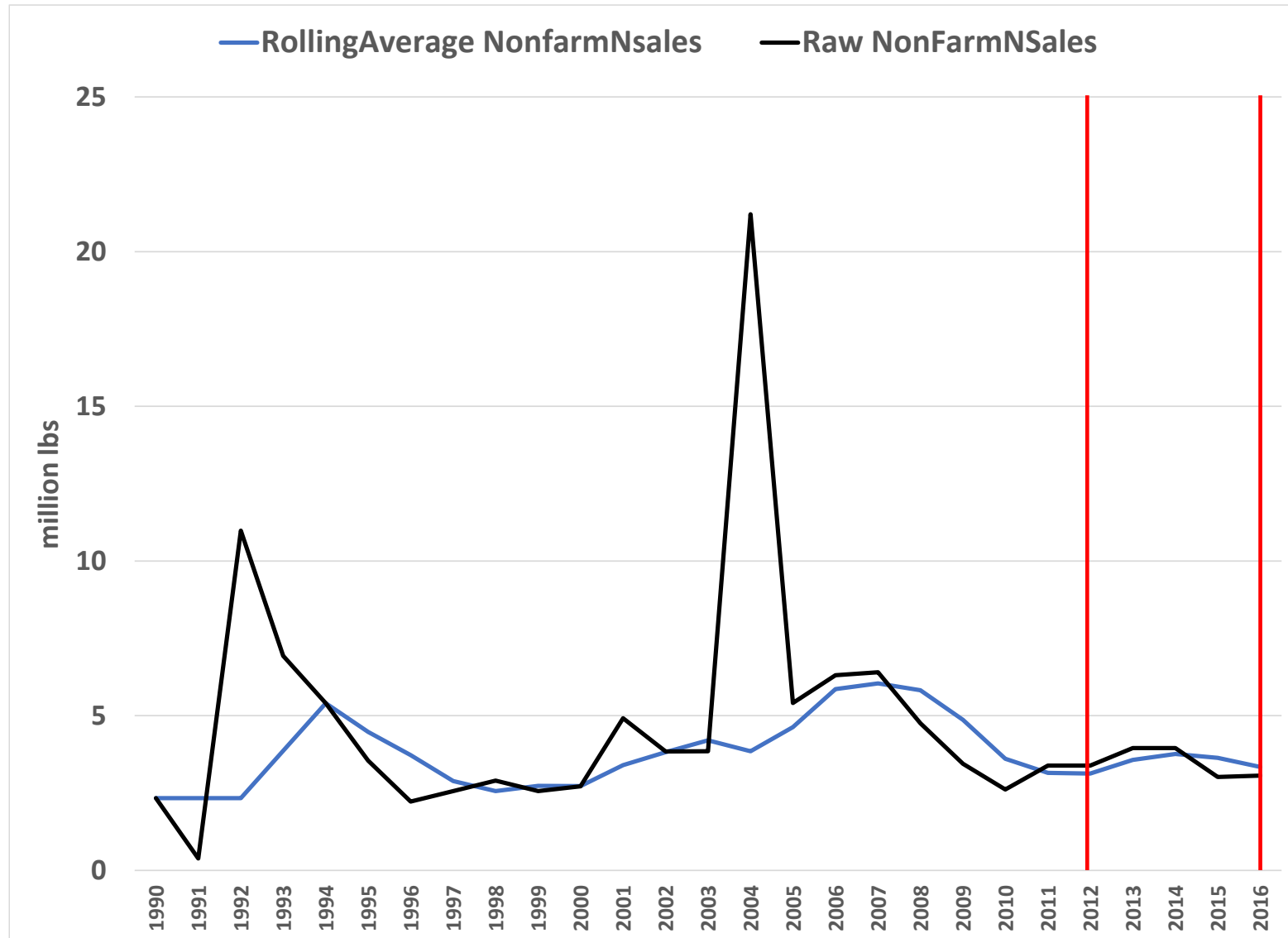
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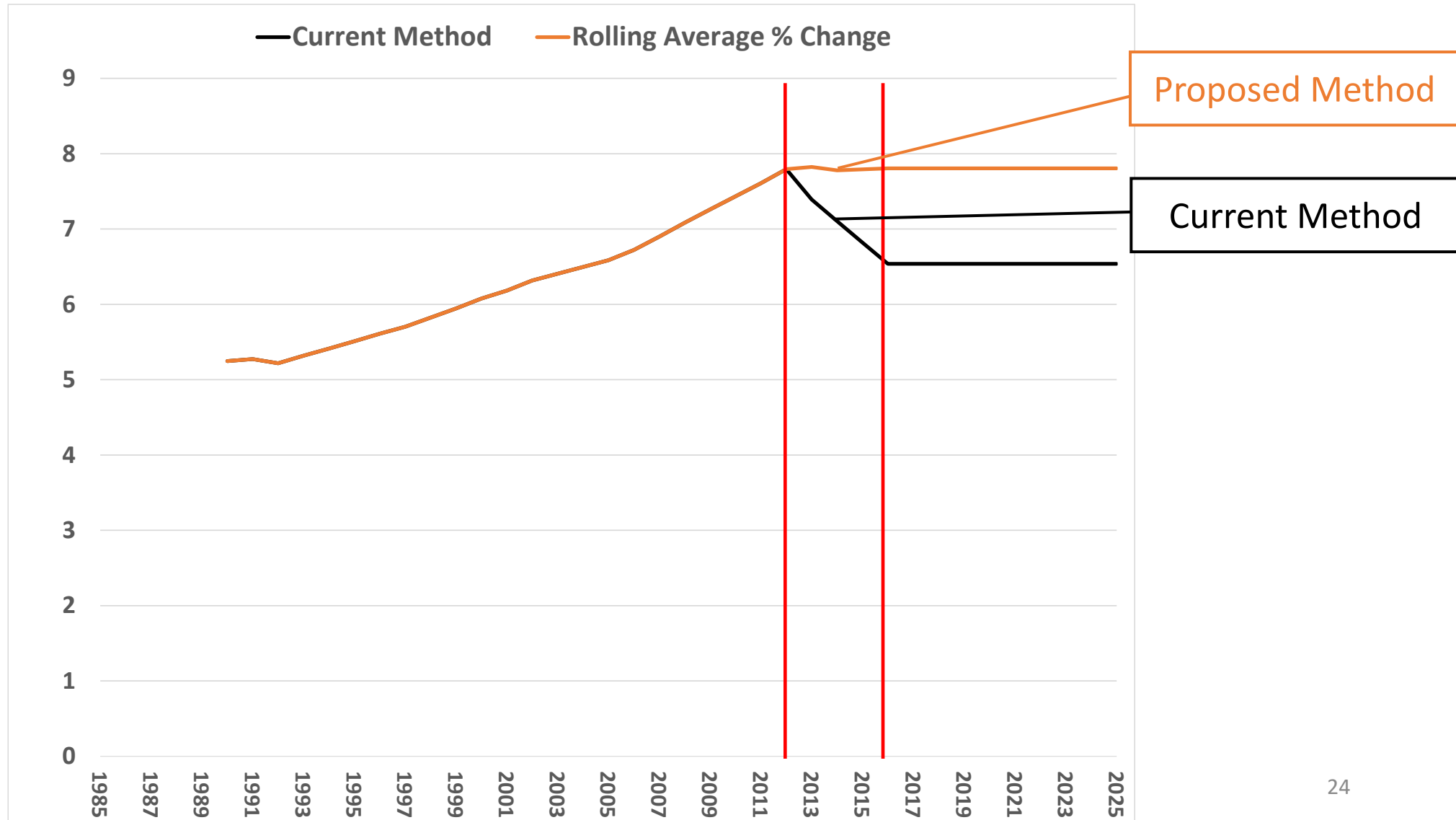


NEW YORK

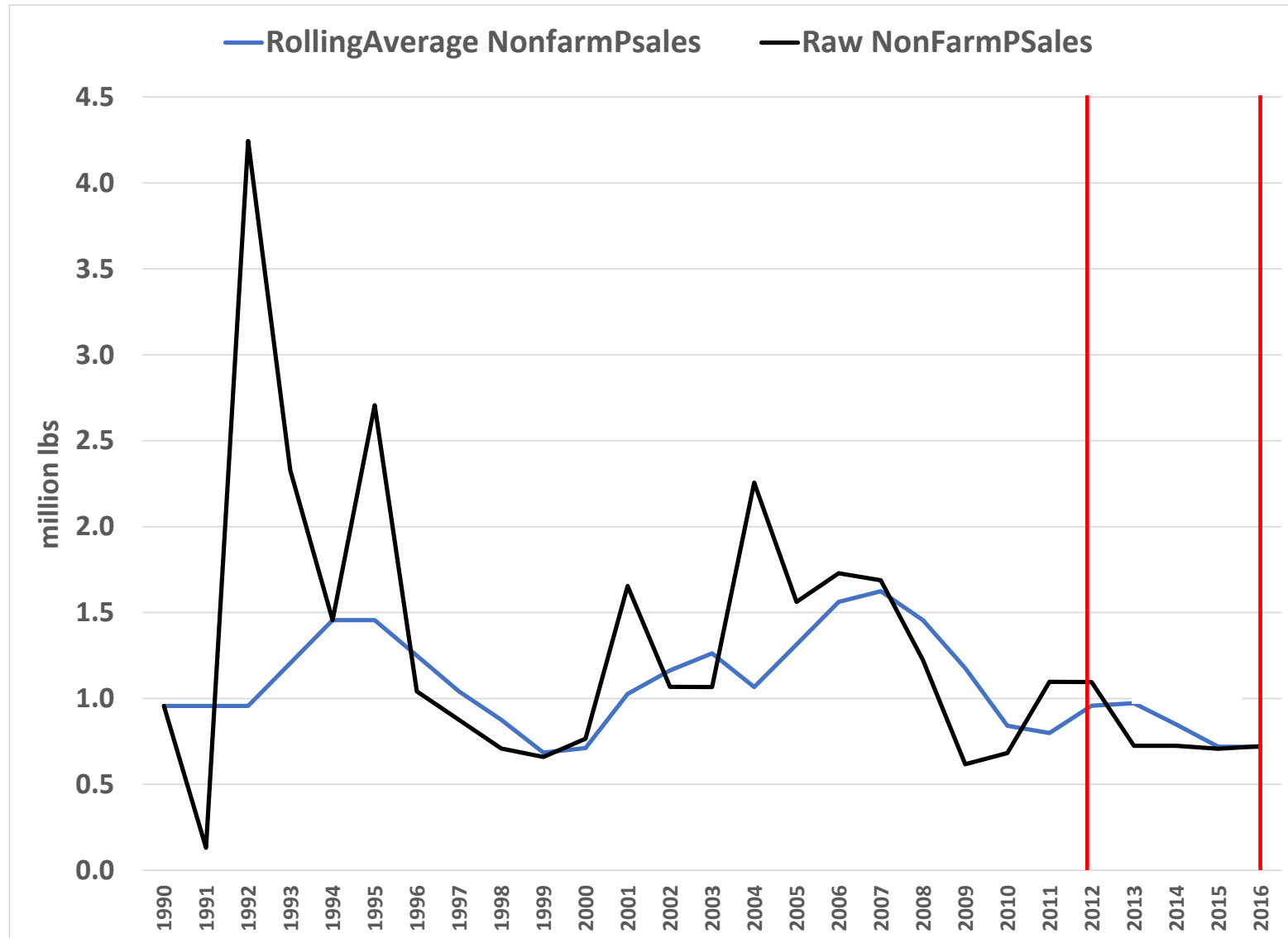
NY Pounds of Nitrogen Applied (1990–2016)



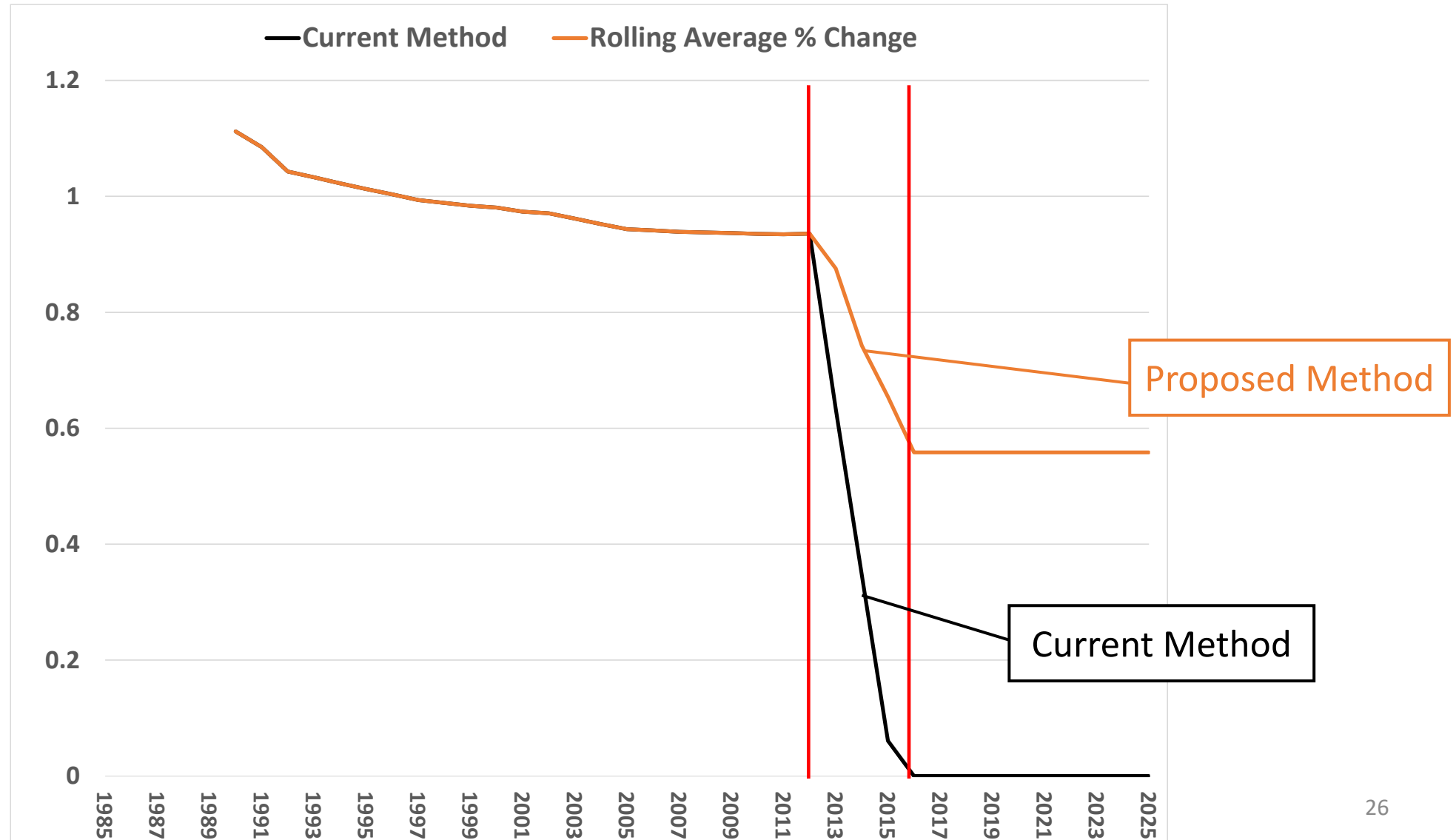
NY Turf Grass Pound/Acre Nitrogen Applications (1990–2025)



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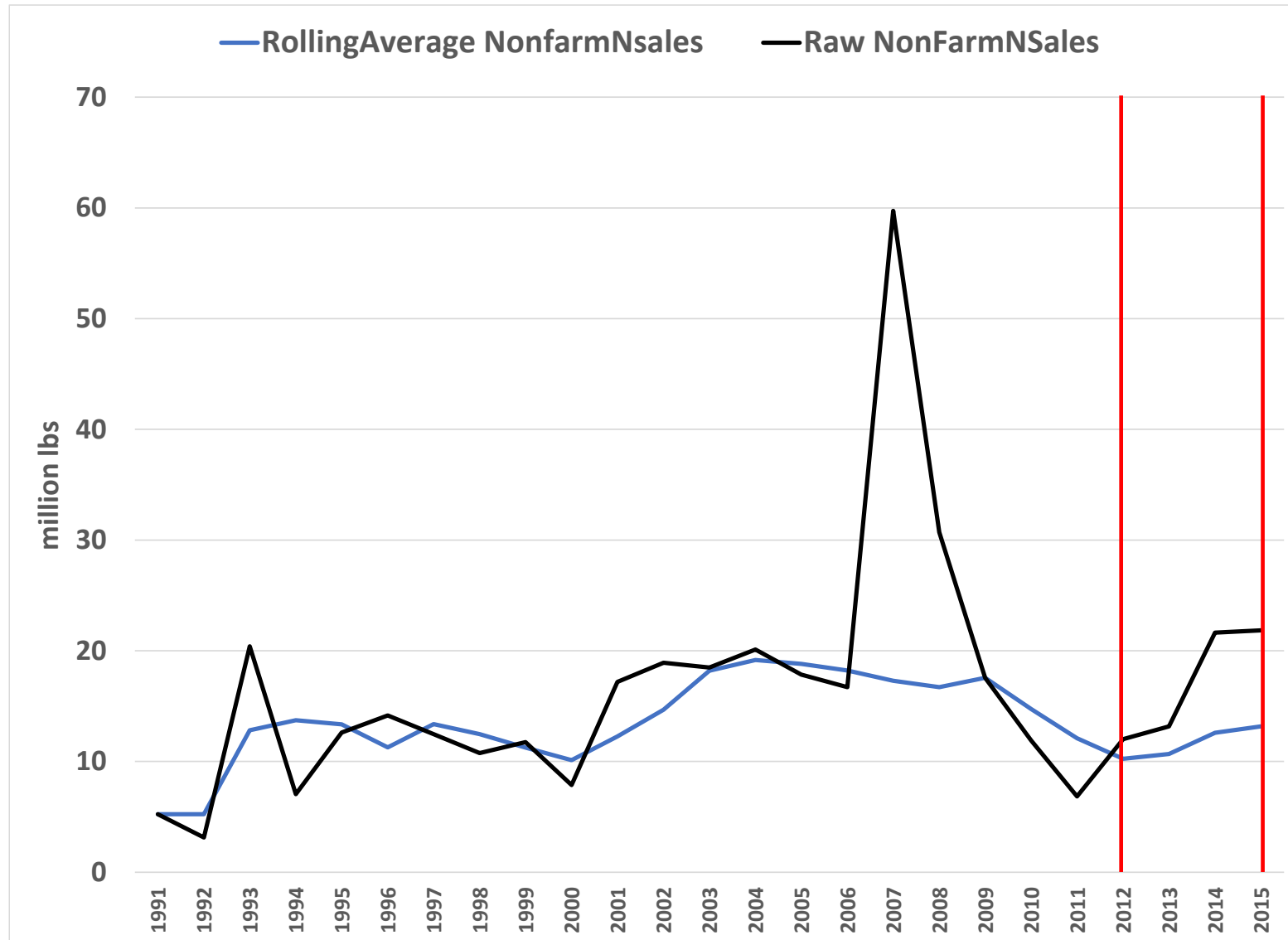
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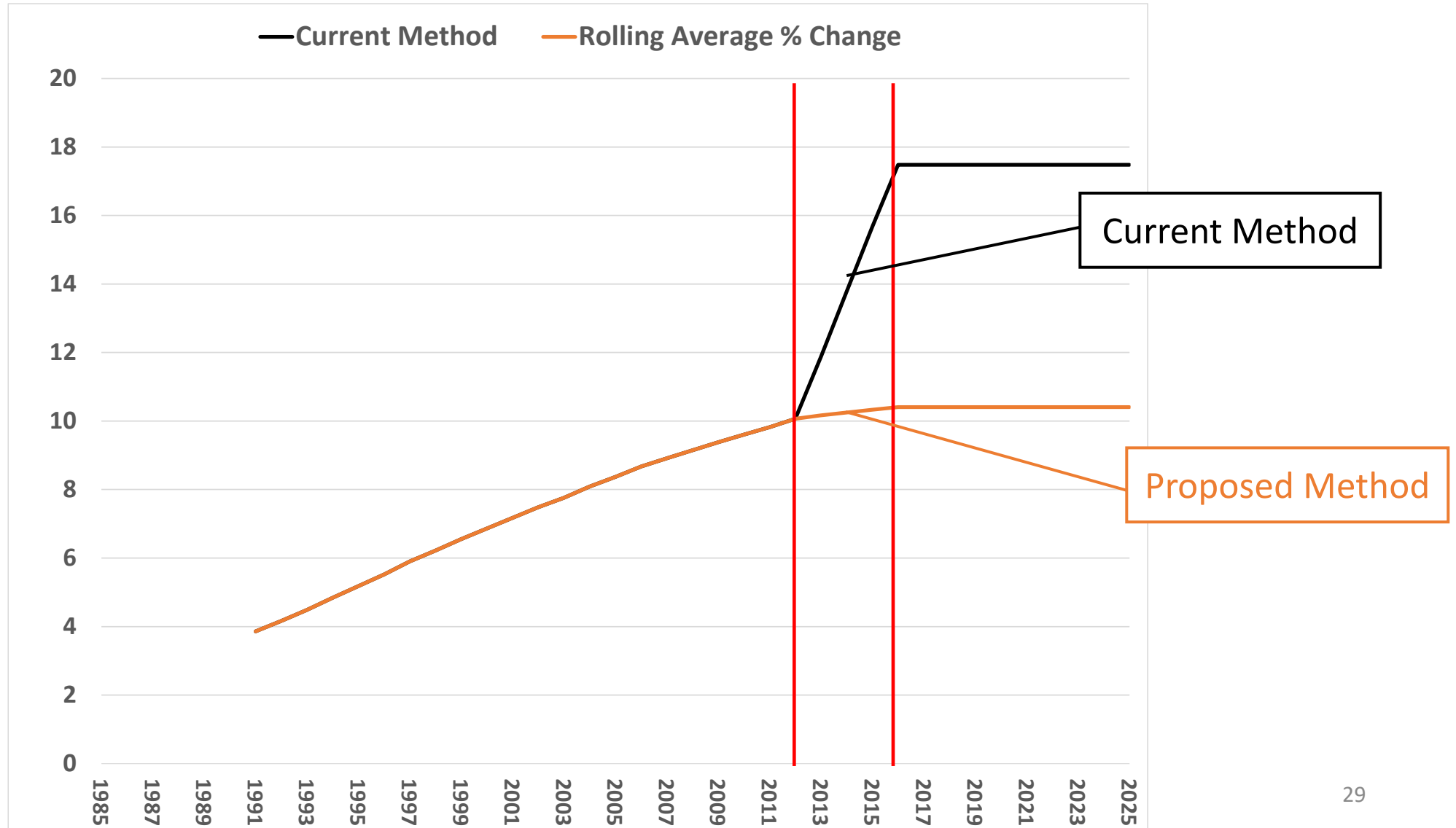


PENNSYLVANIA

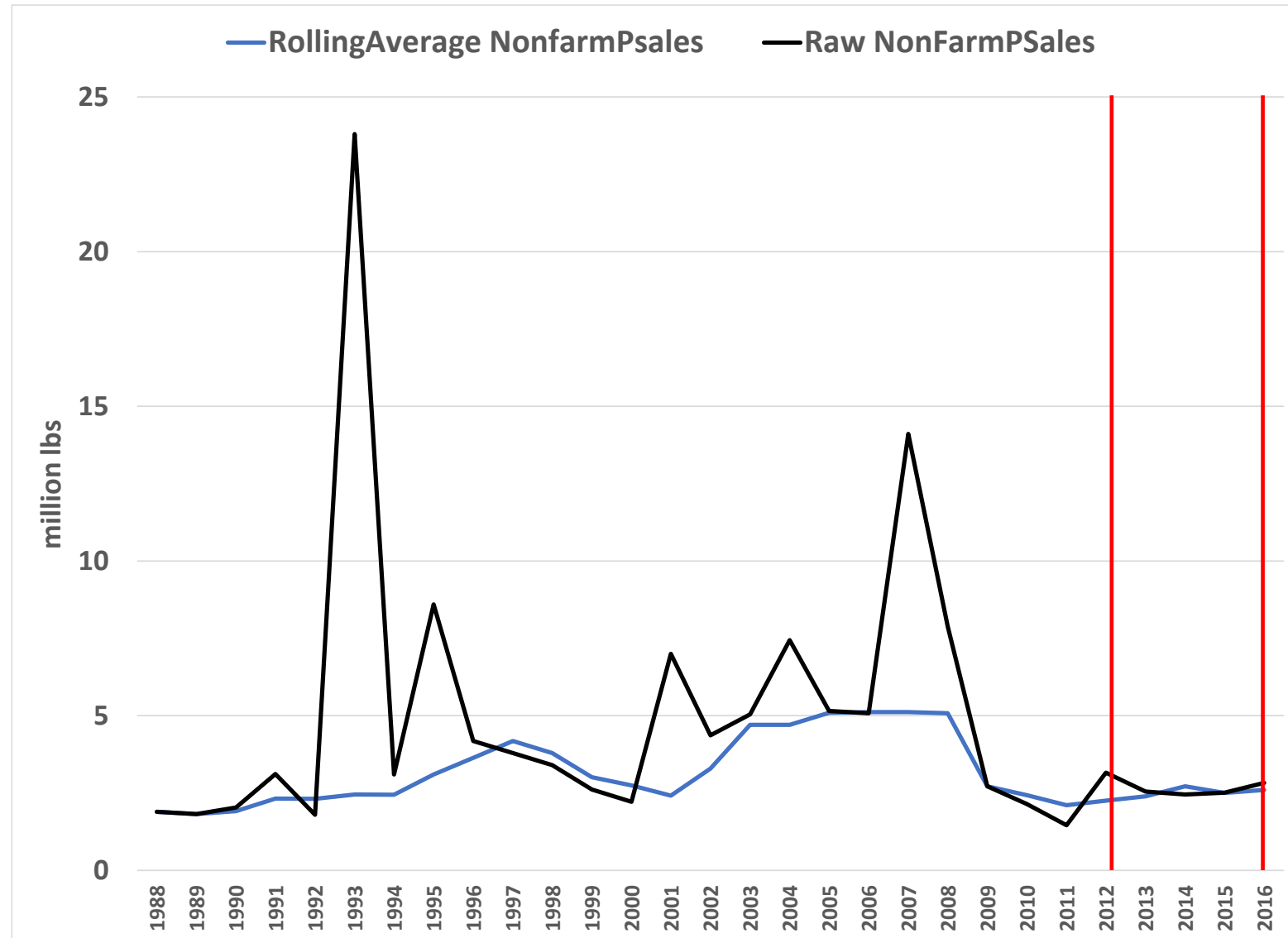
PA Pounds of Nitrogen Applied (1991–2015)



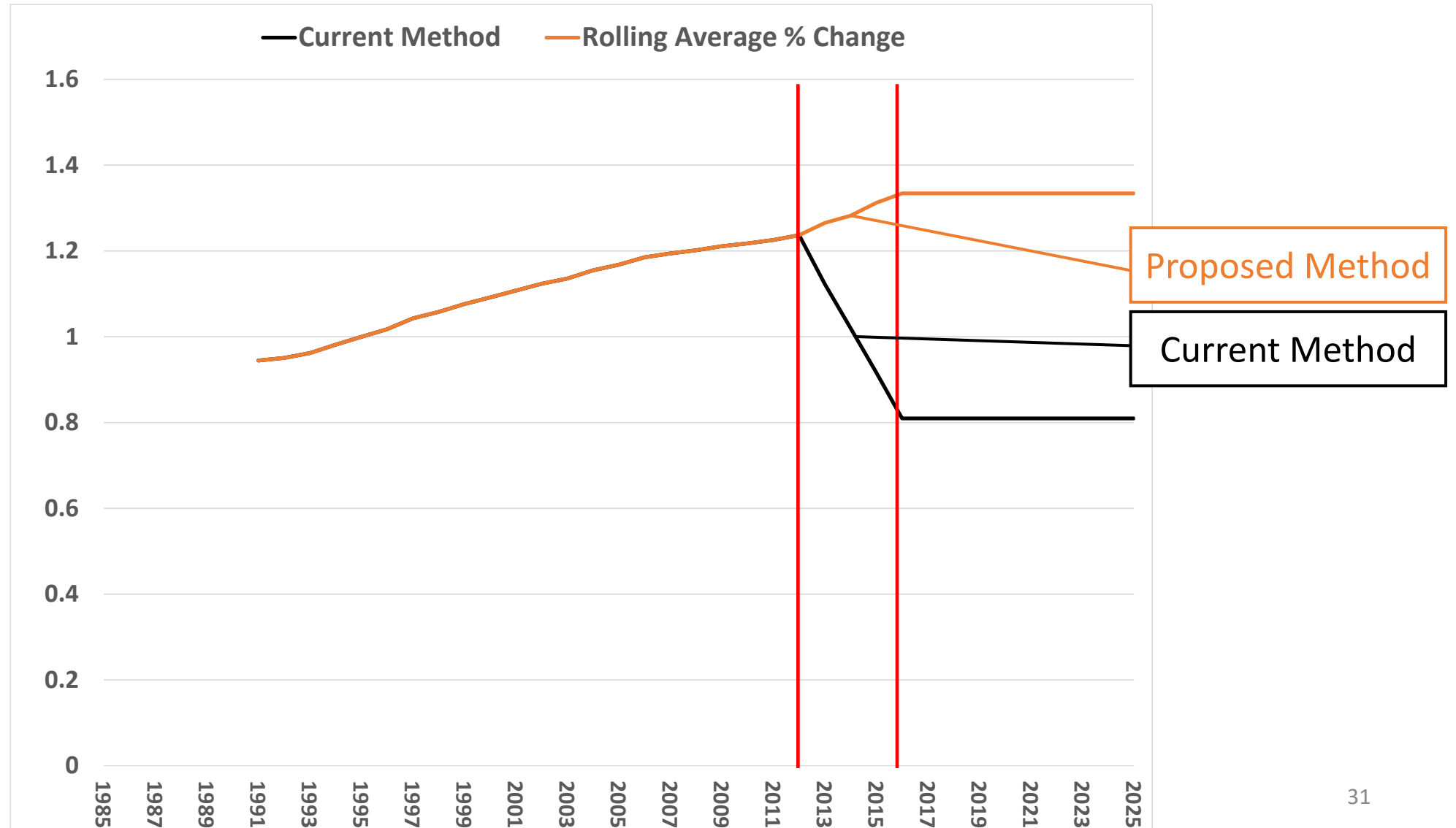
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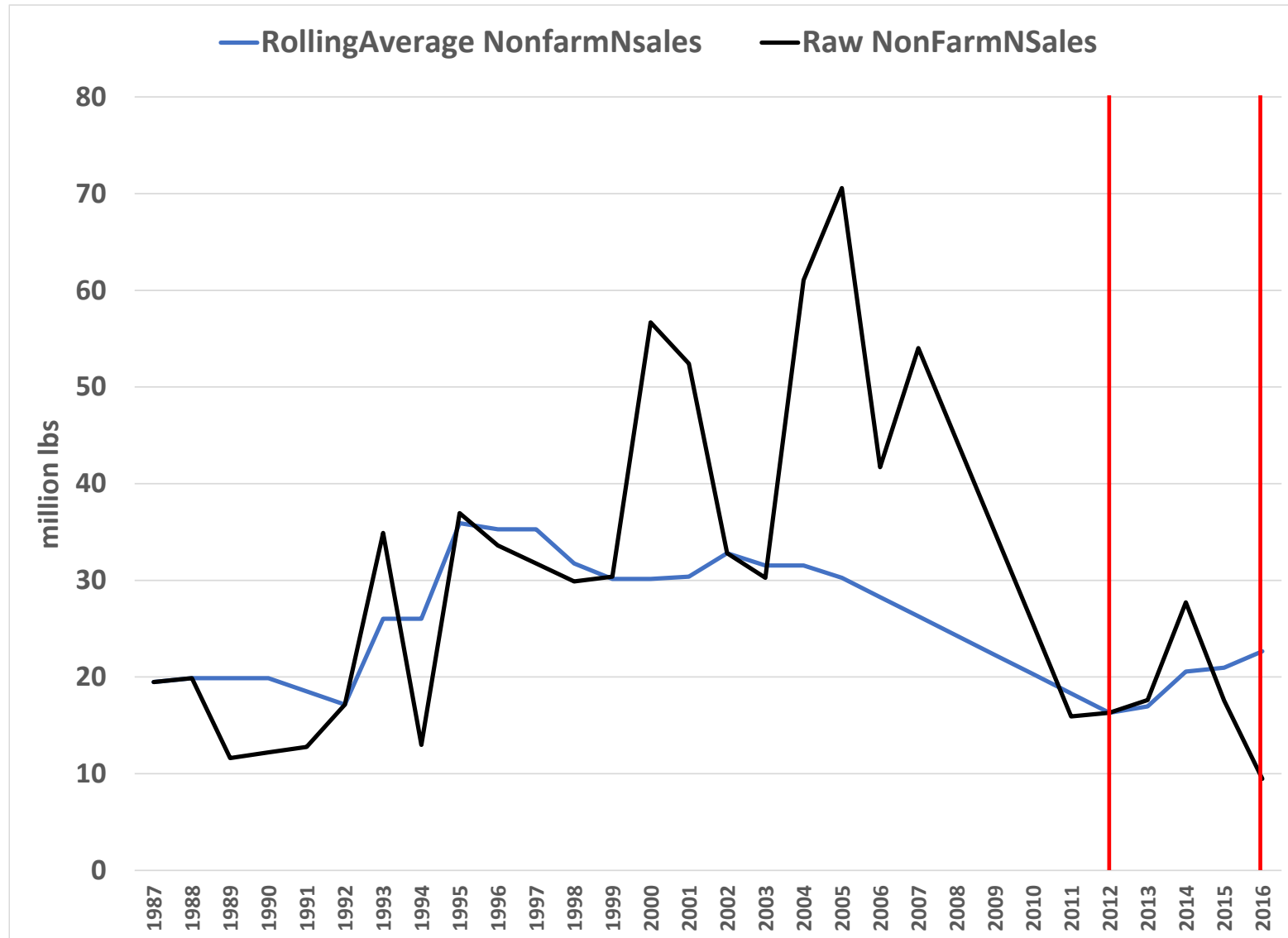
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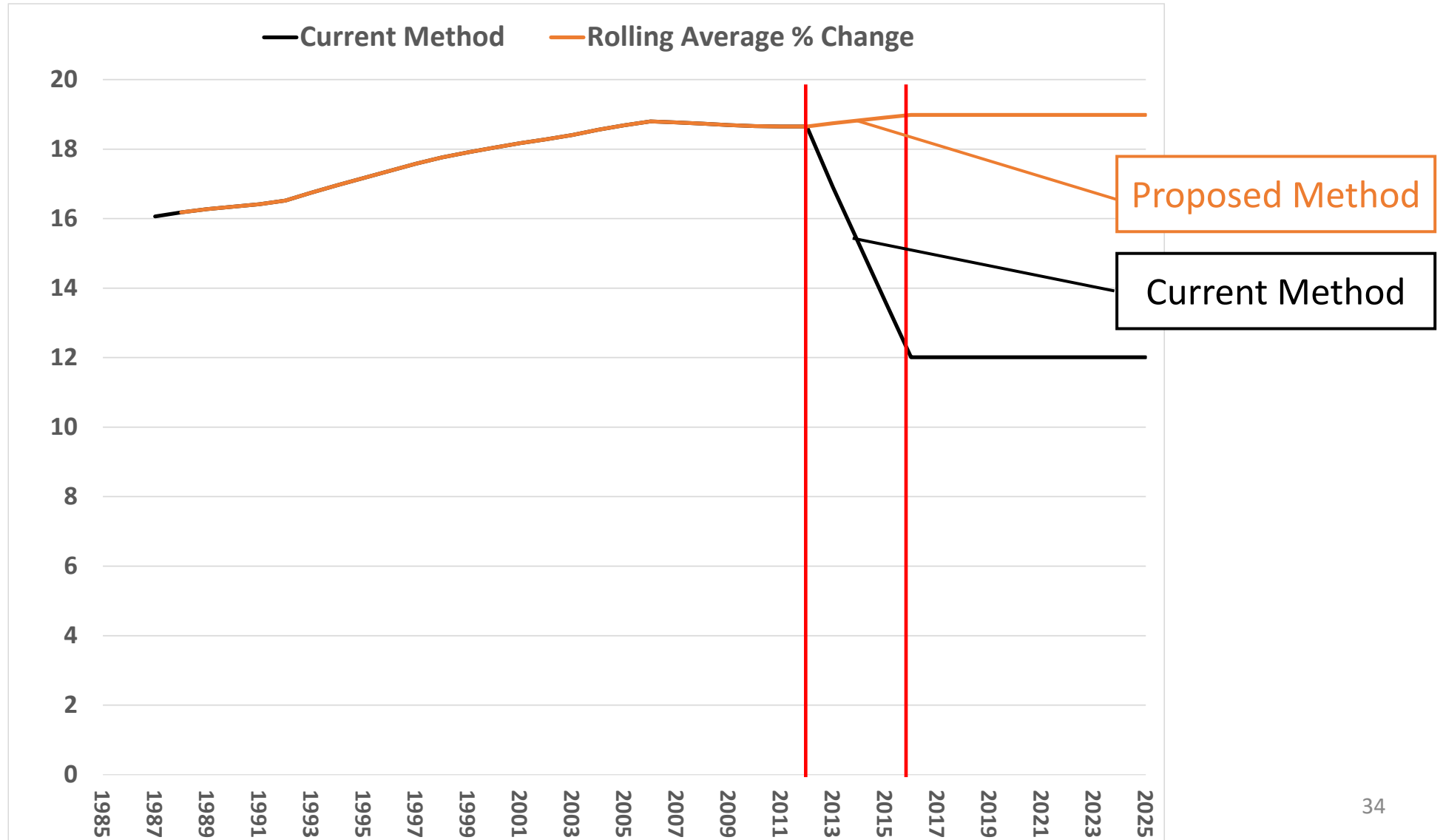


MARYLAND

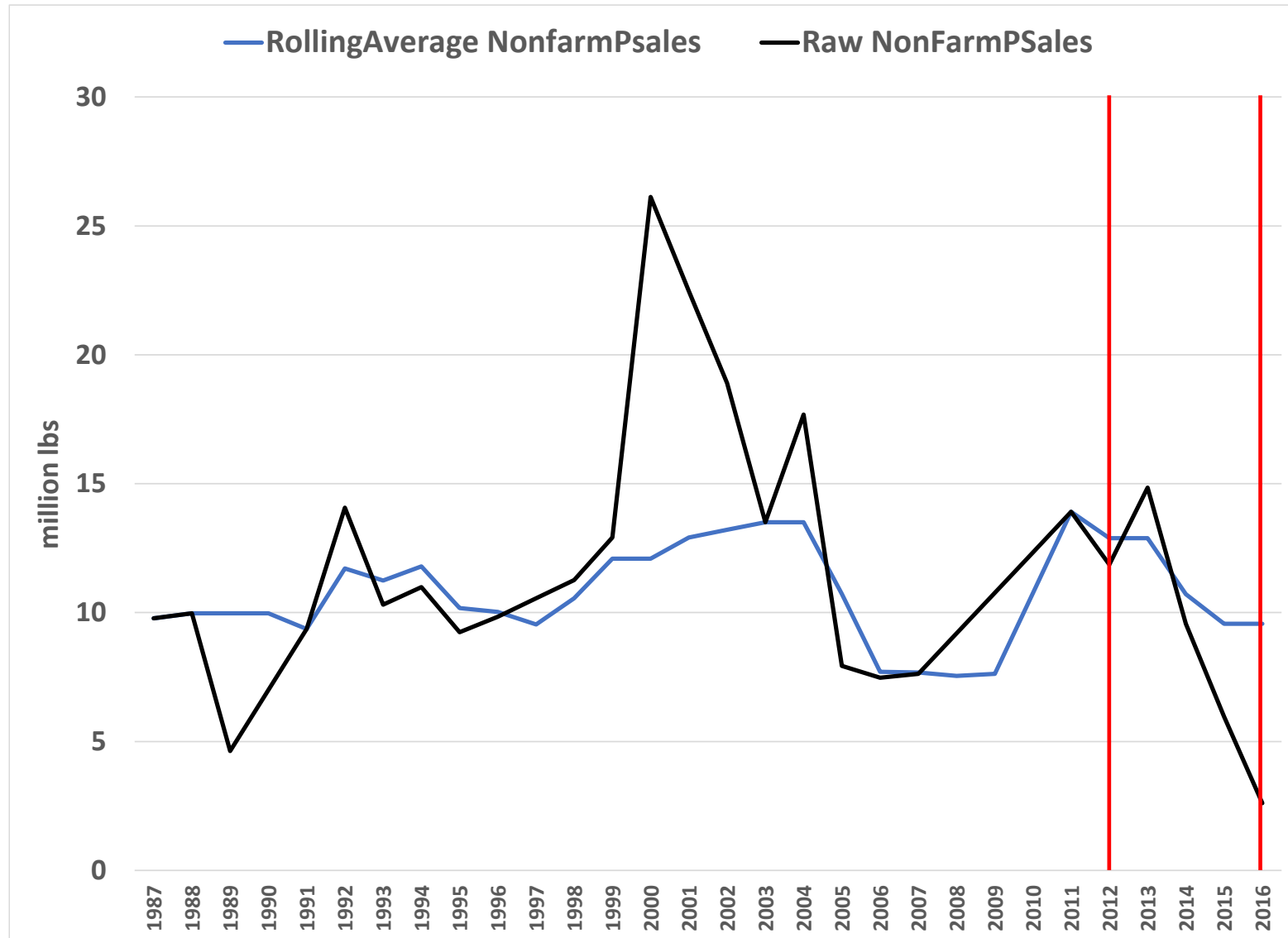
MD Pounds of Nitrogen Applied (1987–2016)



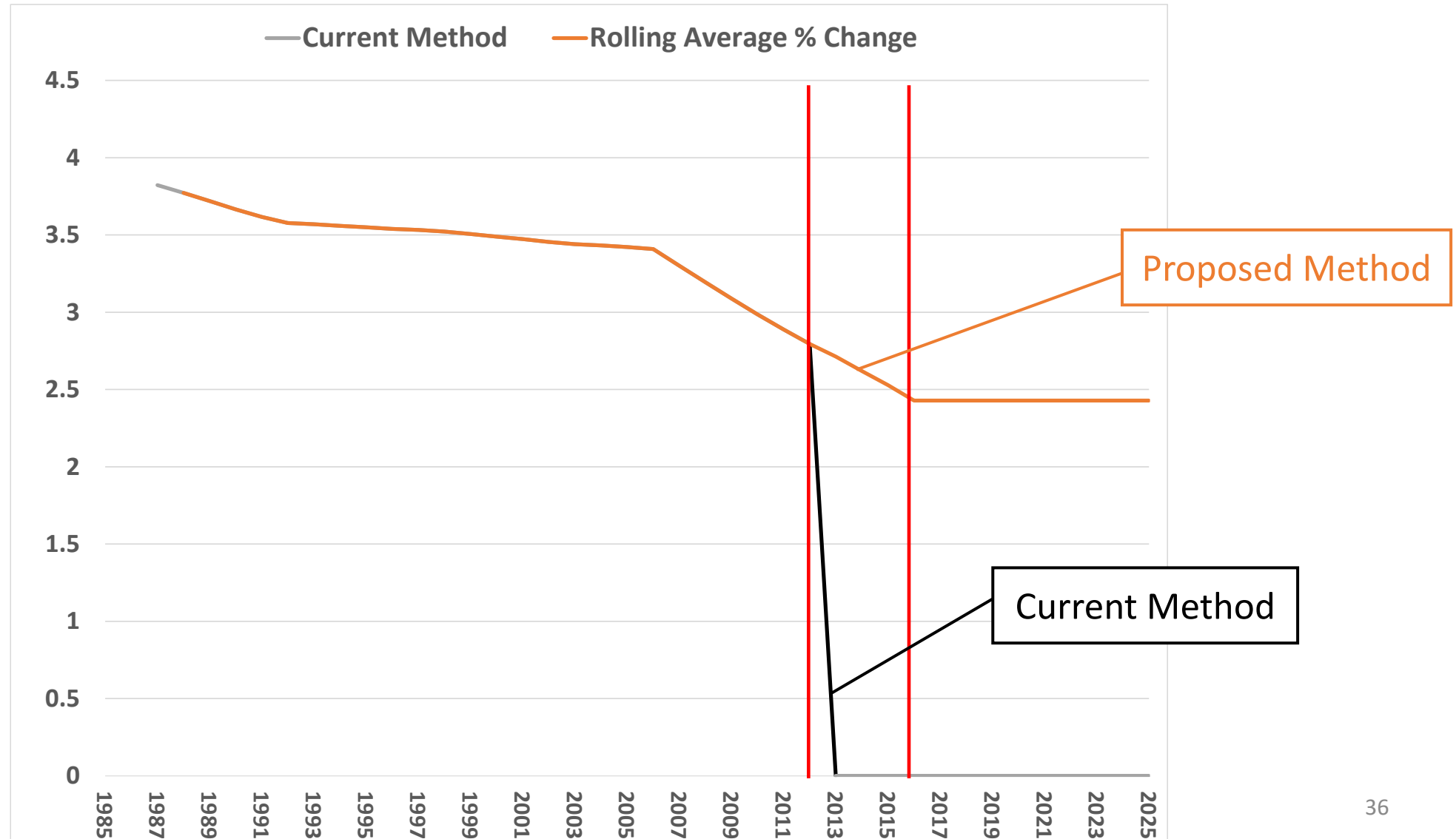
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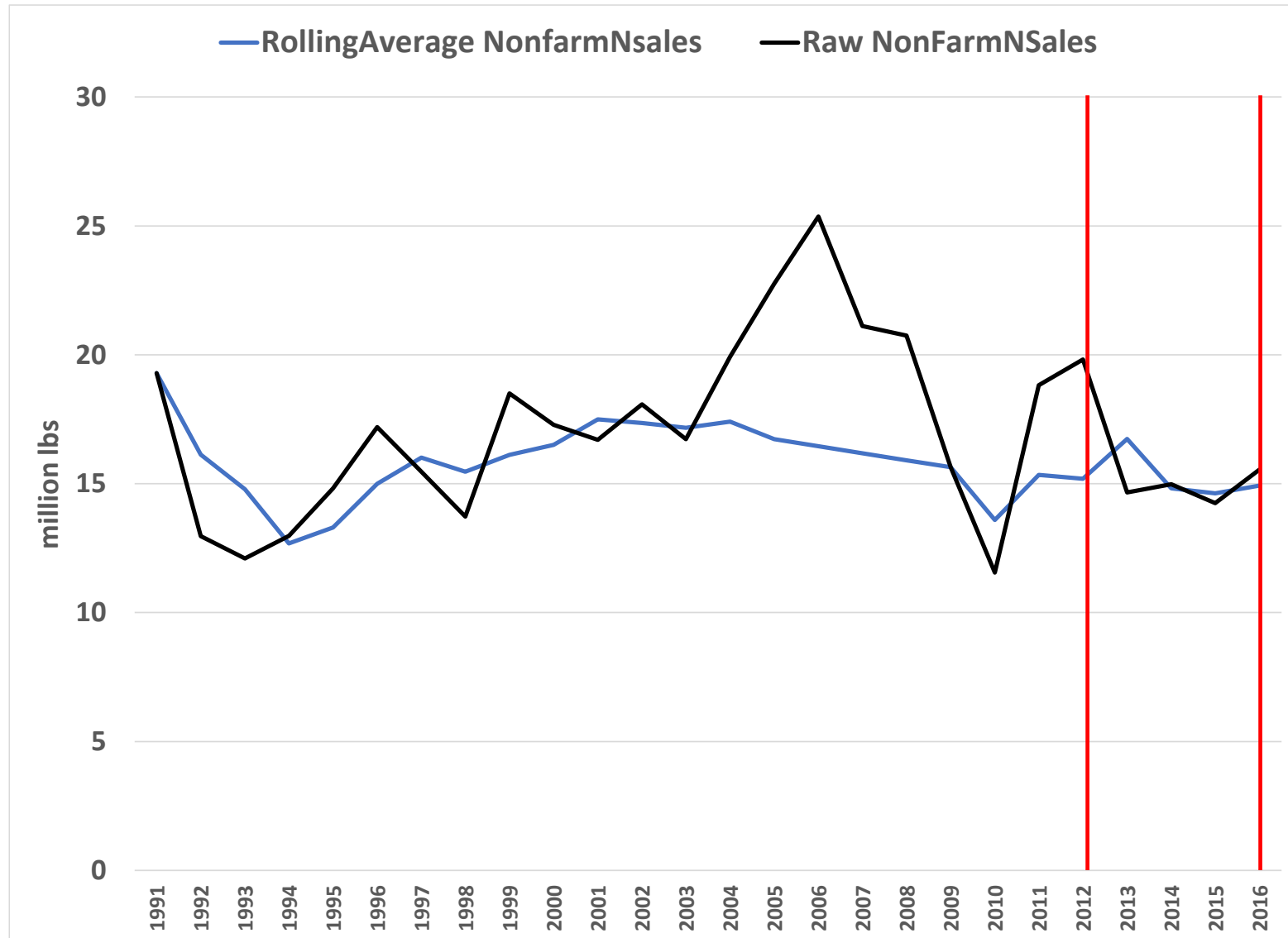
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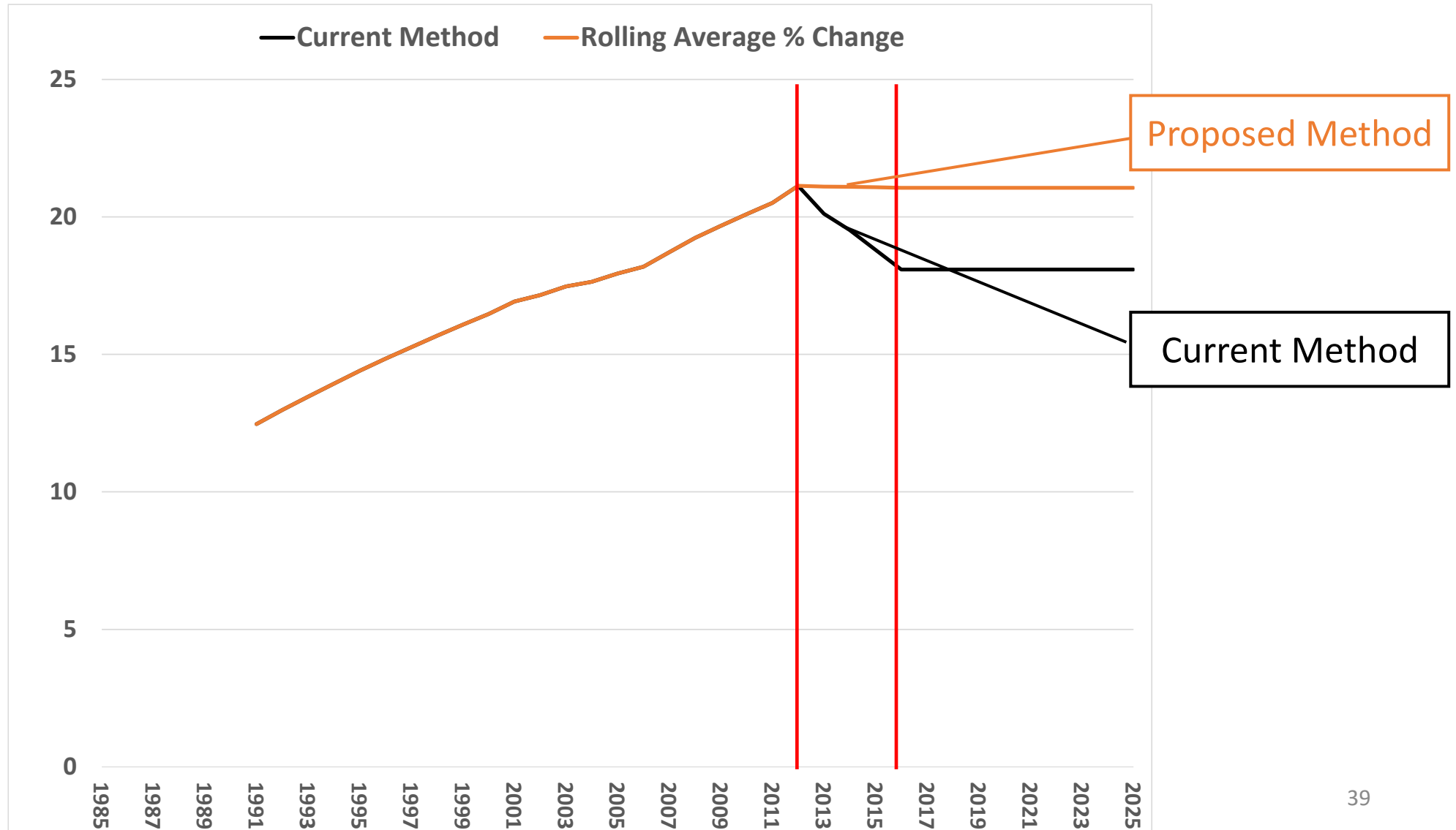


VIRGINIA

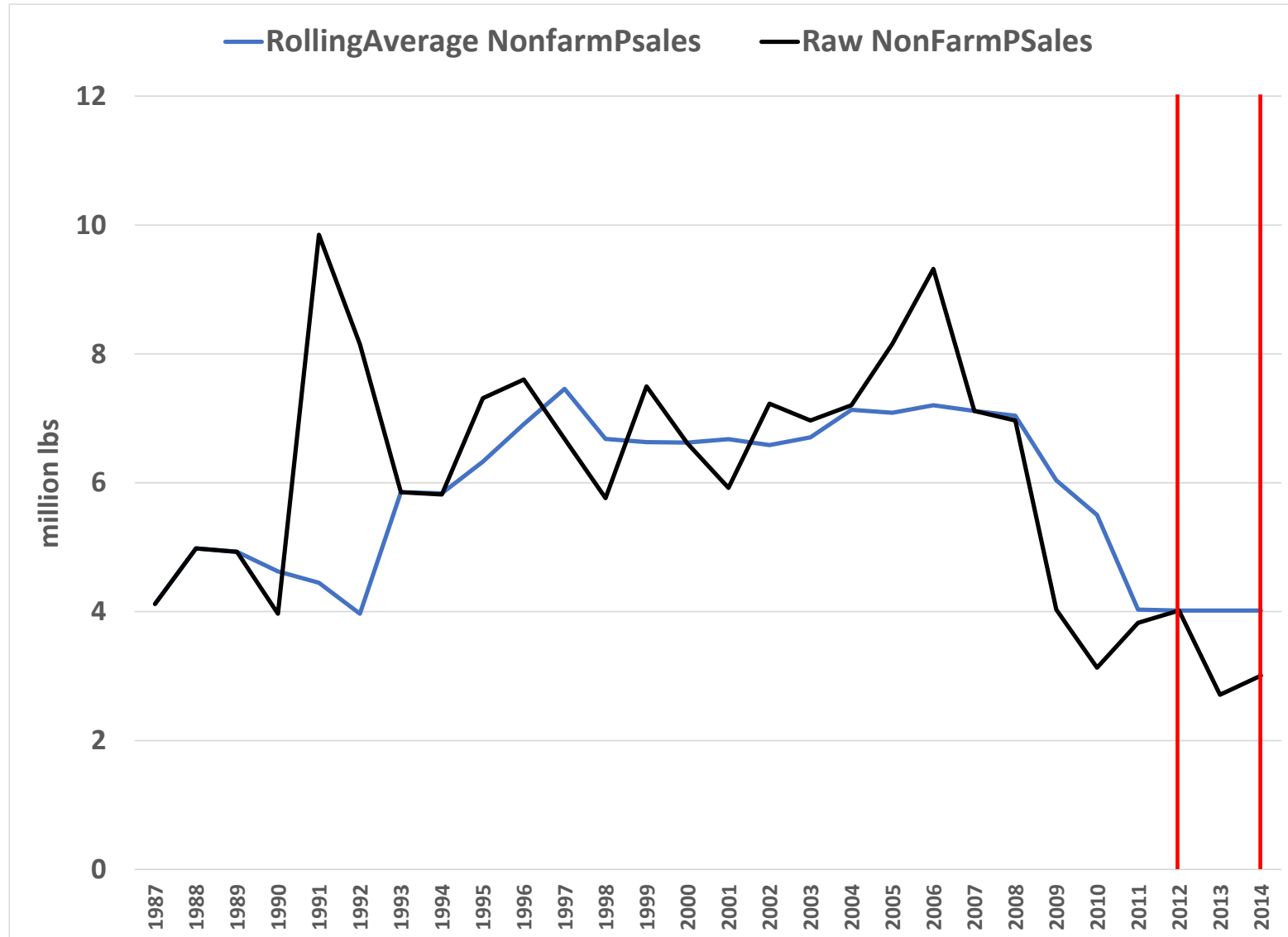
VA Pounds of Nitrogen Applied (1991–2016)



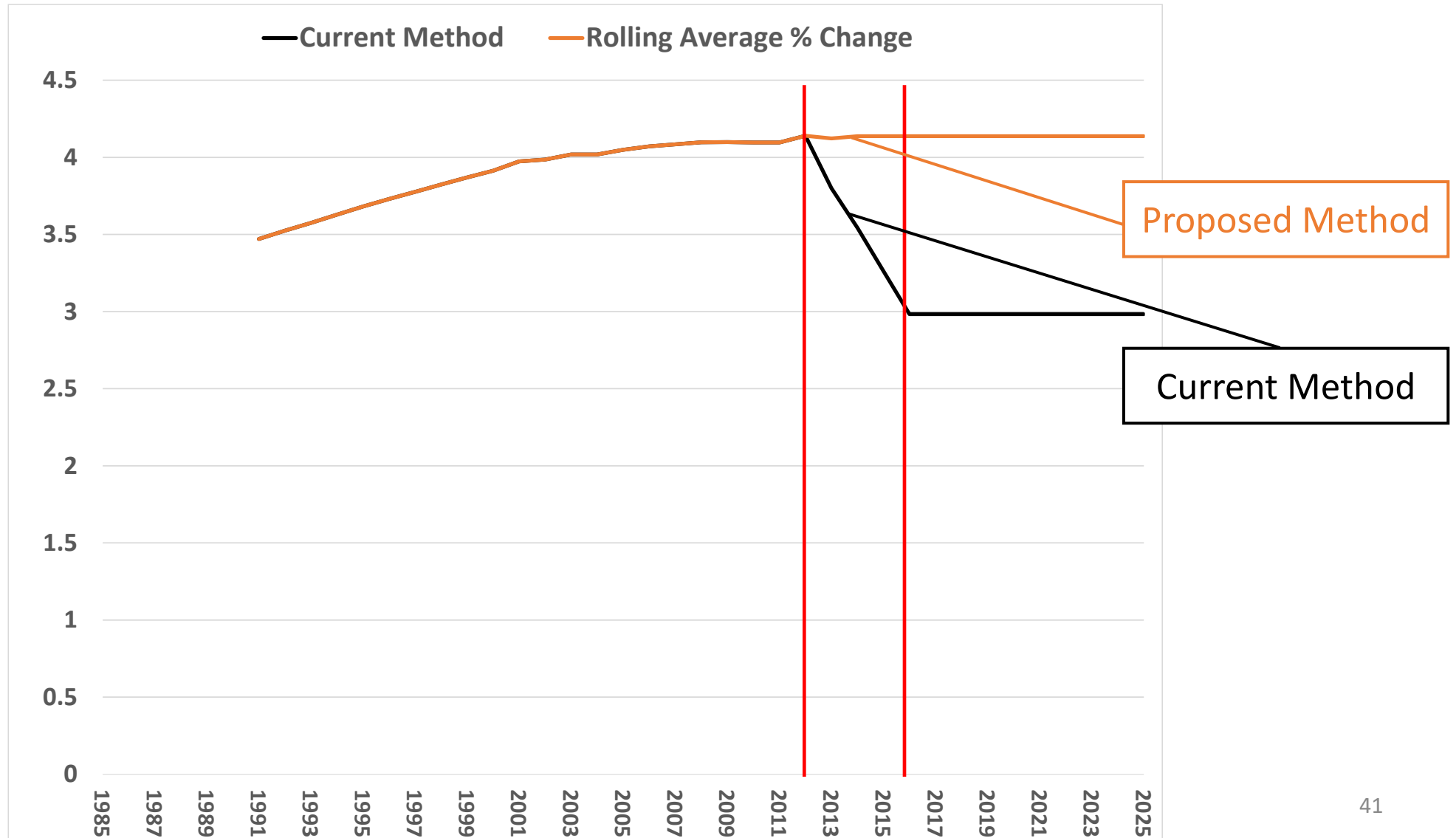
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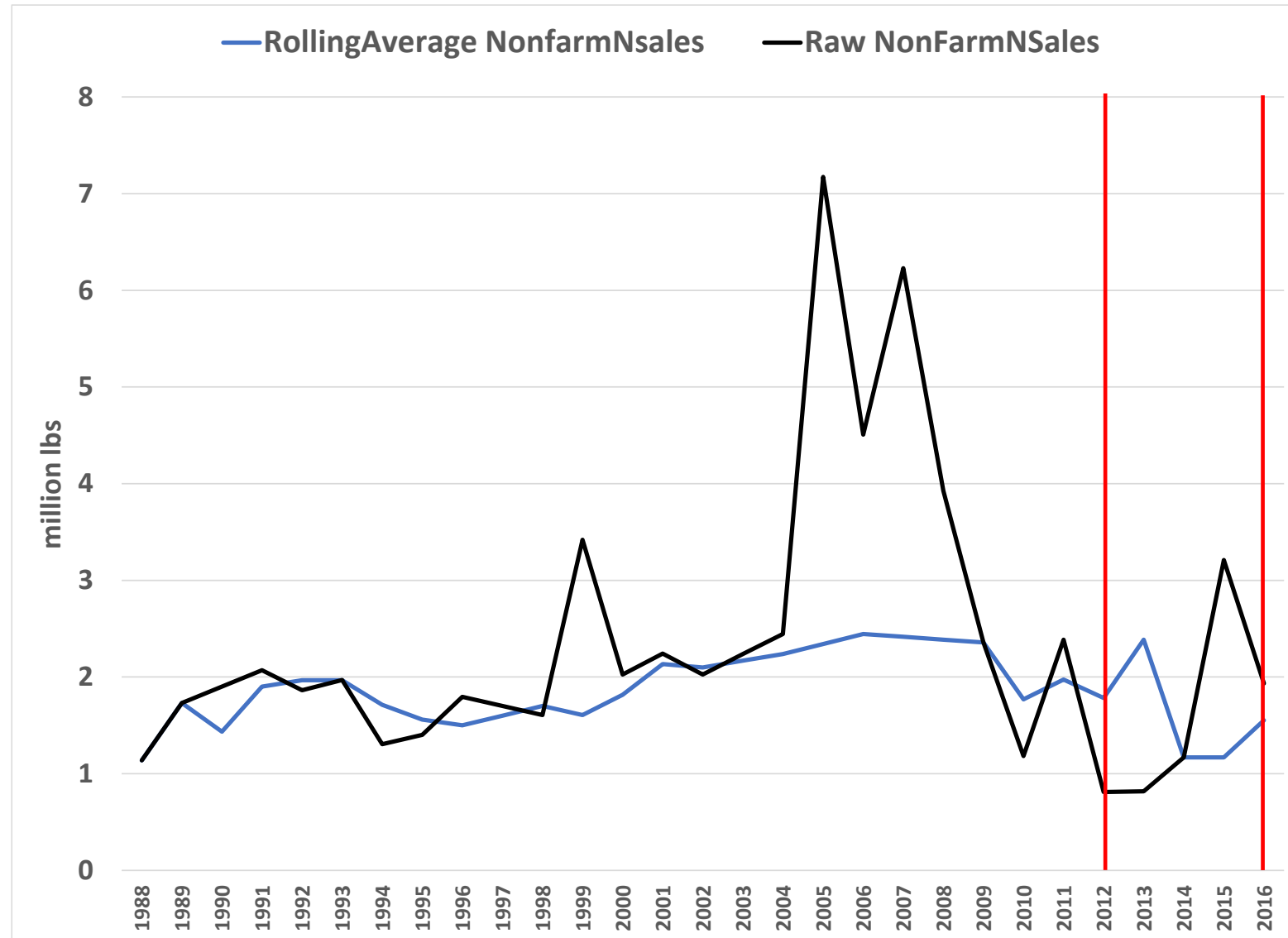
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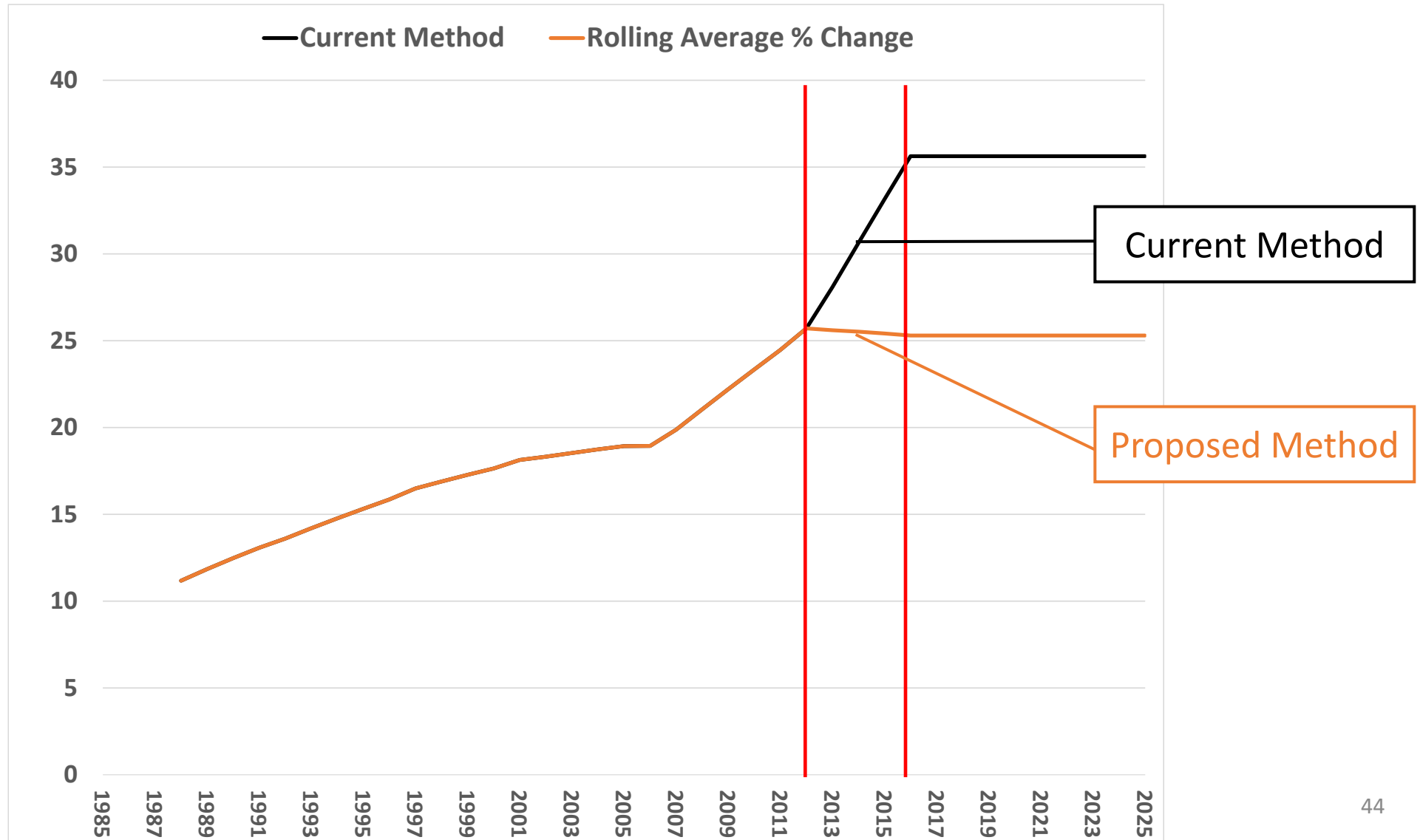


DELAWARE

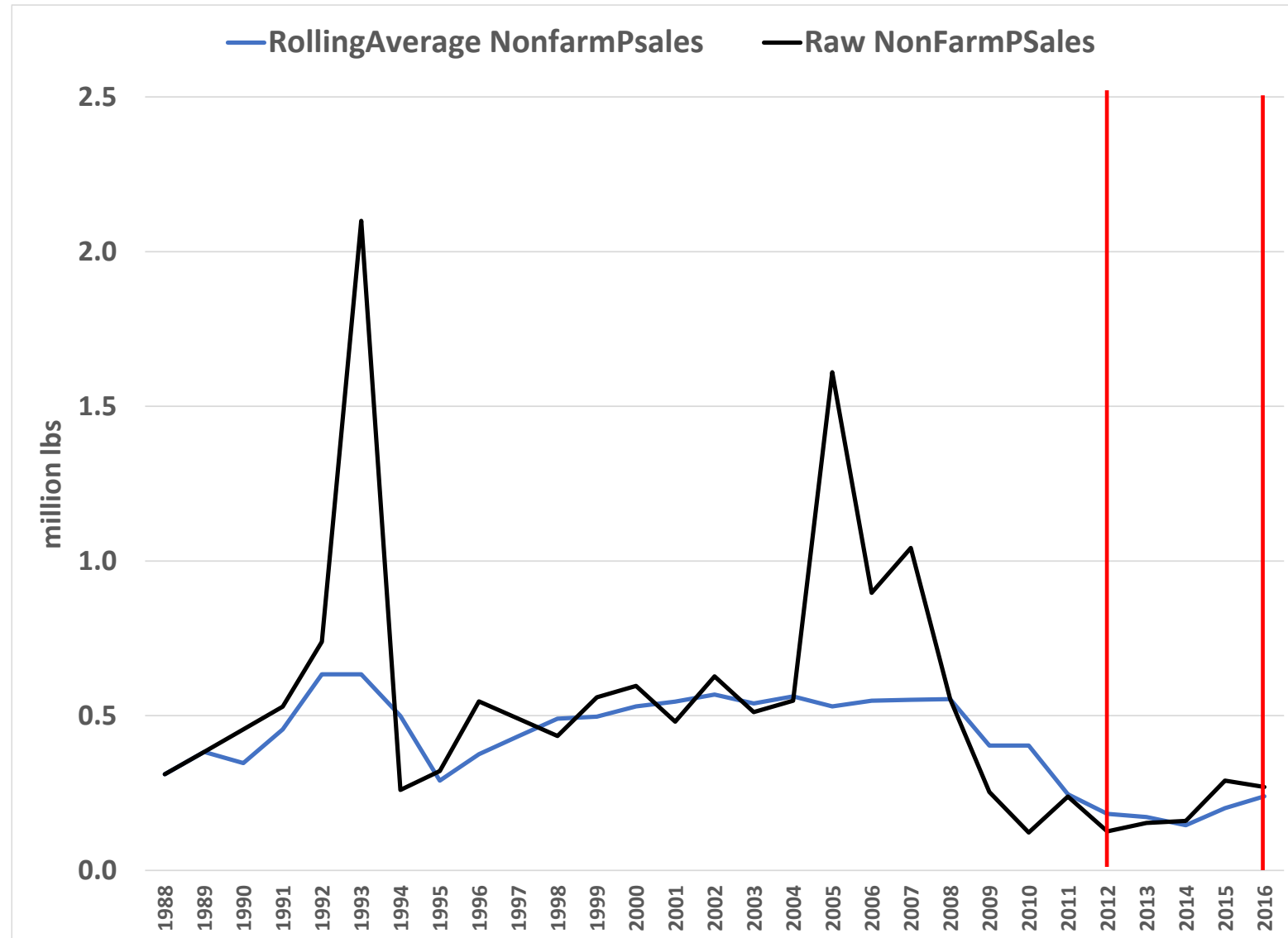
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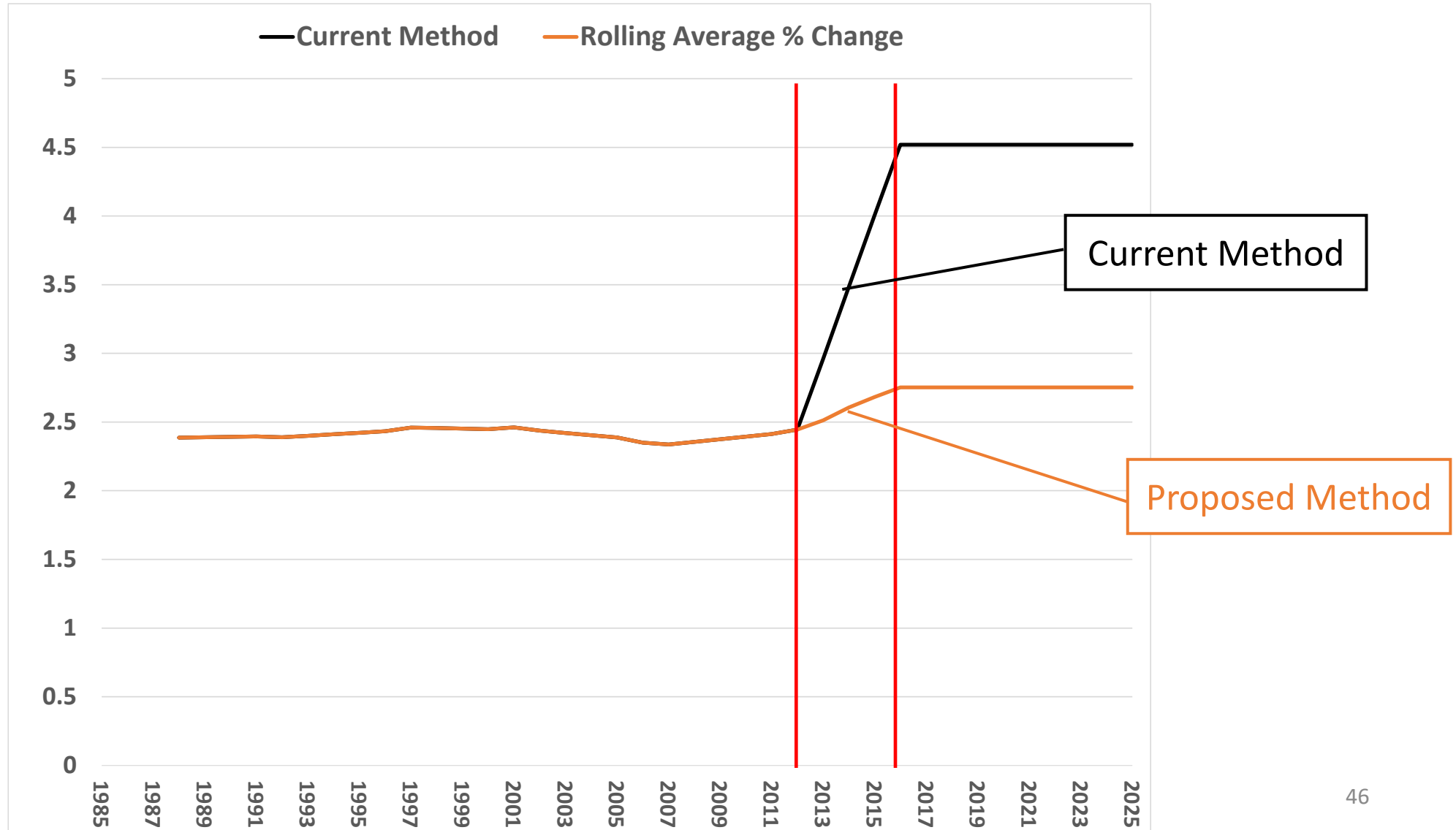
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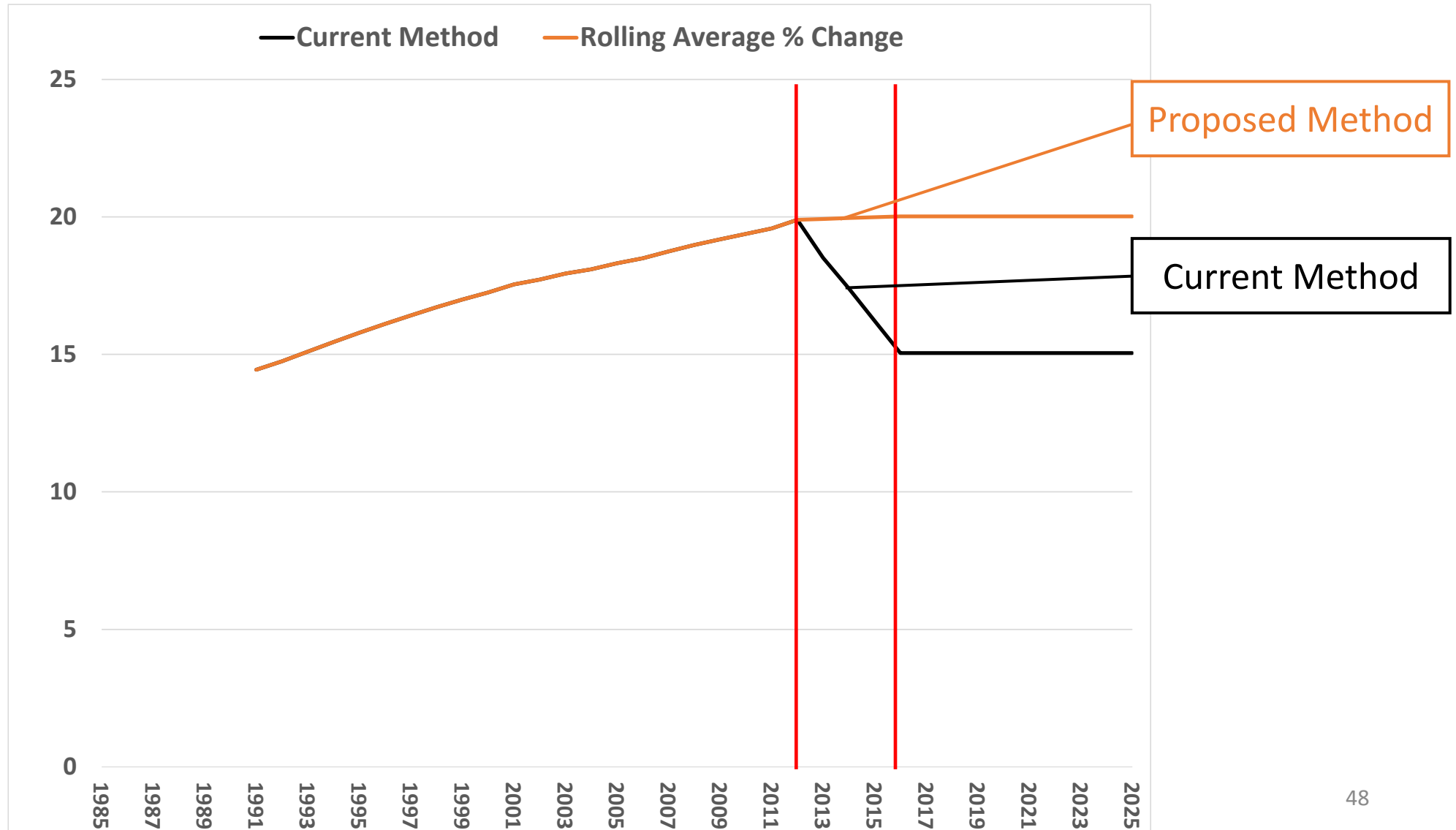
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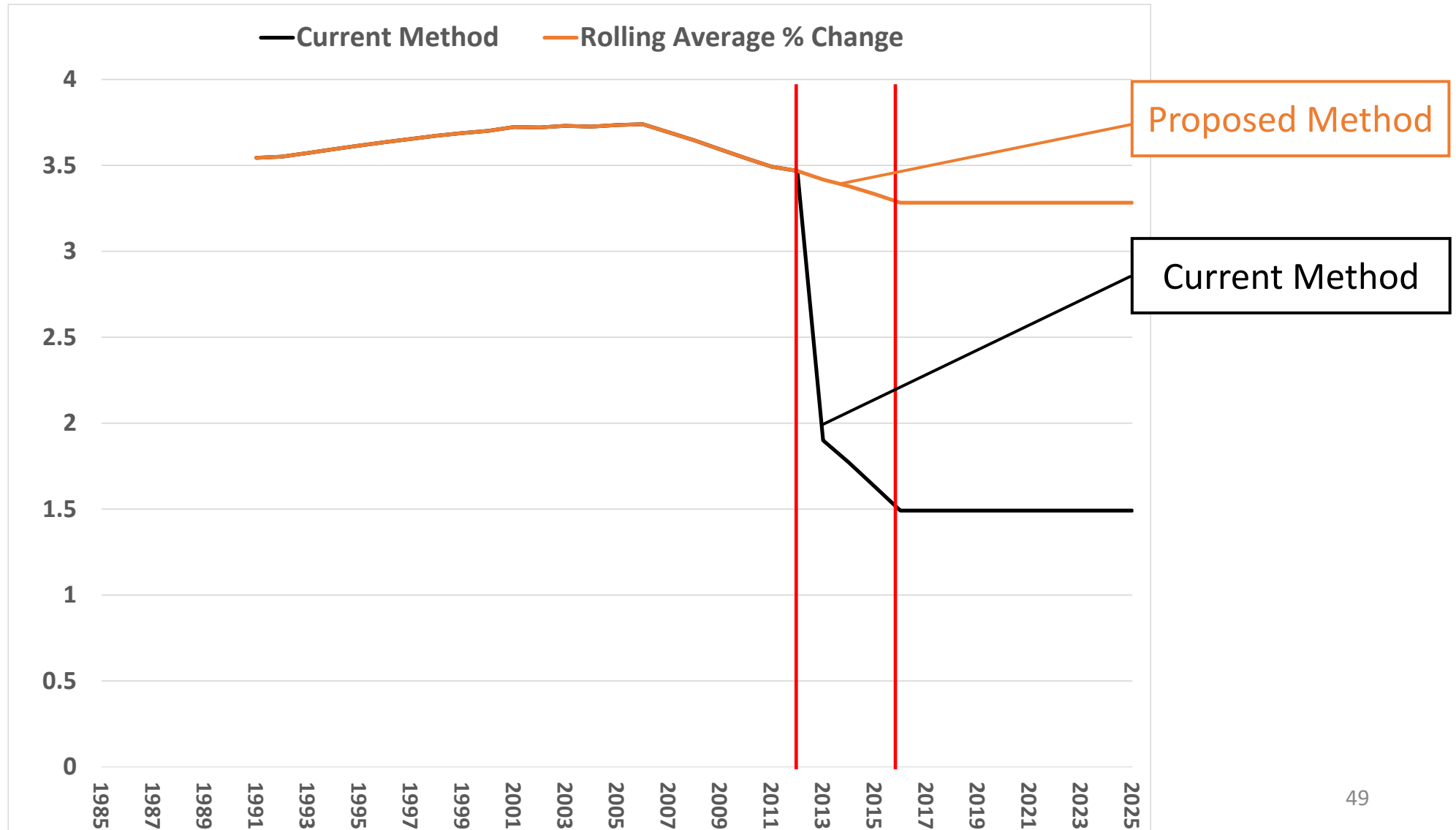


DISTRICT OF COLUMBIA

DC Turf Grass Pound/Acre Nitrogen Applications (1988–2025)



DC Turf Grass Pound/Acre Phosphorus Applications (1988–2025)





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USWG Effort to Revisit Urban Fertilizer Application

Phase 1:

- Kick off in September 2022
- Small committee meets 2-3 times to develop and review short term options for improving urban fertilizer application based on current data sources.
- Rep from each state plus 1-2 at large, and a CAST rep.
- USWG seeks to approve new method by April 2023, hopefully sooner.